An Investigation of Parent and Caregiver Experiences of the Association between Attachment and Reading Disorder Tendencies in Children and the Effect on Self-Esteem Levels

Abigail Gordon
18132570
Supervisor: Dr. Brendan Cullen

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Abstract

Aims: The present study explored the relationship between reading disorder tendencies and attachment and examined the association between these variables on self-esteem levels. The study also examined gender differences in attachment scores for children with mild to significant reading disorder tendencies. **Method:** A questionnaire was distributed to participants (n=84) through social networking sites. Participants were recruited by convenience sampling and were a parent or guardian of a child aged 5 to 9 years old. The questionnaire consisted of questions regarding demographic information, The Colorado Learning Difficulties – Reading Subscale, The Attachment Q-Sort Questionnaire and The Behavioral Rating Scale of Presented Self-Esteem. **Results:** The results of this study indicated that reading disorder traits are associated with attachment levels to primary caregivers. It was also observed that reading disorder tendencies have an effect on self-esteem levels. Attachment levels did not show a statistically significant effect on self-esteem levels and no significant gender differences were observed on reading disorder tendencies. **Conclusion:** Findings provide a greater knowledge of the association between reading disorder tendencies, attachment, and self-esteem. The findings challenge the notion of gender differences in traits of reading disorders and demonstrate need for further investigation of reading disorder tendencies. On a practical level, the findings provide valuable information regarding self-esteem and reading disorder tendencies.

Contents

Literature Review

In modern society, the most frequent form of learning disability is dyslexia (Undheim & Sund, 2008). Dyslexia is referred to as a specific disorder associated with the reading process such as phonological awareness and letter recognition (NCSE, 2021). This reading disorder can significantly decrease confidence in children when impaired (Heydarpour et al., 2018). As it is referred to as a specific developmental disorder, development in other areas are often in accordance with developmental norms (Thambirajah, 2010). According to Undheim and Sund (2008), dyslexia is listed as a common cognitively and behaviourally diverse disorder which is predominantly characterized by major impediment of reading ability regardless of intelligence levels and sufficient education. The accuracy of reading, spelling, writing and processing language are impacted by this condition (Heydarpour et al., 2018). Heydarpour et al., (2018), stated that written language is often also defected by dyslexia as it is a form of language learning disorder.

Reading disorders are generally seen as an educational construct, although contemporary literature supports that not only education is impacted by dyselxia but also social and emotional life experiences (Carawan, Nalavany & Jenkins, 2015). Individuals with a specific learning disability frequently encounter internalising disorders such as feelings of stress, anxiety, sadness, depression and insecurity which can leave emotional scars that impact later in life (Carawan, Nalavany & Jenkins, 2015). Developmental dyslexia impairs not only cognitive aspects but also behavioural such as sleep regulation, mood regulation, dental occlusion, postural control and self-esteem (Carotenuto et al., 2017). With this in mind, particularly vulnerable stages including young childhood and the transition to adolescence require additional support to prevent adverse behavioural outcomes (Carotenuto et al., 2017).

Dyslexia can be identified in any child regardless of age, mental state, gender or geographical location, it has no boundaries (Undheim & Sund, 2008). At the pre-school stage delayed speech is a primary indicator of potential reading problems (Thambirajah, 2010). Children with developmental reading delays often experience difficulty in learning names of objects, colours, remembering the alphabet and struggle to recall nursery rhymes (Thambirajah, 2010). While there are some signs of early reading delays, dyslexia and reading disorders become prominent is the first two years of school or middle childhood when the child begins reading, writing and spelling more often in school (Thambirajah, 2010). Within school aged children, the incapacity to read is acknowledged as the most crucial inability with over 25% of students experiencing reading disorders (Heydarpour et al., 2018). Due to the literacy problems experienced by children with dyslexia, school often becomes an unenjoyable environment which they may begin to try avoid in order to prevent the feelings of shame and embarressment (Thambirajah, 2010). The psychological impact of the difficulties encountered when reading and writing can be traumatising for children (Thambirajah, 2010).

Children with reading disorders experience difficulties with interpreting some pieces of information they read and subsequently find it difficult to understand tasks (Commodari, 2013). Young people who have difficulties with these decoding skills also experience impaired ability to fully understand conversations and facial expressions which results in social barriers (Heydarpour et al., 2018). Studies such as Heydarpour et al., (2018), which investigate reading conditions have identified more emotional and behavioural difficulties in children with dyslexia in comparison to children without. Undheim and Sund, (2008), stated that in mental health the concept of self-esteem is growing and is of crucial to acknowledge in children with dyslexia as they have shown to be more vulnerable to low self-esteem, however it is underrepresented in current literature (Al-Yagon & Margalit, 2006). It has been

stated that when self-criticism is increased, self-esteem is lowered which can influence depressive symptoms, poor academic performance, and psychological distress (Undheim & Sund, 2008).

Heydarpour et al., (2018), stated that self-esteem contributes to the development of not only personality but also emotional and social relationships and acceptance which can identify many concerns with childhood attachment. Grigorenko, (2001), also believed it was of major importance to highlight the relationship that social factors have on dyslexia and the formation of attachments. The academic issues children with reading disorders experience are associated with psychosocial problems they may display such as reduced motivation in school work, innattentiveness in tasks, fear of failing, school drop out and lonliness (Carotenuto et al., 2017). Studies which have compared groups of individuals with and without learning difficulties have supported the idea that children with a learing disorder experience greater levels of frustration due to academic difficulties and low levels motivation and self-concept (Willcutt et al., 2011). High levels of stress have been identified in children who experience reading and writing difficulties and rely on support for their work from primary caregivers and teachers (Undheim & Sund, 2008).

Additional research has supported that children, adolescents and adults with developmental dyslexia are more vulnerable to low self-esteem (Ryan. 2021). Self-concept expresses the extent to which an individual identifies themself as worthy and capable while low-esteem levels result in feelings of unworthiness, inabilities, and weaknesses (Daderman, Nilvang & Levander, 2021). Self-esteem is considered to be an intricate concept which focuses on one's overall self-worth, social capability, problem- solving ability, academic ability and individual skill and worth relative to others (Carawan et al., 2015). Self-worth is a critical concept as it has been displayed to be significant for one's psychosocial adjustment, ability to perform, and overall sense of well-being (Carotenuto et al., 2017). Emotional

experiences with reading disorders may stem from residing in a culture that associates knowledge with educational and occupational success (Carawan et al., 2015). The expectations of society placed on children with developmental delays to excel can result in poor perceptions, misinterpretations, stereotypes, and discrimination (Gibby-Leversuch, Hartwell & Wright, 2021, Carawan et al., 2015). Children by definition are reliant on care givers, and consequently their relationships impact their life experiences (Rees, 2007). Support from family and primary caregivers influences positive self-esteem in those who experience the difficulties associated with reading disorders and the adaptation to altering surroundings (Carawan et al., 2015).

Children require most support from their family environment which is the main and strongest element for development of personality, esteem, beliefs, and attachment in children and has shown to alter behaviour (Heydarpour et al., 2018). Attachment theory was introduced by Bowlby and Ainsworth to describe the changing aspects of interpersonal relationships which contribute towards life alterations (Commodari, 2013). The Attachment Theory proposed by John Bowlby, 1969, refers to the universal human need to form close emotional bonds. It is proposed through this theory that children's bonding relationships profoundly influence development (Vandesande et al., 2018). Attachment is an influential emotional connection between a child and their caregiver which both individuals strive to maintain (Commodari, 2013). Caregiver support in assisting to find niches or areas to fit their strengths and by offering emotional support can help with distressing emotional experience which is important for increasing self-esteem (Carawan et al., 2015).

Parents are often concerned about their child's academic underachievment although with their understanding, school support and further help from children and adolescents mental health service for secondary effects of dyslexia can enhance a child's abilities (Thambirajah, 2010). Children with specific learning disorders often display significant levels

of skills and intelligence in areas such as woodworking (Raskind & Goldberg, 2021) and once they have identified their strengths generally do not present behaviours which would recognise them as having significant emotional pathology (Berman, 1979). Parents of children with developmental delays also experience stress as they must support their child when the pressure of unrealistic expectations are placed on their child in school and social environments (McConnell & Savage, 2015). Individuals who relate closely to children who are subject to these conditions must become more sensitive to the frustrations, conflicts and coping problems presented by this growing population (Berman, 1979). No two people are completely identical and for that reason not all children with learning disorders are alike and experience the same conditions (Berman, 1979). Many factors associated with reading disorders can make parenting more difficult (McConnell & Savage, 2015), for example some factors considered are activity level of the child, impulsivity of the child, type of learning disorder and how long a child has been without effective resource in school (Carawan et al, 2015).

A broad body of research has been presented to document the issues associated with the development of language in children however, not much focus has been put on emotional concerns and attachment issues of children with developmental delays (Undheim & Sund, 2008). Attachments often vary significantly in all children as a consequence of the level and type of care received from their primary caregivers (Vandesande et al., 2018). According to Undheim and Sund, 2008, many studies have identified that improved bond quality to care givers results in greater physical health due to decreased levels of stress and increased emotional support. Vandesande et al., 2018, acknowledged that children use attachment figures as a secure base to explore and experience their surroundings. Parent-child bond is known as attachment which plays a pivotal role in the development and wellbeing of all young children (Alexander, Frederico & Long, 2018). The establishment of a secure

attachment between a child and their primary caregiver enhances the likelihood of positive outcomes in social and emotional development (Alexander, Frederico & Long, 2018). Children begin the process of self-discovery in early childhood and the emergence of a positive self-concept is crucial for social and emotional development (Brown et al, 2009).

Beginning in childhood and continuing throughout life the mental health of a person depends largely on the ability to have a relationship with reliable figures that can provide emotional support and protection (Richaud, Mesurado & Minzi, 2019). Attachment Theory (Bowlby, 1969) supports the importance of a child's needs to establish an effective bond or an attachment with their primary caregiver. This primary caregiver is quite often the mother, this primary care figure is responsible for responding to the signals and emotional reactions the child displays and the responses assist them with learning how to regulate their emotional system (Richaud, Mesurado & Minzi, 2019).

Behavioural patterns which reflect secure and insecure attachments differ significantly (Vandesande et al., 2018). While there are other attachment styles evident including resistant, avoidant and disorganized according to Ainsworth, 1979, for the purpose of this research we will primarily focus on secure and insecure attachments which children experience. Findings have suggested that secure attachments can provide support against stress associated with intellectual disabilities (Vandesande et al., 2018). Secure attachment is threatened by parent's insensitive responses to children attempting to signal their needs (Commodari, 2013). Various measures have been established in order to understand and evaluate forms of attachment such examples include the popular Strange Situation Procedure, and a more recent approach named the Attachment Q Set, which was introduced for use in more natural settings (Commodari, 2013).

Commodari, 2013, stated that many studies have identified that secure attachments encourage positive consequences in aspects of self-esteem, well-being and life satisfaction.

Matas, Arend, and Sroufe, 1978, found that children as young as 2 years old with secure attachments display greater persistence and efficacy on cognitive tasks. In comparison, children with insecure- disorganized attachment have been seen to perform poorly on deductive reasoning tasks and were likely to be strongly inhibited from engaging in cognitive transactions with their environment (Commodari, 2013). According to Moss, Cyr and Dubois-Comtois, 2004, a child who is securely attached reaches the ability to be self-reliant as they communicate with care givers easily and discuss personal obstacles.

Children with secure attachment were identified by Commodari, 2013, to be less likely to develop learning disorders and exhibited greater levels of language, cognitive and psychomotor abilities. Al-Yagon (2003), found that secure attachments are a protective factor in maintaining emotional adjustments among children with mild developmental delays. The link between parental attachment security and school success has been investigated by few researchers and the focus has been provided to children with secure attachments who show higher attention skills and attitudes towards reading compared to insecurely attached children (Commodari, 2013). School age children who display insecure attachment styles show lower verbal and math abilities, reading comprehension and overall academic achievement than securely attached children (Rees, 2007). Positively secure attachment influences children's success in school as it is associated with higher grades compared to insecure attachment (Bergin & Bergin, 2009). Attachment is a deep and enduring affectionate bond that connects one person to another across time and space (Bergin & Bergin, 2009). Attachment relationships are characterised by specific behaviours in children (Bergin & Bergin, 2009).

A growing body of research chronicles the negative long-term socioemotional correlates of insecure and disorganised attachment in childhood (Cadman, Belsky & Pasco Fearon, 2018). It is important to identify infants at risk of insecure attachment at an early age so that interventions can be offered. Attachment researchers have developed a unique

assessment of the Attachment Behaviour Q-Set which allows an infant to be assessed in settings which are secure and comfortable for parent child interaction (Tarabulsy et al., 2008). Highlighted that Waters & Deane, 1985 suggested that no significant differences in mothers as observers. It is advantageous to include mothers as observers as they know the child best. These studies suggest that children who display insecure attachment patterns are most vulnerable to developmental delays, adverse childhood experiences and low self-esteem as a consequence of the absence of a supporting bond with a primary caregiver.

The Current Study Rationale and Hypotheses

The aim of this study was to investigate if there is a relationship between reading disorder tendencies and low levels of attachment to a primary caregiver. The study also aimed to assess the effect these variables have on self-esteem. The differences between gender and these factors were also addressed. As the sample of interest was children aged 5 to 9 years old, we aimed to recruit parents or primary caregivers of children of this age group to investigate through their perspective as they are the most aware of their child's abilities. The reason a parent's perspective was utilized for this study was due to the fact that some children in this age group experience difficulty in the area of reading and writing and the questionnaires would not be easy for children to comprehend. Not much studies have been considered through a parent or guardians' perspective and therefore we aimed to observe this area.

Hypothesis 1: We hypothesise that children who display significant reading disorder tendencies will show lower levels of attachment to caregivers.

Hypothesis 2: We hypothesise that people with more significant reading disorder tendencies and lower levels of attachment will be associated with low levels of self-esteem.

Hypothesis 3: Males with reading disorder tendencies will show lover levels of attachment compared to Females.

Method

Participants

The initial sample consisted of 182 individuals, due to incomplete questionnaires and more than one answer on scales which required one answer only, 98 participants were excluded. The final viable sample consisted of 84 participants. Participants were recruited through convenience sampling as was the most time efficient method which was easy to implement among the population required. Online platforms such as Facebook, Instagram and research groups were used to gather participants. A brief description of the study and a link were distributed onto these platforms. Participants for this study were required to be 18 years old or older in line with ethical considerations and guidelines and were required to be a parent or guardian of a child between the ages of 5 to 9 years old, this age group was the population of interest for this investigation and the information needed to come from a parent or guardians' perspective. No incentives were used for recruitment, participation was voluntary. Participants were required to provide informed consent by ticking a box before gaining access to complete the questionnaire.

Sample size required for the study was calculated by using Tabachnick & Fidell's 2013 formula. This formula suits this study as it is used to calculate sample size for multiple regression which was used for analysis. The formula is $N>50+8m$ where N= number of participants and m= number of predictor variables. The minimum sample size required for this study was n=66. From the sample of this study which consisted of 84 parents or guardians of children aged between 5 to 9 years old, the parent or guardian reported their child's age (Mean age of 7.36 & SD = 1.49), gender (Male: n= 41, Female: n=42 & Prefer not to say: n=1) and geographical location where they reside. Participants reported their child's home with majority of participants from Ireland (n=69) and the remainder of participants were from UK (n=11) and USA (n=4).

Measures/Materials

The study questionnaire comprised of demographic questions and three measures which were merged using Qualtrics the survey building platform. The variables of interest were measured using the following questionnaires.

Demographics

The participants were asked demographic questions to gain a basic report of the participants child. The participants were asked to specify their child's gender (male, female or prefer not to say) and their child's age (5-9 years old) as this was the population of interest for the study. The participants who were recruited were parents or guardians of a child in this age group and all parents or guardians were required to be aged 18+ for ethical considerations. Participants were also asked to confirm the geographical location where they reside.

Colorado Learning Difficulties Questionnaire – Reading Subscale (CLDQ-R)

The Colorado Learning Difficulties Questionnaire – Reading subscale is a screening tool which was designed to assess the risk of a reading disability such as dyslexia in school aged children and it is not a formal evaluation. The scale was constructed by Willcutt et al., 2011. The CLDQ-R is a report scale which can be used by parents, guardians, or teachers to provide developmental observations of a child's reading ability. The questionnaire requires a sufficient level of knowledge of the individuals reading and learning ability. The total score from the scale aims to assist with detection of characteristics and risk of reading disorder.

The questionnaire is made up of six items/statements which must be read and then the observer must decide how well the statement describes the child on a 5-point likert scale with the following anchors, 1. Never/ Not at all, 2. Rarely/ A little, 3. Sometimes, 4. Frequently/ Quite a lot, and 5. Always/ A great deal. The appropriate circle must be selected for each item. The questionnaire is scored by adding scores of the selected item on the likert scale

from 1 to 5 for example never =1. Total score is then reported, and total scores can range from 6 to 30. Participants with a total score of less than 16 are classified as having minimal risk of reading disorder tendencies, participants scoring between 16 and 21 are classified as having moderate risk of reading disorder tendencies and finally scores above 21 are classified as having a significant risk of reading disorder tendencies. The Cronbach's Alpha was calculated for this measure and the value (a = .91) was found, this indicated a high level of internal consistency for the scale for this specific sample. No reverse coding was necessary for this measure for analysis as all items were worded similarly.

Attachment Q-Sort Questionnaire (AQSQ)

The Attachment Q-Sort is a behaviourally specific scale developed by Waters, Kondo-Ikemura, Posada and Richters, 1990. The measure evaluates secure base behaviour which has earned considerable appreciation in Attachment Theory. Initially, this scale included 100 items although this was reduced to 90 items. Vaughn and Waters, 1990, identified 22 items which differentiate between secure and insecure attachment on the 90-item measure. Robinson, 1994, identified statistical significance for 12 of these items. Robinson, 1994, developed the Attachment Q-Sort Questionnaire which consisted of these 12 items to reduce participation time and focus on items of significance (Robinson, Rankin & Drotar, 1996).

The items were reworded to direct questions to parents. A 9-point likert scale was used to rank items. Items which are most like the child are placed towards one side of the distribution (most like my child, like my child = ratings are 7, 8, 9), whereas items which are most unlike the child are at the opposite end (very unlike my child, unlike my child = ratings are 1, 2, 3). Ques were included for low score items for example, Low Score: Accepts your help readily unless you are in fact interfering. The questionnaire is scored by adding scores of the selected item on the likert scale from 1 to 9. Total score is then reported, and total scores

can range from 12 to 108. Participants with a total score of less than 69.71 are identified as displaying less secure tendencies and total scores above 69.71 are identified as showing more secure tendencies. The Cronbach's Alpha was calculated for this measure and the value (a = .45) was found; this indicated a moderate level of internal consistency for the scale for this specific sample. Reverse coding was conducted for this measure for analysis to recode negatively phrased items.

The Behavioral Rating Scale of Presented Self-Esteem for Young Children

This rating scale was constructed by Haltiwanger and Harter in 1988 and was created for assessing young children's behavioural manifestations of self-esteem such as self-confidence, independence, and initiative. The scale consists of 15 items, selected based on a Q-sort placement of behavioural descriptions. Items are rated on a 4-point scale and have a structured alternative format. The 15 items include 2 clusters of items that were somewhat conceptually different although were highly related. The first category included more categories (9 vs 6) and reflected active displays of confidence, curiosity, exploration, initiative and dependent goal setting which defined high self-esteem.

The individual completing the questionnaire must select which description best fits the child and the choose if the child is 'very much' (score 1 or 4) or only 'sort of' (score 2 or 3) like the child in the description. Items are scored from 4 to 1 for positively worded items on the left side and 1 to 4 for negatively worded items on the left side. The 15 items are then summed and divided by 15 to achieve the total self-esteem score. Scores from 3.5 to 4 identify very high levels of self-esteem, scores from 2.5 to 3.4 indicate moderate self-esteem, scores from 1.5 to 2.4 indicate low self-esteem and lastly, scores which are from 1 to 1.4 identify exceeding low self-esteem levels which should be treated as cause for concern. The Cronbach's Alpha was calculated for this measure and the value (a = .80) was found; this

indicated a high level of internal consistency for the scale for this specific sample. Reverse coding was conducted for this measure for analysis to recode negatively phrased items.

Design

The current study used a quantitative, cross-sectional design as all data was collected once at a specific point of time and data was collected by employing surveying research techniques. The predictor variables (PV) for this study included attachment and reading disorder tendencies and the criterion variable (CV) was self-esteem. Between-subjects design was employed for hypothesis 2 as different groups of gender (male, female and other) were considered to assess gender differences of score.

Procedure

Initially, the questionnaire was distributed to three people as part of a pilot study to establish an approximate length of time the survey required and to ensure that there were no issues encountered with the questionnaire. The average time of completion was identified as 8 minutes and the information sheet was updated to 10 minutes. Minor issues were found which included allowing multiple answers on single answer questions and allowing participants to continue without answering all questions. These problems were fixed to ensure they would not arise again and result in void responses. Data collected from the pilot study participants was excluded from the analysis.

Participants for the study were recruited by convenience sampling. A brief description of the study including eligibility criteria a long with a link to participate was disseminated to online social media platforms. The programs which were used to circulate the survey link were Facebook, Instagram and Research groups. Data was collected online through Qualtrics. When individuals opened the link to participate, the initial page of the survey they were presented with was the Information Sheet (see appendix 1) which contained information regarding the aim and purpose of the study, what was required of the individual when

participating, the eligibility criteria, and possible risks and benefits. Participants were also informed of their right to withdraw at any stage of the survey without any penalty. No incentives were offered for participation. Once participants confirmed to continue by selecting next a consent form was presented (see appendix 2). Participants then had to read through this and confirm consent by ticking a box, they then could continue to the questionnaire.

The questionnaire consisted of the following three measures, The Colorado Learning Difficulties Questionnaire – Reading subscale, the Attachment Q-Sort Questionnaire and The Behavioral Rating Scale of Presented Self-Esteem for Young Children. The questionnaire also included demographic questions. Once each questionnaire was completed, participants were then provided with a debriefing form, (see appendix 3). The debriefing form included information regarding confidentiality, contact details for the research supervisor and the research conductor and some information for services available. Data was then recorded on Qualtrics and computed to SPSS.

Ethical considerations

The study was granted approval by the National College of Ireland's Ethics Committee and is in line with The Psychological Society of Ireland Code of Professional Ethics (2010) and the NCI Ethical Guidelines and Procedures for Research involving Human Participants. All data which was collected was collected in accordance with NCI guidelines and were stored on an encrypted USB device. Risks and benefits of participation were outlined on the study information sheet and the informed consent sheet. Participants were informed that all data collected was unrecognisable and the only person with access to this was the research conductor. Contact details were provided should participants have had any concerns.

Results

Descriptive Statistics

Descriptive statistics for demographic variables were preformed and are presented in Table 1 below. The sample consisted of 84 participants (n=84). From this sample, 48.8% of participants were Male (n=41), 50.0% were female (n=42) and 1.2% preferred not to say (n=1). A large proportion of participants 82.1 % (n=69) were from Ireland, 13.1% (n=11) lived in the UK and 4.8% (n=4) lives in the USA.

Table 1

Table for frequencies for the current sample on each demographic variable (N=84)

Variable	Frequency	Valid %
Gender		
Male	41	48.8
Female	42	50.0
Prefer not to say	1	1.2
Geographical Location		
Ireland	69	82.1
UK	11	13.1
USA	4	4.8

Descriptive statistics were also performed for continuous variables which are presented in Table 2. Means (M), standard deviations (SD) and range were obtained for each continuous variable. Participants ranged in age from 5 to 9 years old, with a mean age of 7.36 and a standard deviation of 1.49. Participant scores on the reading disorder tendencies scale (CLDQ-R) ranged from 6 to 30 and had a mean score of 16.74 and a standard deviation of

6.67. Scores on the Attachment scale ranged from 36 to 98 and the mean score was 69.71 with a standard deviation of 10.57. Self-Esteem scores ranged from 1 to 4 with a mean score of 3.02 and a standard deviation of .61.

Table 2

Table for Descriptive statistics for continuous variables (N=84)

Variable	*M* [95% CI]	*SD*	Range
Age	7.36	1.49	5-9
Reading Disorder Tendencies	16.74	6.67	6-30
Attachment	69.71	10.57	36-98
Self-Esteem	3.02	.61	1-4

Inferential Statistics

Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity were observed. The relationship between reading disorder tendencies and attachment was explored using a Pearson Product-Moment Correlation Coefficient. There was a significant, small positive correlation between the two variables ($r = .23$, $n = 84$, $p < 0.05$). Reading disorder tendencies helps explain for 5% of the variance in participants scores on the Attachment Q-Sort Questionnaire. The results indicate that high levels of reading disorder tendencies are associated with lower levels of attachment.

Table 3

Pearson's Correlation between Continuous Variables

Variable	1.	2.	3.
1. Reading Disorder Tendencies	1		
2. Attachment	.23	1	

3. Self-Esteem	-.27	-.13	1

Note: N=84; Statistical Significance: $p < .01$

Standard Multiple Regression Analyses were performed to identify how well self-esteem levels could be explained by the two independent variables reading disorder tendencies and attachment. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity and homoscedasticity. Tests for multicollinearity indicated that all Tolerance and VIF values did not violate the assumptions of multicollinearity. No priori hypotheses had been made to determine entry order of the predictor variables and therefore a direct method was used for analysis.

The model explained 7.7% of variance in self-esteem levels ($F(2,81) = 3.37$, $p < .05$). Of the two predictor variables, reading disorder tendencies was found to make a significant unique contribution to the prediction of the criterion variable self-esteem. The sig. value found was .03 ($\beta = -.25$, $p < .05$). The sig. value for the variable attachment was greater than 0.5 and therefore was found not to make a significant unique contribution. Reading disorder tendencies was identified to be the stronger predictor variable of self-esteem.

Table 4

Standard Multiple Regression model predicting self-esteem total score

Variable	R^2	B	SE	β	*t*	*p*
Model	.08					.04
Reading Disorder Tendencies		-.3	.13	-.25	-2.3	.03
Attachment		-.05	.08	-.07	-.66	.51

Note: R2 = R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N=84

A two-way between-groups analysis of variance was conducted to explore the impact of reading disorder tendencies and sex on levels of attachment s measured by the AQSQ. Participants were grouped into three groups according to their risk of reading disorder tendencies (Group 1: Minimal Risk, Group 2: Moderate Risk, Group 3: Significant Risk). The interaction effect between reading disorder tendencies and sex was not statistically significant $F(2,77) = .73$, $p = .48$. There was also no statistically significant main effect for reading disorder tendencies, $F(2,77) = .46$, $p = .63$. This indicated that males and females displayed no significant difference on attachment and similarly no great differences were observed with reading disorder tendencies.

The partial ETA squared (.01) for reading disorder tendencies indicated that the difference that is between groups is of little practical significance. Post-hoc comparisons using Tukey HSD test indicated that the three groups did not differ significantly from one another.

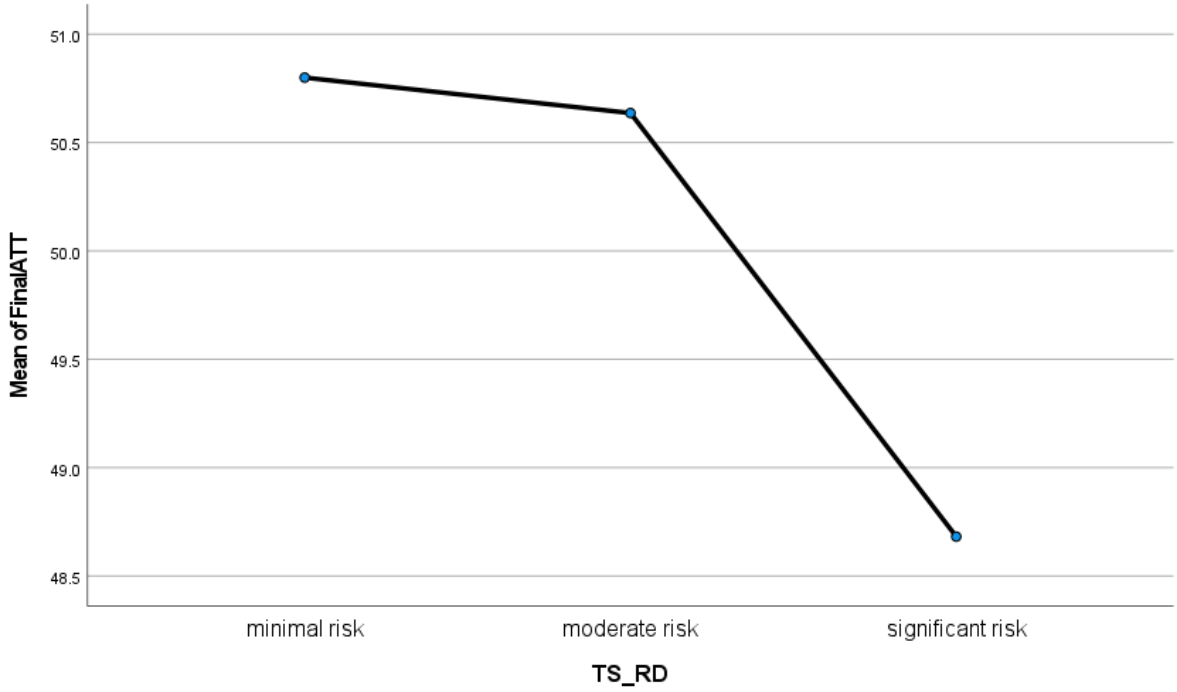

Fig 1: The above plot shows a decline in attachment scores when more significant tendencies of reading disorders are observed

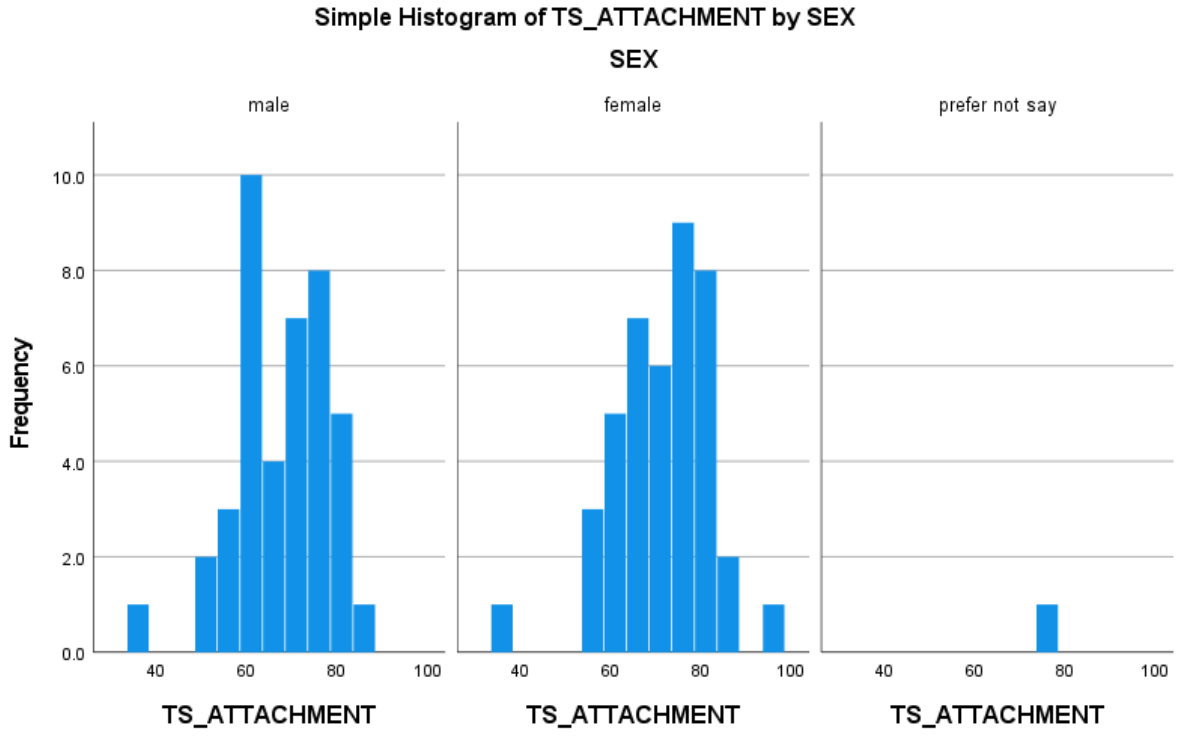

Fig 2: The above histogram displays the total attachment scores of males and females which did not significantly differ, one participant preferred not to provide gender details which can be seen in plot 3.

Discussion

Reading disorders have shown over the past decade to be on the rise cross-culturally (Undheim & Sund, 2008). These developmental impairments prove to be a challenge for young children and their parents (McConnell & Savage, 2015) and typically affect self-esteem levels, feelings of security and stress to name a few (Carotenuto et al., 2017). The current study aimed to investigate the relationship between reading disorder tendencies and attachment levels in children aged 5 to 9 years old from a parent's view. The study also aimed to assess if reading disorder tendencies and attachment scores had an effect on self-esteem levels. While a number of variables may influence levels of self-esteem, this study investigated contribution of gender, reading disorder tendencies and attachment levels. Prior findings have highlighted that self-esteem and confidence levels in children may be significantly decreased due to reading impairments (Heydarpour et al., 2018). When self-criticism is increased, self-esteem has been observed in previous studies to be negatively impacted (Undheim & Sund, 2008). Previous investigations have found that children developmentally benefit from forming close attachments to caregivers and low self-esteem has shown to be associated with attachment concerns (Vandesande et al., 2018).

From these studies, three hypotheses were formulated to address the aims of this study. The first hypothesis (H1) aimed to identify whether there was a relationship between significant reading disorder tendencies and low levels of attachment. This was explored through using a correlation analysis. In support of the first hypothesis, results from the correlation analysis indicated that there was a significant, small positive correlation between the two variables reading disorder tendencies and attachment. The results indicate that high levels of reading disorder tendencies are associated with lower levels of attachment to some degree. These results are consistent with results from previous literature.

The second hypothesis (H2) aimed to determine if more significant reading disorder tendencies and lower levels of attachment were associated with lower levels of self-esteem. A standard multiple regression analysis was employed to explore this hypothesis. In support of hypothesis 2, reading disorder tendencies were found to make a significant unique contribution to the prediction of self-esteem which is aligned with previous literature (Raskind & Goldberg, 2021). Although attachment was found not to make a significant unique contribution to self-esteem which was quite surprising as it conflicts with prior research (Vandesande et al., 2018). This may be due to methodological differences whereby studies used different measures. Reading disorder tendencies were identified as the stronger predictor variable of self-esteem.

The final hypothesis (H3) stated that males with reading disorder tendencies will exhibit lower levels of attachment compared to females. Gender differences were explored using a two-way between-groups analysis of variance. Surprisingly, the results indicated that males and females displayed little variance in attachment levels and reading disorder tendencies. The results also indicated that males and females from the three groups of reading disorder tendencies did not differ significantly from one another also. Previous research has noted that males often display lower levels of attachment and more common to experience reading disorder traits (Quinn & Wagner, 2015). The results did however display that the more significant risk of reading disorder tendencies was associated with lower levels of attachment.

Limitations/ Future research

Evidence from previous literature has identified that individuals who exhibit poor reading skills are at a heightened risk of various types of low self-worth particularly in the educational environment (McArthur et al., 2016). The results from this current study found that a large portion of children from our sample had higher levels of self-esteem regardless of risk of reading disorder, these results are not in line with this research and is potentially impacted by biases made by the primary caregiver. The study is limited to the view of the caregiver and does not incorporate the child's view of their self-esteem and attachment levels. Future research which uses measures to incorporate a child's direct response to questions concerning their level of self-esteem would be valuable and could be compared to scores provided by primary caregivers to explore variances of scores and assess if potential biases are evident. It would also be of further support to investigate the support parents provide to their children when experiencing difficulties in academic and social settings.

The study measured reading disorder tendencies through the Colorado Learning Difficulties Questionnaire – Reading Subscale, a short screener of 6 items. As a result, the study is limited to screening for risk of reading disorder tendencies only. Using the full questionnaire would allow for further investigate into other areas children experience learning difficulties and groups could be further compared and analysed to observe if children with other forms of learning disorder are subject to lower levels of self-esteem and attachment. The inclusion of a mixed methods approach which allows for feedback and comments regarding their experience would enhance our knowledge of understanding a parent's experience of reading disorders, attachment, and self-esteem in their children. Study into the effects of children's developmental ability on a parent's stress level and coping and how this impacts the parenting support they can provide to their child would be an exciting exploration. Geographical location could be taken into consideration for further research to observe the

cultural differences in parenting styles and the effect this has on self-esteem and attachment. However, this study was limited to a small number of participants from areas other than Ireland and in order to further investigate these differences a larger sample size including more participants worldwide would be required.

Finally, the study is limited to 84 participants, through recruitment of a larger sample of parents of children aged from 5-17 years old would allow for comparison of reading disorder risk levels, attachment and self-esteem levels across three different age groups. Age groups could include 5-9, 10-13, 14-17 and from this consideration into major life events such as the transition to secondary school could be investigated to consider how levels of self-esteem may be hindered at different ages.

Conclusion

This current study expands on the current knowledge of attachment and self-esteem levels in children with and without reading disorder tendencies. The study supports prior research which has identified that there is a relationship between reading disorder traits and attachment levels. The present study provides consistency with emerging research as it identified reading disorder tendencies can influence levels of self-esteem. The study also identified that levels of attachment do not appear to have much influence on self-esteem levels which was inconsistent with current literature (Shen, Liu & Brat, 2022). The current study found that gender differences did not significantly across the three groupings of reading disorder tendencies, Minimal Risk, Moderate Risk and Significant Risk. Prior research had found that males tend to display greater levels of reading disorder tendencies and therefore the results of this study are inconsistent with this literature although other factors could be observed in the future such as geographical location and age groups. According to previous studies, it has been highlighted that developmental disorders show no boundaries and the results of this study appear consistent with this finding as no significant difference was observed between gender differences. The findings from this study highlight the importance of behavioural processes which can be affected by reading disorder tendencies. Further research is required to consider variances in self-esteem levels in children with and without reading disorder traits across different cultures and to investigate the effect different parenting styles have on attachment levels.

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Appendices

Appendix 1: Participant Information Sheet

Participant Information Leaflet

Parent and caregiver experiences of the association between insecure attachment in children with reading disorders and the effect on self-esteem levels

You are being asked to participate in a research study investigating the association of insecure attachment in children with reading disorders and the effect on levels of self-esteem through a parent or primary caregivers' perspective. Prior to your decision on participation, it is important that you read this information sheet in order to understand why this study is being conducted and what the study will involve from you. Should you have any questions regarding this study or information sheet provided, please do not hesitate to contact me for clarification which I will be glad to explain further.

What is this Study About?

I am a final year student completing my BA in Psychology at National College of Ireland. I am conducting an independent research study as part of my final year thesis and I would like to invite you to participate.
The aim of this study is to investigate the relationship between insecure attachment style in children with and without reading disorders and how this effects levels of self-esteem or temperament*.
This project is being supervised by Dr Brendan Cullen.

What will taking part in this study involve?

Should you decide to take part in this research you will be asked to:

- Complete an online questionnaire which should take no longer than 10 minutes. This questionnaire will contain three sections which include questions regarding reading disorders, attachment style and self-esteem levels.

Who can take part?

You are invited to take part in this study if you are a parent or caregiver of a child between the ages of 5 and 9 years old. You must be aged 18 or over for participation due to ethical considerations.

Do I have to take part?

Your participation in this study is completely voluntary. You have the right to refuse to participate and also to withdraw from participation at any stage during the questionnaire. You have the right to refuse to answer any question in the questionnaire if you are not comfortable with answering. You will not suffer any penalty should you withdraw from participation.

What are the possible risks and benefits of taking part?

Benefits

You will receive no direct benefits from participating in this research. Your questionnaire responses will contribute to research which may help us understand more about insecure attachment children with and without reading disorders.

Risks

There are no apparent risks associated with participating in this study, although parents of children with reading disorders may require support which can be received from the below service:

Dyslexia Association of Ireland

info@dyslexia.ie

01 877 6001

Will taking part be confidential and what will happen to my data?

All information which will be provided in the questionnaire will remain anonymous and will not be identifiable. It is not possible to identify a participant based on responses to the questionnaire. The data will be stored with the strictest confidence on an encrypted file on a password protected laptop, which is the sole possession of the researcher. The researcher and research supervisor will be the only people who will have access to the data. All data submitted for the final year thesis will be unidentifiable. Data will be held for 5 years in accordance with National College of Ireland's data retention policy.

What will happen to the results of the study?

The results of this study will be presented in my final dissertation, which will be submitted to National College of Ireland. All data collected from the research will remain confidential. This study may be submitted for publication in peer reviewed academic journals if successful.

Who has reviewed the study?

National College of Ireland's Psychology Department's Undergraduate Ethics Committee has reviewed and approved this study.

Who should you contact for further information?

If you have any further questions regarding this study, feel free to use the below contact details:

Abigail Gordon
Undergraduate Researcher
x18132570@student.ncirl.ie

Dr. Brendan Cullen
Brendan.cullen@ncirl.ie
Research Supervisor
Lecturer in Psychology, National College of Ireland

Appendix 2: Consent Form

Consent Form

In agreeing to participate in this research study I understand the following:

This research is being conducted by Abigail Gordon, an undergraduate student at the School of Business, National College of Ireland.

The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.

Should I have any concerns about participation, I understand that I may refuse to participate or withdraw at any stage of this research.

I have been informed as to the general nature and information of the study and agree voluntarily to participate.

There are no known expected discomforts or risks associated with participation.

All data collected from the study will be treated with utmost confidentiality. The data from all participants will be compiled, analysed, and submitted in a report to the Psychology Department in the School of Business. No participant's data will be identified by name at any stage of the data analysis or in the final report.

At the conclusion of my participation, any questions or concerns I have will be fully addressed.

I may withdraw from this study at any time and may withdraw my data at the conclusion of my participation if I still have concerns.

Signed: _____

Participant _____

Researcher _____ Date _____

Appendix 3: Debriefing Form

Debriefing Form

Thank you for your participation in this questionnaire measuring attachment, learning difficulties and self-esteem. The present study aims to investigate the relationship between insecure attachment in children with reading disorders and the effect on levels of self-esteem through a parent or primary caregivers' perspective.

How was this tested?

You were asked to complete this questionnaire which consists of three segments. The first section consisted of questions concerning reading ability. The second section included questions regarding attachment. Finally, the third section was used to assess self-esteem.

Confidentiality

This questionnaire is confidential and anonymous, all data you have provided will be unidentifiable. The information gathered in this questionnaire will solely be used for my thesis and no further studies. Should this project surpass a grade of a 2.1 or above it will be published in the National College of Ireland's Library. The data will be stored confidentially for a period of 5 years following National College of Ireland's policies. After this period of time all data from this study will be destroyed.

Once again, I would like to truly thank you for your participation in this study. If you have any questions or concerns please feel free to contact myself **Abigail Gordon** - **x18132570@student.ncirl.ie** or the supervisor of this study **Dr Brendan Cullen – Brendan.cullen@ncirl.ie**

Should you experience any psychological distress from participation, please feel free to contact the researcher or supervisor. We also encourage you to speak to family and friends for support.

Should parents or guardians require support for a child with reading difficulties the below service is available:

Dyslexia Association of Ireland

info@dyslexia.ie 01 877 6001

Appendix 4: The Colorado Learning Difficulties Questionnaire – Reading Subscale

The Colorado Learning Disabilities Questionnaire

The Colorado Learning Disabilities Questionnaire

School Age Dyslexia Screener - CLDQ-R

The Colorado Learning Disabilities Questionnaire - Reading Subscale (CLDQ-R) is a screening tool designed to measure risk of reading disability (i.e. dyslexia) in school-age.

Please read each statement and decide how well it describes the child. Mark your answer by selecting the appropriate button. Please do not leave any statement unmarked.

	Never	Rarely	Sometimes	Frequently	Always
1. Has difficulty with spelling	○	○	○	○	○
2. Has/had difficulty learning letter names	○	○	○	○	○
3. Has/has difficulty learning phonics (sounding out words)	○	○	○	○	○
4. Reads slowly	○	○	○	○	○
5. Reads below grade level	○	○	○	○	○
6. Requires extra help in school because of problems in reading and spelling	○	○	○	○	○

Appendix 5: Attachment Q-Sort Questionnaire AQSQ

Attachment Q-Sort Questionnaire

AQSQ

The following questions have to do with your child's behavior. You are to consider your child's behavior during a 7 day period when he or she was not ill. Please read all parts of the question. Circle the number that best represents your child.

1. When my child is upset or injured, he/she will accept comforting from adults other than me. (Low score: You are the only one he/she allows to comfort him/her.)

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

2. My child acts like he/she expects me to interfere with his/her activities when I am simply trying to help him/her with something. (Low score: Accepts your help readily, unless you are in fact interfering).

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

3. My Child is lighthearted and playful most of the time.

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

4. When given a choice, my child would rather play with toys than adults. (Low score: Would rather play with adults than toys.)

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

5. If held in my arms, my child stops crying and quickly recovers after being frightened or upset. (Low score: not easily comforted).

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

6. My child copies behaviors or ways of doing things from watching my behavior. (Low score: Doesn't noticeably copy your behavior.)

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

7. When I don't do what my child wants right away, he/she behaves as if I were not going to do it at all (fusses, gets angry, walks off to other activities, etc.). (Low score: Wait's a reasonable time, as if he/she expects I will shortly do what he/she asked.)

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

8. My child readily lets new adults hold or share things he/she has, if they ask to.

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

9. My child keeps track of my location when he/she plays around the house (calls to me now and then, notices me go from room to room, notices if I change activities). (Low score: Doesn't keep track.)

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

10. My child tries to get me to imitate him/her, or quickly notices and enjoys it when I imitate him/her on my own.

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

11. If I laugh at or approve of something my child has done, he/she repeats it again and again.

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

12. If I move very far, my child follows along and continues his/her play in the area I have moved to. (Doesn't have to be called or carried along; doesn't stop play or get upset.)

Very Unlike My Child 1	2	Unlike My Child 3	4	Neither Like Nor Unlike 5	6	Like My Child 7	8	Most Like My Child 9
○	○	○	○	○	○	○	○	○

Appendix 6: The Behavioral Rating Scale of Presented Self-Esteem for Young Children

The Behavioral Rating Scale of Presented Self-Esteem for Young Children

These are statements which describe ways that young children may behave in classroom and playground situations. Please read the entire item across the page, both left and right sides, decide which side best describes the child you are rating, and then check whether that is just *sort of* like this child or *very much* like this child. You will just check **ONE** of the four circles for each statement.

Important: Please only choose one circle from the four options for each question. You should not select an answer from both sides A and B. Choose the statement (center column) which best describes the child first and then decide if this is very much like the child or sort of like this child. Each line should only have ONE circle selected from either A or B and not both.

A					B	
Very much like this child	Sort of like this child				Sort of like this child	Very much like this child
○	○	Prefers activities that stretch his/her abilities; sets high goals	OR	Does not prefer activities that stretch his/her abilities; does not set high goals	○	○
○	○	Smiles infrequently; face often shows sadness or negative feelings	OR	Smiles readily; face does not often show sadness or negative feelings	○	○
○	○	Trusts his/her own ideas; knows what he/she wants; is able to make choices and decisions	OR	Doesn't trust his/her own ideas; acts uncertain in making decisions; needs suggestions from others	○	○
○	○	Does not move forward to do things on his/her own; does not take initiative	OR	Moves forward to do things on his/her own; takes initiative	○	○
○	○	Lacks confidence to approach challenging tasks; stays away from challenge	OR	Approaches challenging tasks with confidence	○	○
○	○	Able to assert his/her point of view with other children when opposed	OR	Not able to assert his/her point of view when opposed	○	○
○	○	Hangs back; watches only or doesn't get involved	OR	Does not hang back; does more than watch, is involved	○	○

○	○	Does not move forward to do things on his/her own; does not take initiative	OR	Moves forward to do things on his/her own; takes initiative	○	○
○	○	Lacks confidence to approach challenging tasks; stays away from challenge	OR	Approaches challenging tasks with confidence	○	○
○	○	Able to assert his/her point of view with other children when opposed	OR	Not able to assert his/her point of view when opposed	○	○
○	○	Hangs back; watches only or doesn't get involved	OR	Does not hang back; does more than watch, is involved	○	○
○	○	Describes self in generally positive terms	OR	Describes self in generally negative terms	○	○
○	○	Is able to set goals independently	OR	Cannot set goals independently	○	○
○	○	Makes good eye contact	OR	Avoids eye contact	○	○
○	○	Remains in group activities and gets involved; does not withdraw	OR	Withdraws from group activities; stays on sidelines or doesn't get involved	○	○
○	○	Lacks confidence to initiate activities	OR	Initiates activities confidently	○	○
○	○	Eager to try doing new things	OR	Not eager to try doing new things	○	○
○	○	Tolerates frustration caused by his/her mistakes; perseveres	OR	Gives up easily when frustrated by his/her mistakes	○	○
○	○	Shows pride in his or her work or accomplishments	OR	Does not show pride in his or her work or accomplishments	○	○

Appendix 7: Demographic Questions

What age is your child?

- ○ 5 years old
- ○ 6 years old
- ○ 7 years old
- ○ 8 years old
- ○ 9 years old

Please confirm your child's Gender

- ○ **Male**
- ○ **Female**
- ○ **Prefer not to say**

What country do you live in?