Dyslexia

WILEY

RESEARCH ARTICLE OPEN ACCESS

A Sunny Disposition and a Big Heart: Thematic Analysis of Parent-Reported Socio-Emotional Strengths in Dyslexia

Belinda Y. Zhang[1,2] | Gabriela V. Gocheva[1] | Ana Tyler[1] | Amie Wallman-Jones[1] | Marni Shabash[1] | Jiwoo Han[1] | Christa Watson-Pereira[1] | Zachary A. Miller[1] | Maria Luisa Gorno-Tempini[1,3] | Virginia E. Sturm[1,3] | Eleanor R. Palser[1,4]

[1]Department of Neurology, University of California, San Francisco, San Francisco, California, USA | [2]School of Nursing and Health Professions, University of San Francisco, San Francisco, California, USA | [3]Department of Psychiatry and Behavioral Sciences, University of California, San Francisco, San Francisco, California, USA | [4]Department of Psychology, Palo Alto University, Palo Alto, California, USA

Correspondence: Eleanor R. Palser (epalser@paloaltou.edu)

Received: 26 July 2024 | **Revised:** 19 July 2025 | **Accepted:** 14 August 2025

Funding: This work was supported by the UCSF Dyslexia Center, The Charles and Helen Schwab Foundation, the National Institute of Neurological Disorders and Stroke (R01NS050915) and the National Institutes of Health (K24DC015544).

ABSTRACT

Children with dyslexia have persistent and well-characterised reading difficulties but may also have less well-known socio-emotional abilities. Socio-emotional abilities in dyslexia could be leveraged in remediation efforts to improve outcomes, including resilience. Our aim was to characterise these socio-emotional abilities from parents' perspectives, to inform strength-based curricula. We analysed 97 parent responses to an open-ended question on the behavioural and emotional strengths of their child with dyslexia using a reflexive thematic analysis approach. We identified five themes, including: (1) social skills, (2) positivity, (3) reliability, (4) determination and (5) creativity. Subthemes indicated children with dyslexia had particular strengths in prosocial behaviour, empathy, optimism, conscientiousness and originality. The frequency of reported strengths was variable, with rarer descriptions of creativity alongside widespread social skills. Our findings suggest that dyslexia may be associated with previously overlooked socio-emotional strengths which could be harnessed in remediation efforts to improve outcomes by reducing stigma and fostering resilience and self-esteem.

1 | Introduction

Developmental dyslexia is a neurodevelopmental disorder characterised by persistent reading difficulties in the context of adequate intellect and education (Lyon et al. 2003). Impacting between 5% and 20% of school-aged children (Shaywitz 1998; Wagner et al. 2020; Yang et al. 2022), it is highly prevalent. Weaknesses in language may also be associated with accentuated socio-emotional processes in dyslexia—children with dyslexia have enhanced behavioural and physiological reactivity to emotional (Sturm et al. 2021) and social (Palser et al. 2021) stimuli. Neuroimaging studies show that hypoactivity in language systems in the left hemisphere of the brain (Hoeft et al. 2007) is accompanied by hyperactivity in emotion systems in the right hemisphere in dyslexia (Maisog et al. 2008; Richlan et al. 2009). Academic challenges in children with dyslexia, coupled with enhanced emotional reactivity, may increase vulnerability to socio-emotional difficulties, including low self-esteem, anxiety and depression. Reading difficulties and anxiety impact each other, such that individuals with greater reading difficulties have higher levels of anxiety (Carroll and Iles 2006) that are likely bi-directional (Grills-Taquechel et al. 2012), with anxiety compounding reading difficulties over time (Yasutake and Bryan 1995). Children with dyslexia perceive a stronger relationship between reading ability and personality traits, including intelligence and work ethic, than those without dyslexia (Humphrey and Mullins 2002; McNulty 2003). These findings suggest children with dyslexia are sensitive to others' views about their abilities, introducing further vulnerabilities for low self-esteem and co-occurring mental health problems. Elevated

Summary

- Children with dyslexia have frequent and far-reaching parent-reported socio-emotional strengths.
- Strengths in dyslexia include social skills, positivity, reliability, determination, and creativity.
- Harnessing socio-emotional abilities in remediation efforts may help reduce stigma and foster self-esteem in individuals with dyslexia.

anxiety in individuals with dyslexia persists throughout adulthood and is not limited to academic situations (Carroll and Iles 2006), suggesting that perceptions about capabilities extend beyond reading and have long-reaching consequences on self-image and well-being.

Although most research to date has used deficit-centred models, there is a growing effort to shift towards strengths-based approaches in developmental science (Garner 2021; Kapp 2018). Existing strengths-based models have focused on characterising 'twice-exceptional' (2E) children, referring to those who simultaneously have learning difficulties and giftedness or high ability in other cognitive domains (Foley Nicpon et al. 2011, 2013). Identifying strengths in neurodevelopmental disorders may help to reduce stigma and foster positive self-image and well-being (Diener et al. 2016). The risk-resilience framework of dyslexia proposes that risk factors, such as deficits in phonological processing, increase the likelihood of persistent reading difficulties (Catts and Petscher 2022), while socioemotional resilience, including self-determination (Zheng et al. 2016) and hopeful thinking (Idan and Margalit 2012), may simultaneously mitigate the impact of reading deficits and support academic achievement (Haft et al. 2016; Hossain et al. 2022).

Socio-emotional strengths can also be leveraged in goal-setting efforts, intervention plans and future career development (Bal et al. 2022; Bennett et al. 2018). Individuals with dyslexia are often overrepresented in professions that rely upon creative thinking or social prowess (Taylor and Vestergaard 2022). For example, Logan (2009) suggested that 35% of entrepreneurs in the United States have dyslexia. Studies employing small samples of students have suggested an over-representation of students with dyslexia in degree subjects relating to creativity, the performing arts, and engineering (Lemon and Shah 2014; Steffert 2009). More recently, a very large study that included all first-year students in United Kingdom (UK) universities across 12 years ($n = 5.6$ million) found a higher prevalence of students with dyslexia studying creative arts and design (9.69%), agriculture (10.08%), architecture, building, and planning (6.76%) and subjects related to medicine (6.35%). In contrast, a lower prevalence of students with dyslexia was observed in law (3.14%), languages (3.25%), computer science (5%) and mathematical sciences (3.23%; Brunswick et al. 2024). The prior case–control literature on strengths in dyslexia has been mixed. Some studies suggest that people with dyslexia may demonstrate strengths in certain areas of non-verbal creativity, including originality and innovation, but the evidence is inconsistent and may vary by age. For example, in tasks requiring novelty or insight, adults with dyslexia showed greater divergent thinking than adults without dyslexia (Everatt et al. 1999). No differences were found between children and adolescents with dyslexia, relative to their well-reading peers; however, (Everatt et al. 1999). By contrast, children with dyslexia have higher overall creativity on the Torrance Creativity Test (Torrance 1974) than their typically developing peers; but differences were largely driven by scores on the originality subscale (Tafti et al. 2009). Other studies have also suggested possible non-verbal creativity advantages in children with dyslexia (Lam and Tong 2021), while spatial abilities were comparable between dyslexic and non-dyslexic groups (Gilger et al. 2016). Although the findings are variable, these potential areas of strength, if embraced and encouraged, may foster resilience in the face of academic struggles. More research is therefore needed to map the entire cognitive, behavioural and emotional profile of dyslexia to inform nascent strength-based approaches.

Here, to identify areas of socio-emotional strength in dyslexia and guide the development of strength-based interventions, we used a qualitative thematic analysis framework to explore parent-reported socio-emotional abilities in a sample of 97 children and adolescents presenting for evaluation for challenges in reading. We used a written question, which compared to other qualitative methods such as interviews, permits a larger sample and allows respondents to share their own experiences and perspectives without the potential for researchers or other participants to bias their responses (Robson 1993).

2 | Methods

2.1 | Participants

Ninety-seven children ages 7 to 17 years (58% male) with dyslexia were included in the present study. Participants were recruited through the University of California, San Francisco (UCSF) Dyslexia Center and underwent a comprehensive multidisciplinary neurobehavioural evaluation, including a clinical interview, neurological examination with a neurologist, and an academic and neuropsychological assessment with a trained evaluator under the supervision of a licensed clinical psychologist. All participants included in the sample had a history of reading difficulties and received a consensus diagnosis of dyslexia (i.e., specific learning disorder in reading) by the multi-disciplinary team. Most additional co-occurring diagnoses within the neurodevelopmental disorder class were not an exclusion criterion, and the sample is therefore representative of the high co-occurrence of neurodevelopmental disorders within the wider population (Gayán et al. 2005; Decarli et al. 2024; see Table 1 for frequencies by diagnosis). Participants who had a co-occurring diagnosis of autism spectrum disorder, however, were excluded from the sample, given that these children may show a different profile of socio-emotional strengths and challenges to children with dyslexia and have been studied separately (Chow and Cooper 2024; Wilkinson et al. 2022). All parents of participants who met the inclusion criteria completed the open-ended question; hence there were no non-responders in the dataset. The study protocol was approved by the Institutional Human Research

TABLE 1 | Demographic characteristics and descriptive statistics.

Characteristic ($n = 97$)	Value
Age (M ± SD)	11.71 ± 2.63
	Ratio (%)
Sex (M:F)	56:41 (58% M)
Handedness (R:NR)	81:13 (86% R)
Declined to report	3
Household income	*n*
≤ $149,999	5
$150,000–$199,999	11
$200,000–$249,999	10
$250,000–$299,999	7
$300,000–$399,999	11
$400,000–$499,999	4
≥ $500,000	17
Declined to report	28
Race	*n*
Caucasian/European American	48
Multiracial/Multiethnic	19
Latino/Hispanic American	4
African American/Black	2
Asian/Pacific Islander	1
Declined to report	23
Co-occurring diagnoses	*n*
ADHD	42
Dysgraphia	21
Dyscalculia	24
Specific language impairment	4
Motor impairment	2
Motor speech impairment	1

Note: ADHD, attention-deficit/hyperactivity disorder; F, female; M, male; M, mean; NR, non-right handed; R, right handed; SD, standard deviation.

Protection Program. Parents provided written informed consent, and participants provided verbal assent.

Parents were asked to report on participants' age, sex, handedness, race and household income. The sample was predominantly white (65%), followed by multiracial/multiethnic (26%), Latino (5%), African American/Black (3%) and Asian/Pacific Islander (1%). Twenty-four percent of parents declined to report their child's race. The annual household income of the sample ranged from under $10,000 to over $500,000, with a median bracket of $250,000 to $299,999, indicating a relatively high socio-economic status. Twenty-nine percent of parents declined to report their household income. Demographic characteristics are reported in Table 1.

2.2 | Procedure

Participants' parents completed an open-ended question following a survey of their child's day-to-day behaviours as part of the Behaviour Assessment System for Children, Third Edition, Parent Rating Scales (BASC-3; Kamphaus and Reynolds 2017). The open-ended question was untimed and without word limits, and phrased as follows: 'What are the behavioural and/or emotional strengths of this child?'. Open-ended questions in surveys allow respondents to express their thoughts freely (Holland and Christian 2009), resulting in rich qualitative data (Zuell and Scholz 2015). Parents of children aged 11 and under completed the child version, while parents of children aged 12 and older completed the adolescent version of the BASC-3. The open-ended question of interest was identical across both versions, and thus, responses were combined.

2.3 | Data Analysis

We examined parents' open-ended responses by using Braun and Clarke (2006, 2013, 2022) reflexive thematic analysis framework, employing a six-phase process: familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report. First, we reviewed anonymized responses from the open-ended question. Responses varied in length and structure, ranging from descriptive words to short paragraphs. Across the sample, responses ranged in length from a minimum of four words to a maximum of 90 words, with an average of 28.73 ± 23.12 words per response. The dataset was therefore suitable for thematic analysis, as it comprised a large number of shorter responses as well as many longer responses, offering a balance of breadth and depth (Braun and Clarke 2022; Braun et al. 2021).

Our analysis was informed by our collective experience and training in psychology (B.Y.Z., G.G., A.W-J., C.W-P., V.E.S., E.R.P.), medicine (Z.A.M., M.L.G.T.), and bioethics (A.T.), and by positionalities as people with learning disabilities (Z.A.M., E.R.P.). We followed Braun and Clarke's (Braun and Clarke 2006 2019; Braun and Clarke 2022) reflexive thematic analysis method within an essentialist framework through which we aimed to report parents' experienced realities of their child's strengths. We used an inductive approach (Thomas 2006) to identify key themes without the application of any pre-existing coding schemes or preconceptions.

We report the frequency of themes and subthemes as a proportion of the total sample.

3 | Results

Through analysis of parents' responses to the open-ended question, we identified five themes: social skills, positivity, reliability, determination and creativity. These themes represent central organising concepts (Braun and Clarke 2022) that capture distinct socio-emotional strengths. The reporting frequencies among the themes ranged from 24% to 95% across the participants, suggesting that some were very common while others were rare. Several

themes had additional associated subthemes. The following themes and subthemes are presented in the order of decreasing frequency. See Figure 1 for frequencies of themes and Figure 2 for frequencies of subthemes. Illustrative quotes are provided for subthemes, alongside the participant's number (i.e., facilitating comparison across multiple quotes) and chronological age in years.

3.1 | Theme 1: Social Skills

The most frequent theme was social skills, which was reported in 95% of children and refers to an individual's ability to foster meaningful relationships and show a loving, considerate, and attentive nature towards family, peers, and community members. As such, the vast majority of children with dyslexia were described as having noteworthy social skills. Some parents elaborated on the specific types of social skills they observed in their child, the most frequent of which was prosocial tendencies (77%), followed by empathy (52%), building relationships (26%), being loving and affectionate (19%), showing leadership (19%) and being an effective communicator (13%). The subthemes are described below in order of frequency.

3.1.1 | Prosociality

Parents frequently reported prosocial characteristics in their children, describing an inclination towards altruism, and listing behaviours including helping, sharing and cooperating under circumstances that did not have an immediate benefit to the self. Children were often described as 'helpful and caring' and 'kind'. Additionally, parents emphasised that children often helped others outside of their immediate peer group: 'He goes out of his way to help small children feel comfortable and tend to their needs' (P7, age 9), 'walks his frail grandma and stays back with her [to] help her from tripping' (P3, age 12), 'likes helping classmates and teachers' (P28, age 10).

3.1.2 | Empathy

We defined empathy as the ability to understand and share the feelings of others, including their joys, sorrows and pains (Cuff et al. 2016). Children with empathetic traits may appear intuitively aligned to others' emotions or are described as having high emotional intelligence (Ioannidou and Konstantikaki 2008). Parents of children with dyslexia stated: 'He is very sensitive and always feels what the other person is feeling' (P22, age 11), 'emotionally tuned in' (P39, age 8), and 'she is highly emotionally intelligent. She can read people and rooms' (P61, age 13). In our sample, parents also often explicitly described their child as 'empathetic' or 'having empathy.'

3.1.3 | Relationship Builder

Parents noted strengths in their child's ability to foster and nurture close and meaningful relationships with others, including friendships. For example, they commented on the effective means by which their child engaged with peers: 'He has close friends that he plays well with using cooperation and collaboration' (P4, age 13), 'she is called on to be a friend to new people who need extra support because she is very accepting of others' (P91, age 17). Emphasis was placed on the ability to make and maintain friends easily, including with people of different ages and under different circumstances. For instance, parents described: 'He engages with other children well and makes friends in new situations (i.e., he started swim team and tennis last year and now has a new group of friends)' (P28, age 10), 'changed four schools in 4 years and has friendships in all of them' (P49, age 9), and 'very social and gets along well with children and adults' (P5, age 7).

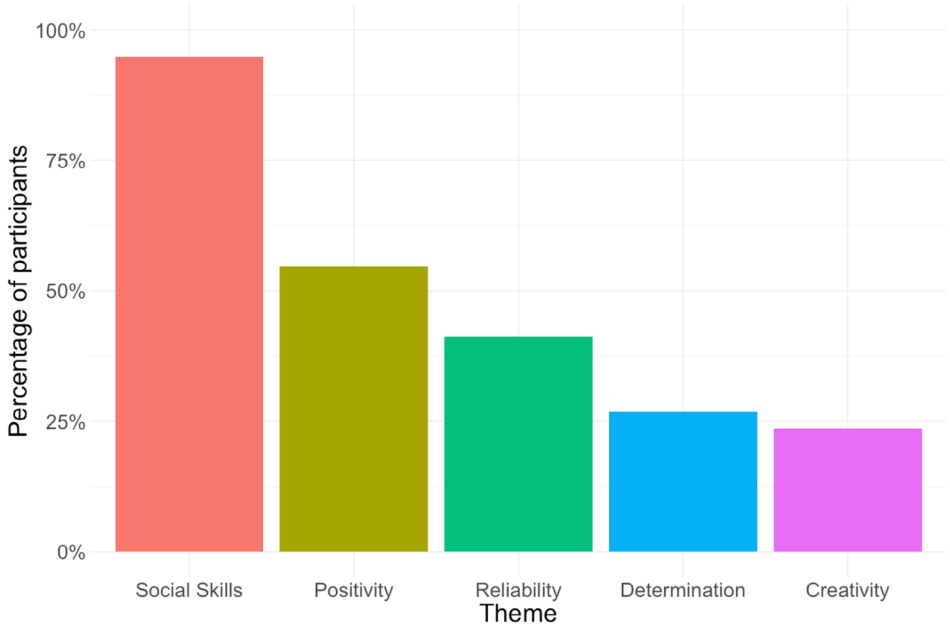

FIGURE 1 | Percentage of participants reported in each theme. Frequencies ranged from highly prevalent, with 95% of children with dyslexia possessing social skills, to rare, with only 24% showing creative strengths.

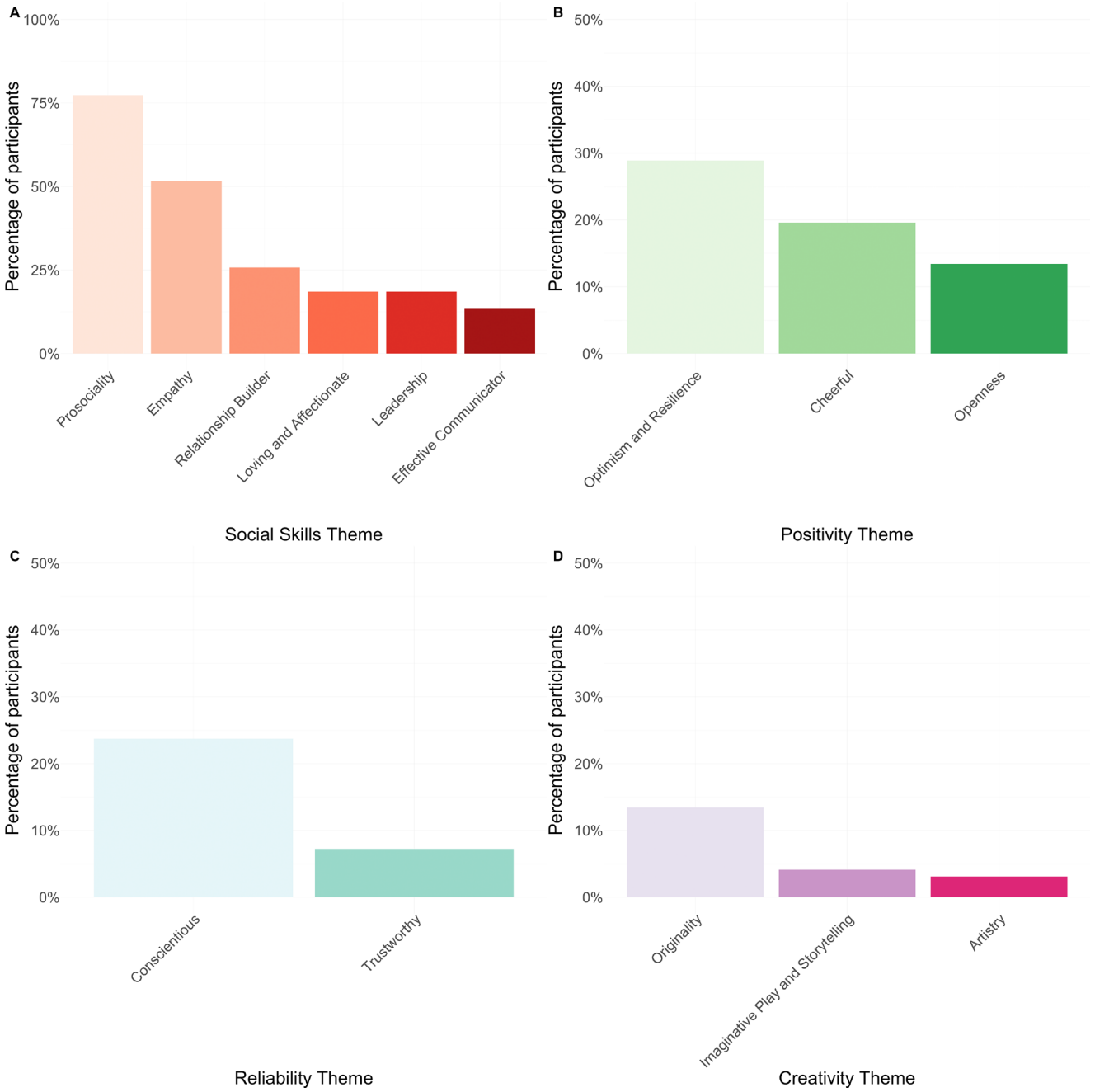

FIGURE 2 | Percentage of participants in each subtheme within the themes identified. (A) The most commonly reported theme was social skills, which was further subdivided into six subthemes. The most frequent manifestations of social skills in children with dyslexia were prosociality and empathy. Skills in leadership and effective communication were also present, but less frequent. (B) Positivity comprised three subthemes, including optimism, cheerfulness, and openness. (C) Reliability comprised the two subthemes of conscientiousness and trustworthiness. (D) Creativity comprised three subthemes, including originality, imaginative play, and artistry.

3.1.4 | Loving and Affectionate

Children who were coded in this subtheme engaged in frequent demonstrations of nurturant love or affection, with behaviours including physical touch (e.g., cuddles, kisses, holding hands), providing words of affirmation, gift-giving, or spending time with others. Parents of children coded here frequently described their children as 'loving' or 'affectionate'. Some used metaphor to illustrate their child's affectionate nature, 'he has a big heart' (P57, age 9), or described their child's loving behaviour: 'loves to snuggle' (P97, age 9), and 'she loves and adores her sisters, and she leaves them little gifts all the time' (P88, age 11).

3.1.5 | Leadership

Children who exhibit leadership abilities are skilled at motivating a group to align towards a common goal and may influence and guide others through their popularity (Chen et al. 1992; Fukada et al. 1997). They engender respect and inspire others. In school,

they may be elected as the head of societies and teams. Parents often described children coded in this subtheme as a 'leader' or 'well-liked'. They also commented on other aspects of leadership, including being independent and outspoken: 'Does not follow a crowd when it comes to his beliefs' (P17, age 14), and 'will speak up when he sees someone in need' (P18, age 12). Children with strong leadership abilities tend to exhibit prosocial qualities in their peer relationships (Scharf and Mayseless 2009). Supporting this, 72% of participants coded for leadership abilities in our sample were also coded as having strengths in prosociality.

3.1.6 | Effective Communicator

Parents discussed their child's ability to communicate effectively with peers, family and other community members using several proficiencies, including strong verbal expressive abilities, good listening skills and extensive vocabularies. For example, parents noted: 'She expresses emotions really well' (P47, age 11), 'listens to others' ideas' (P91, age 17), and is 'articulate' (P35, age 8). Others commented on their child's ability to communicate with individuals of all ages: 'Very comfortable and confident when speaking/interacting with adults' (P97, age 9), 'excited to speak to people her age or older' (P33, age 15), paralleling the inter-generational quality of their social relationships previously observed in the prosociality and relationship builder subthemes. The ability to get along with adults and young children alike appears to be a key social skill in children and adolescents with dyslexia.

3.2 | Theme 2: Positivity

Positivity refers to a general dispositional tendency to have a positive outlook, mindset and attitude towards oneself, others and life in general (Caprara 2009; Caprara et al. 2017). This theme was reported in 55% of children and had three associated subthemes: optimism and resilience (29%), cheerfulness (20%) and openness (13%).

3.2.1 | Optimism and Resilience

Parents highlighted children's optimism and resilience, including their tendency to look on the bright side and find the silver lining in unfavourable situations, as well as their ability to recover quickly from setbacks. For example, one parent commented: 'Resilient, especially given some of the health challenges he's had to face in his life' (P46, age 13). Another used metaphor, noting: 'He is a glass half full kid' (P79, age 10). Others commented on their child's ability to easily adapt to different situations: 'Transitions well if there is a change of plans' (P18, age 12), 'flexible and open to changes' (P28, age 10), 'pretty good with ambiguity tolerance for her age' (P6, age 18), suggesting that flexibility and the ability to overcome challenges are core features of the positive dispositions of children with dyslexia.

3.2.2 | Cheerful

Children in this subtheme often exhibited a joyful attitude to life and had the tendency to express themselves with enthusiasm, playfulness and other high arousal positive states. Parents commented on their children's cheerful disposition and highlighted its influence on others' emotions: 'When he is experiencing joy and happiness, it radiates to others' (P7, age 9), 'has a very sunny disposition' (P54, age 9), and 'a joyful spirit' (P94, age 11).

3.2.3 | Openness

Openness refers to a dispositional tendency to explore new things and seek novel experiences (McCrae and Costa 1997). Parents often explicitly described their children as 'adventurous' and 'open'. Other example quotes in this subtheme included: 'She's not afraid to try new things or meet new people' (P69, age 8), 'brave, fearless' (P81, age 8), and 'curious' (P83, age 11).

3.3 | Theme 3: Reliability

In this theme, parents discussed their child's reliability, or the ability to be depended upon to independently carry out instructions and make good decisions. Children in this theme often showed an awareness of rules and what adults expected from them. In total, 41% of the participants were described as reliable. This core theme contained the two subthemes of conscientious (24%) and trustworthiness (7%), which are described below in order of frequency.

3.3.1 | Conscientiousness

Parents highlighted children's conscientious natures, which often presented as taking their duties or schoolwork seriously, being hard-working, following rules and taking care to complete tasks correctly and in a well-formulated manner (Eisenberg et al. 2014). Parents described their children's diligent and hard-working dispositions, with examples including: 'An incredibly persistent, hard-working kid' (P9, age 10), 'hard worker and is always willing to meet challenges' (P15, age 8) and 'she is a very hard worker and pays attention to the details. She does not need to be reminded to do her homework' (P59, age 11). Additionally, children coded in this subtheme had a tendency to follow rules and meet expectations. Example quotes included: 'He follows rules, is polite. He never misbehaves at school or with others' (P2, age 12), 'he prefers that everyone, including himself, follow rules' (P4, age 13), and 'he always tries to do the right thing and follows the rules' (P22, age 11).

3.3.2 | Trustworthy

Several parents reflected on their child's disposition towards honesty and fairness. For example, one parent described their child as 'placing a high value on honesty/trust/integrity' (P32, age 15). Another parent commented on their child's 'strong sense of fairness' (P68, age 11). Overall, children in this subtheme were often described as 'trustworthy' or 'honest', suggesting well-developed moral and ethical traits in many children with dyslexia.

3.4 | Theme 4: Determination, Strong-Will, and Passion

Parents shared their child's clear ambitions and motivation to work hard towards their goals. This often manifested as perseverance, bravery, self-advocacy and the tendency to strive for what they wanted. For example, several parents commented on their children's ambitious nature: 'Determined, if she wants to succeed at something she will work hard to accomplish it' (P27, age 10), 'willing and desires to learn, self-driven' (P31, age 10), 'self-starter, ambitious, goal oriented, strong willed' (P40, age 16). Strengths in determination, strong-will and passion were evident in 27% of participants. No subthemes were identified. Tendencies towards determination and passion may help children with dyslexia compensate for and overcome their academic challenges.

3.5 | Theme 5: Creativity

Creativity refers to the tendency to generate novel and original ideas, insights, or inventive solutions to problems or challenges (Acar et al. 2017; Lubart and Sternberg 1998), and to approach tasks with open-mindedness (Cropley 1990), curiosity (Tamdogon 2006) and imagination (Misra et al. 2006). Twenty-four percent of children with dyslexia in our sample showed creative strengths. Within creativity, three subthemes emerged: originality (13%), imaginative play and storytelling (4%) and artistry (3%).

3.5.1 | Originality

The ability to generate novel ideas and solutions that others are less likely to think of is a key feature of creativity (Acar et al. 2017). In line with this, parents frequently commented on their children's curious, independent, and inquisitive natures, and their ability to engage in divergent thinking. For example, several parents discussed their children's innovative tendencies: 'Thinks out of the box, creative and inquisitive' (P34, age 8). Similarly, others commented on their child's ability to problem-solve: 'Loves to solve problems and come up with creative solutions' (P7, age 9), 'he is a problem solver and he thrives on that' (P84, age 12).

3.5.2 | Imaginative Play and Storytelling

Several parents referred to their child's imagination, interest in fantasy, and tendency to make up stories. For example, one parent commented, 'Her highly creative mind is always running scenarios' (P61, age 13). Another parent noted, 'she has a great imagination' (P80, age 11).

3.5.3 | Artistry

Although less frequent, a few parents commented on their child's natural inclination towards expressing themselves through various artistic mediums. For example, one parent commented, 'She makes little decorations for her older sisters' bedrooms' (P20, age 11), demonstrating an interest in visual expression and craft. Another parent discussed their child's engagement in arts-related extracurriculars: 'Historically she was very active at school with music and art as main hobbies' (P60, age 15).

4 | Discussion

In this study, we aimed to explore the real-world socio-emotional strengths of children and adolescents with dyslexia through the perspectives of their parents. We examined written responses to an open-ended question using a reflexive thematic analysis approach (Braun and Clarke 2006, 2013, 2022), allowing us to capture the depth and complexity of participants' lived experiences through a theoretically flexible framework. Our results indicate that youth with dyslexia have many real-world socio-emotional strengths that accompany their reading difficulties. In our study, children and adolescents with dyslexia were socially skilled, reliable, creative, approached life with a positive mindset and showed determination and resilience in the face of their learning challenges—illustrating the diverse range of socio-emotional strengths captured through a qualitative lens, many of which have meaningful implications for future professional development. Nearly all parents highlighted their child's impressive social skills, which included prosocial tendencies, empathy, the ability to foster close interpersonal relationships, affection, leadership and effective communication. Scant empirical research has examined social functioning in dyslexia, but initial laboratory studies indicate that children with dyslexia have greater facial behaviour and physiological responses while watching film clips designed to elicit emotional reactivity (Sturm et al. 2021) and empathy (Palser et al. 2021), relative to well-reading peers. Across children with and without dyslexia, greater facial behaviour was associated with greater parent-report social skills (Sturm et al. 2021), suggesting that differences in emotion systems may underlie enhanced social skills in dyslexia.

Many parents also commented on their child's positivity, including their optimism, resilience, cheerfulness and openness to experiences, which was particularly remarkable given the academic challenges that individuals with dyslexia face. Not all dyslexia cohorts show elevated resilience relative to peers (Ghisi et al. 2016), and it is likely that the home and school environment impact a child's positive outlook. Experiencing multiple strengths may increase a child's likelihood of being optimistic and cheerful. In particular, positivity may itself lead to other strengths. Dispositional positivity has been linked to a range of beneficial outcomes, including stronger social relationships (Alessandri et al. 2012), better academic performance (Anderson et al. 2020) and greater wellbeing (Diener et al. 1991; Fredrickson 2001), offering a potential avenue through which to foster favourable outcomes in dyslexia. Participants in our sample were often described as reliable, conscientious, trustworthy and determined, and parents often alluded to their ability to be trusted and depended upon, as well as their hard work and motivation. To our knowledge, these traits have not yet been described in dyslexia.

Some children with dyslexia were described as creative, with parents highlighting their ability to generate novel ideas and solutions, engage in imaginative play and storytelling, as well as artistic activities. Despite prior observational studies showing an overrepresentation of dyslexia in creative professions and

higher education (Lemon and Shah 2014; Logan 2009; Steffert 2009), the case–control literature on heightened creativity in dyslexia has been mixed, with some studies finding evidence of enhanced performance on divergent-thinking tasks (Bigozzi et al. 2016; Cancer et al. 2016) but comparable performance on visuospatial drawing tasks (Everatt et al. 1999). A recent meta-analysis concluded there were no differences in creativity between children with and without dyslexia, but that adults with dyslexia had greater creativity than those without dyslexia (Majeed et al. 2021), suggesting this may be a strength that becomes apparent with age. The current findings also suggest that creative strengths are not universal in children with dyslexia, but that, per unprompted parent report, approximately a quarter of children and adolescents with reading challenges have notable strengths in creativity. Creative expression may therefore represent a meaningful strength for a small subset of children with dyslexia. Future work should explore how expressions of creativity—alongside traits like reliability, positivity, and determination—can be harnessed to support mental health and career development across the lifespan.

While reporting frequencies is not typically emphasised in reflexive thematic analysis, we chose to include the frequency of themes in this study not to prioritise, emphasise, or elevate certain themes over others, but rather to demonstrate that socio-emotional strengths are ubiquitous among children with dyslexia. By demonstrating that strengths such as social skills and positivity were frequently reported across participants, we hope to encourage a reframe in how dyslexia is perceived, emphasising the diverse, valuable and often underappreciated capabilities of people with dyslexia. At the same time, we recognise and value the perspectives of all participants, and our analysis remains rooted in the rich, nuanced insights provided by the data, regardless of how often a theme occurred. This approach ensures that less frequent but equally meaningful contributions are not overlooked, preserving the integrity and depth of the analysis. We therefore remind the reader that the most common patterns are not necessarily the most important, and that children should be encouraged to explore their own unique abilities.

Many of the socio-emotional advantages we identified here have previously been associated with heightened heart rate variability (HRV), an index of activity in the parasympathetic nervous system. Across the lifespan, higher resting HRV is associated with greater social competence (Fabes et al. 1994) and helpfulness (Fabes et al. 1993), and a greater tendency to experience positive emotions and optimism in everyday life (Oveis et al. 2009). Higher HRV during idea generation predicts greater divergent thinking (Bowers and Keeling 1971; Rominger et al. 2024), at least in those with good cardiovascular health (Rominger et al. 2019). HRV biofeedback training has been found to improve technique and artistry in dance performance through reducing anxiety (Gruzelier et al. 2014). Children with dyslexia have higher resting HRV (Palser et al. 2021), providing a putative biological explanation for the constellation of strengths observed in children with dyslexia in the current study.

Most research to date has focused on the negative socio-emotional outcomes of individuals with dyslexia, including the high prevalence of co-occurring psychiatric symptoms (Carroll and Iles 2006; Darweesh et al. 2020; Willcutt and Pennington 2000), poor academic and work performance (Livingston et al. 2018) and low self-esteem (Humphrey and Mullins 2002; Novita 2016). Studies suggest that there is a bi-directional relationship between negative affective states and reading achievement (Grills-Taquechel et al. 2012; Yasutake and Bryan 1995), such that negative academic experiences lead to poor emotional outcomes, which in turn negatively impact academic performance. Affective symptoms often persist throughout adulthood in individuals with dyslexia and are not limited to academic situations (Carroll and Iles 2006), indicating the long-term impact of experiencing reading challenges in childhood and underscoring the need for interventions that diminish the relationship between academic challenges and negative socio-emotional outcomes. Further research should examine how adaptive socio-emotional strengths cross-sectionally and longitudinally influence self-esteem and mental well-being.

The familial and cross-cultural nature of dyslexia implies an evolutionary basis (Geschwind and Behan 1982; Stein 2001; Valdois 2010), and some have proposed that the neurocognitive profile of dyslexia confers evolutionary advantages, as well as costs (Taylor and Vestergaard 2022). As such, in individuals with dyslexia, weaknesses in language may be complemented by enhanced socio-emotional processes, such as prosociality, positivity and reliability. The current results, as well as neuroimaging studies in dyslexia demonstrating hypoactivation in regions that support language and reading, including left parietal and bilateral fusiform cortices (Hoeft et al. 2007), and hyperactivation in regions associated with emotions, such as right anterior insula and thalamus (Maisog et al. 2008; Richlan et al. 2009; Sturm et al. 2021), support this hypothesis. Further characterisation of the underlying mechanisms that drive socio-emotional advantages in dyslexia is needed to map a more comprehensive profile of this condition.

4.1 | Implications

Socio-emotional strengths in dyslexia could be leveraged to improve outcomes and mitigate against risk for psychiatric symptoms. Stigma associated with a learning disability diagnosis is thought to play a primary role in the poor socio-emotional outcomes associated with dyslexia (Stein et al. 2024). Emphasising strengths is compatible with a neurodiversity perspective, which emphasises that individual differences in cognition, including learning challenges, represent naturally occurring variation within the population. At the societal level, identifying strengths in dyslexia and other neurodevelopmental disorders may help to reduce stigma and foster positive self-image and overall well-being (Diener et al. 2016). At the individual level, encouraging individuals with dyslexia to focus on activities they excel at has anecdotally been shown to have a positive impact on emotional health (McArthur 2022). Youth with dyslexia who have higher self-esteem are less likely to experience increasing internalising symptoms despite increasing academic demands (Giovagnoli et al. 2020).

Further characterisation of socio-emotional strengths could potentially inform clinical and educational practice. Currently, remediation of dyslexia involves intensive reading instruction (Alexander and Slinger-Constant 2004), individual support in

educational settings (Catone and Brady 2005) and compensatory strategies such as computer-based reading systems (Elkind et al. 1993, 1996). While some of these interventions may be associated with concomitant reductions in internalising symptoms (Hughes et al. 2013), including anxiety (Grills et al. 2014; Haddadian et al. 2012), and increased motivation for academic activities (Milani et al. 2010), there is currently a lack of broader interventions that focus on fostering strengths to support social development, career opportunities, and improve overall well-being. The importance of these 'whole child' efforts (Chafouleas and Iovino 2021) is emphasised by the elevated rates of suicidal ideation (Van Hove et al. 2023), school drop-out (Daniel et al. 2006) and incarceration (Cassidy et al. 2021) in dyslexia. Characterising and harnessing strengths in dyslexia may provide a framework for the development of a comprehensive, strengths-based approach in providing support for individuals with this highly prevalent learning disability.

4.2 | Limitations

There are several limitations of this initial explorative qualitative investigation of socio-emotional strengths in dyslexia to consider. First, our sample consisted of primarily high-income families of European descent, living in the San Francisco Bay Area. While this provides a high level of certainty that participants were truly experiencing challenges in reading that were developmental in origin, findings may not generalise to the more socio-economically and racially diverse wider population. Future studies should therefore prioritise recruitment of more representative samples. Second, while responses on open-ended questions from quantitative surveys are not often reported due to their limited quantity and depth (Nalavany et al. 2023), many of the parents' open-ended responses in our sample were nuanced and detailed, which allowed us to extract meaningful data. Future work, however, should seek to directly integrate the voices of children and adolescents with dyslexia to better understand their own perceptions of their strengths. Third, while many parents naturally drew comparisons with their other children without reading challenges in describing their child with dyslexia, this was not prompted, and there was no comparison group without dyslexia through which to compare the frequency and/or expression of the various strengths identified. It is possible, therefore, that many of the strengths identified are also frequent in children without learning differences, or in children with other neurodevelopmental disorders. The current study was designed to identify previously underexplored islets of preserved skill and competency in children with dyslexia; future research should examine how these skills and competencies compare with other populations. Additionally, as we relied on open-ended responses rather than structured questionnaires listing possible strengths due to the qualitative nature of our study, some characteristics may have been underreported. As part of a broader study on dyslexia with a prompt that highlighted behavioural and emotional strengths, parents may have more readily recalled thoughts of resilience, kindness, and positivity than more technical strengths. Given the qualitative design of the present study, our primary aim was to capture the richness and nuance of responses rather than their frequency. Future research could consider employing a mixed-methods design to explore whether the prevalence of reported traits differs when parents are provided with structured response options. Finally, although our study captured a broad age range, with participants ranging from mid childhood through to mid adolescence, it was limited to characterising socio-emotional strengths at a single time point. It is therefore unknown how these strengths may change over time and further research on the longitudinal trajectory of socio-emotional processes in dyslexia is warranted to understand how strengths may relate to educational and occupational outcomes.

5 | Conclusion

In summary, our study highlighted the real-world parent-reported socio-emotional strengths of children with dyslexia, with notable talents in social skills, positivity, reliability, determination and creativity. The majority of research on specific learning disabilities has focused on deficits, but findings suggest that individuals with dyslexia have many socio-emotional strengths that have previously been overlooked and underexplored. Further research is needed to characterise socio-emotional processes in dyslexia to inform the development of clinical and educational interventions that leverage the extraordinary abilities of these children.

Acknowledgements

We thank the children and their families for participating in our research.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

References

Acar, S., C. Burnett, and J. F. Cabra. 2017. "Ingredients of Creativity: Originality and More." *Creativity Research Journal* 29, no. 2: 133–144. https://doi.org/10.1080/10400419.2017.1302776.

Alessandri, G., G. V. Caprara, and J. Tisak. 2012. "A Unified Latent Curve, Latent State-Trait Analysis of the Developmental Trajectories and Correlates of Positive Orientation." *Multivariate Behavioral Research* 47, no. 3: 341–368. https://doi.org/10.1080/00273171.2012.673954.

Alexander, A. W., and A.-M. Slinger-Constant. 2004. "Current Status of Treatments for Dyslexia: Critical Review." *Journal of Child Neurology* 19, no. 10: 744–758. https://doi.org/10.1177/088307380401901004 01.

Anderson, C. L., D. D. Dixson, M. Monroy, and D. Keltner. 2020. "Are Awe-Prone People More Curious? The Relationship Between Dispositional Awe, Curiosity, and Academic Outcomes." *Journal of Personality* 88, no. 4: 762–779. https://doi.org/10.1111/jopy.12524.

Bal, V. H., E. Wilkinson, and M. Fok. 2022. "Cognitive Profiles of Children With Autism Spectrum Disorder With Parent-Reported Extraordinary Talents and Personal Strengths." *Autism* 26, no. 1: 62–74. https://doi.org/10.1177/13623613211020618.

Bennett, A. E., J. S. Miller, N. Stollon, R. Prasad, and N. J. Blum. 2018. "Autism Spectrum Disorder and Transition-Aged Youth." *Current Psychiatry Reports* 20, no. 11: 103. https://doi.org/10.1007/s11920-018-0967-y.

Bigozzi, L., C. Tarchi, G. Pinto, and R. Donfrancesco. 2016. "Divergent Thinking in Italian Students With and Without Reading Impairments." *International Journal of Disability, Development and Education* 63, no. 4: 450–466. https://doi.org/10.1080/1034912X.2015.1127335.

Bowers, K. S., and K. R. Keeling. 1971. "Heart-Rate Variability in Creative Functioning." *Psychological Reports* 29, no. 1: 160–162. https://doi.org/10.2466/pr0.1971.29.1.160.

Braun, V., and V. Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3, no. 2: 77–101. https://doi.org/10.1191/1478088706qp063oa.

Braun, V., and V. Clarke. 2013. *Successful Qualitative Research: A Practical Guide for Beginners*. SAGE Publications.

Braun, V., and V. Clarke. 2022. *Thematic Analysis: A Practical Guide*. Sage.

Braun, V., V. Clarke, E. Boulton, L. Davey, and C. McEvoy. 2021. "The Online Survey as a Qualitative Research Tool." *International Journal of Social Research Methodology* 24, no. 6: 641–654.

Brunswick, N., N. J. Wilson, I. Kruger, R. Chamberlain, and I. C. McManus. 2024. "The Prevalence of Specific Learning Difficulties in Higher Education: A Study of UK Universities Across 12 Academic Years." *Journal of Learning Disabilities* 58: 179–191. https://doi.org/10.1177/00222194241281479.

Cancer, A., S. Manzoli, and A. Antonietti. 2016. "The Alleged Link Between Creativity and Dyslexia: Identifying the Specific Process in Which Dyslexic Students Excel." *Cogent Psychology* 3, no. 1: 1190309. https://doi.org/10.1080/23311908.2016.1190309.

Caprara, G. V. 2009. "Positive Orientation: Turning Potentials Into Optimal Functioning." *European Health Psychologist* 11, no. 3: 46–48.

Caprara, G. V., N. Eisenberg, and G. Alessandri. 2017. "Positivity: The Dispositional Basis of Happiness." *Journal of Happiness Studies* 18, no. 2: 353–371. https://doi.org/10.1007/s10902-016-9728-y.

Carroll, J. M., and J. E. Iles. 2006. "An Assessment of Anxiety Levels in Dyslexic Students in Higher Education." *British Journal of Educational Psychology* 76, no. 3: 651–662. https://doi.org/10.1348/000709905X66233.

Cassidy, L., K. Reggio, B. A. Shaywitz, J. M. Holahan, and S. E. Shaywitz. 2021. "Dyslexia in Incarcerated Men and Women: A New Perspective on Reading Disability in the Prison Population." *Journal of Correctional Education* 72, no. 2: 61–81.

Catone, W. V., and S. A. Brady. 2005. "The Inadequacy of Individual Educational Program (IEP) Goals for High School Students With Word-Level Reading Difficulties." *Annals of Dyslexia* 55, no. 1: 53–78. https://doi.org/10.1007/s11881-005-0004-9.

Catts, H. W., and Y. Petscher. 2022. "A Cumulative Risk and Resilience Model of Dyslexia." *Journal of Learning Disabilities* 55, no. 3: 173–184. https://doi.org/10.1177/00222194211037062.

Chafouleas, S. M., and E. A. Iovino. 2021. "Engaging a Whole Child, School, and Community Lens in Positive Education to Advance Equity in Schools." *Frontiers in Psychology* 12: 758788. https://doi.org/10.3389/fpsyg.2021.758788.

Chen, X., K. H. Rubin, and Y. Sun. 1992. "Social Reputation and Peer Relationships in Chinese and Canadian Children: A Cross-Cultural Study." *Child Development* 63, no. 6: 1336–1343. https://doi.org/10.2307/1131559.

Chow, C., and K. Cooper. 2024. "What are the Lived Experiences of Strengths in Autistic Individuals? A Systematic Review and Thematic Synthesis." In *Autism in Adulthood*. Advance online publication. https://doi.org/10.1089/aut.2023.0172.

Cropley, A. J. 1990. "Creativity and Mental Health in Everyday Life." *Creativity Research Journal* 3, no. 3: 167–178. https://doi.org/10.1080/10400419009534351.

Cuff, B. M. P., S. J. Brown, L. Taylor, and D. J. Howat. 2016. "Empathy: A Review of the Concept." *Emotion Review* 8, no. 2: 144–153. https://doi.org/10.1177/1754073914558466.

Daniel, S. S., A. K. Walsh, D. B. Goldston, E. M. Arnold, B. A. Reboussin, and F. B. Wood. 2006. "Suicidality, School Dropout, and Reading Problems Among Adolescents." *Journal of Learning Disabilities* 39, no. 6: 507–514. https://doi.org/10.1177/00222194060390060301.

Darweesh, A. M., Y. M. Elserogy, H. Khalifa, R. H. Gabra, and M. A. El-Ghafour. 2020. "Psychiatric Comorbidity Among Children and Adolescents With Dyslexia." *Middle East Current Psychiatry* 27, no. 1: 28. https://doi.org/10.1186/s43045-020-00035-y.

Decarli, G., L. Franchin, and F. Vitali. 2024. "Motor Skills and Capacities in Developmental Dyslexia: A Systematic Review and Meta-Analysis." *Acta Psychologica* 246: 104269. https://doi.org/10.1016/j.actpsy.2024.104269.

Diener, E., E. Sandvik, and W. Pavot. 1991. "Happiness Is the Frequency, Not the Intensity, of Positive Versus Negative Affect." In *Subjective Well-Being: An Interdisciplinary Perspective*, edited by E. Diener, E. Sandvik, and W. Pavot, 119–139. Pergamon Press.

Diener, M. L., C. A. Wright, L. Dunn, S. D. Wright, L. L. Anderson, and K. N. Smith. 2016. "A Creative 3D Design Programme: Building on Interests and Social Engagement for Students With Autism Spectrum Disorder (ASD)." *International Journal of Disability, Development and Education* 63, no. 2: 181–200. https://doi.org/10.1080/1034912X.2015.1053436.

Eisenberg, N., A. L. Duckworth, T. Spinrad, and C. Valiente. 2014. "Conscientiousness: Origins in Childhood?" *Developmental Psychology* 50, no. 5: 1331–1349. https://doi.org/10.1037/a0030977.

Elkind, J., M. S. Black, and C. Murray. 1996. "Computer-Based Compensation of Adult Reading Disabilities." *Annals of Dyslexia* 46, no. 1: 159–186. https://doi.org/10.1007/BF02648175.

Elkind, J., K. Cohen, and C. Murray. 1993. "Using Computer-Based Readers to Improve Reading Comprehension of Students With Dyslexia." *Annals of Dyslexia* 43, no. 1: 238–259. https://doi.org/10.1007/BF02928184.

Everatt, J., B. Steffert, and I. Smythe. 1999. "An Eye for the Unusual: Creative Thinking in Dyslexics." *Dyslexia* 5, no. 1: 28–46. https://doi.org/10.1002/(SICI)1099-0909(199903)5:1<28::AID-DYS126>3.0.CO;2-K.

Fabes, R. A., N. Eisenberg, and L. Eisenbud. 1993. "Behavioral and Physiological Correlates of Children's Reactions to Others in Distress." *Developmental Psychology* 29, no. 4: 655–663. https://doi.org/10.1037/0012-1649.29.4.655.

Fabes, R. A., N. Eisenberg, M. Karbon, D. Troyer, and G. Switzer. 1994. "The Relations of Children's Emotion Regulation to Their Vicarious Emotional Responses and Comforting Behaviors." *Child Development* 65, no. 6: 1678–1693. https://doi.org/10.1111/j.1467-8624.1994.tb00842.x.

Foley Nicpon, M., A. Allmon, B. Sieck, and R. D. Stinson. 2011. "Empirical Investigation of Twice-Exceptionality: Where Have We Been and Where Are We Going?" *Gifted Child Quarterly* 55, no. 1: 3–17. https://doi.org/10.1177/0016986210382575.

Foley-Nicpon, M., S. G. Assouline, and N. Colangelo. 2013. "Twice-Exceptional Learners: Who Needs to Know What?" *Gifted Child Quarterly* 57, no. 3: 169–180. https://doi.org/10.1177/0016986213490021.

Fredrickson, B. L. 2001. "The Role of Positive Emotions in Positive Psychology." *American Psychologist* 56, no. 3: 218–226.

Fukada, H., S. Fukada, and J. Hicks. 1997. "The Relationship Between Leadership and Sociometric Status Among Preschool Children." *Journal of Genetic Psychology* 158, no. 4: 481–486. https://doi.org/10.1080/00221329709596684.

Garner, M. D. 2021. "Dyslexia Primer for Social Work: Translational Research to Update Strengths-Based Practice, Advocacy, and Attitudes." *Advances in Social Work* 21, no. 1: Article 1. https://doi.org/10.18060/24035.

Gayán, J., E. G. Willcutt, S. E. Fisher, et al. 2005. "Bivariate Linkage Scan for Reading Disability and Attention-Deficit/Hyperactivity Disorder Localizes Pleiotropic Loci." *Journal of Child Psychology and Psychiatry, and Allied Disciplines* 46, no. 10: 1045–1056. https://doi.org/10.1111/j.1469-7610.2005.01447.x.

Geschwind, N., and P. Behan. 1982. "Left-Handedness: Association With Immune Disease, Migraine, and Developmental Learning Disorder." *Proceedings of the National Academy of Sciences of the United States of America* 79, no. 16: 5097–5100.

Ghisi, M., G. Bottesi, A. M. Re, S. Cerea, and I. C. Mammarella. 2016. "Socioemotional Features and Resilience in Italian University Students With and Without Dyslexia." *Frontiers in Psychology* 7: 478. https://doi.org/10.3389/fpsyg.2016.00478.

Gilger, J. W., K. Allen, and A. Castillo. 2016. "Reading Disability and Enhanced Dynamic Spatial Reasoning: A Review of the Literature." *Brain and Cognition* 105: 55–65. https://doi.org/10.1016/j.bandc.2016.03.005.

Giovagnoli, S., L. Mandolesi, S. Magri, et al. 2020. "Internalizing Symptoms in Developmental Dyslexia: A Comparison Between Primary and Secondary School." *Frontiers in Psychology* 11: 461. https://doi.org/10.3389/fpsyg.2020.00461.

Grills, A. E., J. M. Fletcher, S. Vaughn, A. Barth, C. A. Denton, and K. K. Stuebing. 2014. "Anxiety and Response to Reading Intervention Among First Grade Students." *Child & Youth Care Forum* 43, no. 4: 417–431. https://doi.org/10.1007/s10566-014-9244-3.

Grills-Taquechel, A. E., J. M. Fletcher, S. R. Vaughn, and K. K. Stuebing. 2012. "Anxiety and Reading Difficulties in Early Elementary School: Evidence for Unidirectional- or Bi-Directional Relations?" *Child Psychiatry & Human Development* 43, no. 1: 35–47. https://doi.org/10.1007/s10578-011-0246-1.

Gruzelier, J. H., T. Thompson, E. Redding, R. Brandt, and T. Steffert. 2014. "Application of Alpha/Theta Neurofeedback and Heart Rate Variability Training to Young Contemporary Dancers: State Anxiety and Creativity." *International Journal of Psychophysiology* 93, no. 1: 105–111. https://doi.org/10.1016/j.ijpsycho.2013.06.007.

Haddadian, F., v. Alipourb, A. Majidi, and H. Maleki. 2012. "The Effectiveness of Self-Instruction Technique on Improvement of Reading Performance and Reduction of Anxiety in Primary School Students With Dyslexia." *Procedia-Social and Behavioral Sciences* 46: 5366–5370. https://doi.org/10.1016/j.sbspro.2012.06.440.

Haft, S. L., C. A. Myers, and F. Hoeft. 2016. "Socio-Emotional and Cognitive Resilience in Children With Reading Disabilities." *Current Opinion in Behavioral Sciences* 10: 133–141. https://doi.org/10.1016/j.cobeha.2016.06.005.

Hoeft, F., A. Meyler, A. Hernandez, et al. 2007. "Functional and Morphometric Brain Dissociation Between Dyslexia and Reading Ability." *Proceedings of the National Academy of Sciences* 104, no. 10: 4234–4239. https://doi.org/10.1073/pnas.0609399104.

Holland, J. L., and L. M. Christian. 2009. "The Influence of Topic Interest and Interactive Probing on Responses to Open-Ended Questions in Web Surveys." *Social Science Computer Review* 27, no. 2: 196–212. https://doi.org/10.1177/0894439308327481.

Hossain, B., Y. Chen, S. Bent, et al. 2022. "The Role of Grit and Resilience in Children With Reading Disorder: A Longitudinal Cohort Study." *Annals of Dyslexia* 72, no. 1: 1–27. https://doi.org/10.1007/s11881-021-00238-w2.

Hughes, J. A., G. Phillips, and P. Reed. 2013. "Brief Exposure to a Self-Paced Computer-Based Reading Programme and How It Impacts Reading Ability and Behaviour Problems." *PLoS One* 8, no. 11: e77867. https://doi.org/10.1371/journal.pone.0077867.

Humphrey, N., and P. M. Mullins. 2002. "Self-Concept and Self-Esteem in Developmental Dyslexia." *Journal of Research in Special Educational Needs* 2, no. 2: 1–13. https://doi.org/10.1111/j.1471-3802.2002.00163.x.

Idan, O., and M. Margalit. 2012. "Socioemotional Self-Perceptions, Family Climate, and Hopeful Thinking Among Students With Learning Disabilities and Typically Achieving Students From the Same Classes." *Journal of Learning Disabilities* 47, no. 2: 136–152. https://doi.org/10.1177/0022219412439608.

Ioannidou, F., and V. Konstantikaki. 2008. "Empathy and Emotional Intelligence: What Is It Really About." *International Journal of Caring Sciences* 1, no. 3: 118–123.

Kamphaus, R. W., and C. R. Reynolds. 2017. *BASC–2 Behavioral and Emotional Screening System [Dataset]*. APA PsycTests. https://doi.org/10.1037/t29902-000.

Kapp, S. K. 2018. "Social Support, Well-Being, and Quality of Life Among Individuals on the Autism Spectrum." *Pediatrics* 141, no. Supplement_4: S362–S368. https://doi.org/10.1542/peds.2016-4300N.

Lam, J. H. Y., and S. X. Tong. 2021. "Drawing a New Picture: Children With Developmental Dyslexia Exhibit Superior Nonverbal Creativity." *Research in Developmental Disabilities* 116: 104036. https://doi.org/10.1016/j.ridd.2021.104036.

Lemon, T. I., and R. D. Shah. 2014. "EPA-0040 – Dyslexia in High Performers – A Study Across 4 Degree Disciplines." *European Psychiatry* 29: 1. https://doi.org/10.1016/S0924-9338(14)77546-7.

Livingston, E. M., L. S. Siegel, and U. Ribary. 2018. "Developmental Dyslexia: Emotional Impact and Consequences." *Australian Journal of Learning Difficulties* 23, no. 2: 107–135. https://doi.org/10.1080/19404158.2018.1479975.

Logan, J. 2009. "Dyslexic Entrepreneurs: The Incidence; Their Coping Strategies and Their Business Skills." *Dyslexia* 15, no. 4: 328–346. https://doi.org/10.1002/dys.388.

Lubart, T. I., and R. J. Sternberg. 1998. "Creativity Across Time and Place: Life Span and Cross-Cultural Perspectives." *High Ability Studies* 9, no. 1: 59–74. https://doi.org/10.1080/1359813980090105.

Lyon, G. R., S. E. Shaywitz, and B. A. Shaywitz. 2003. "A Definition of Dyslexia." *Annals of Dyslexia* 53, no. 1: 1–14. https://doi.org/10.1007/s11881-003-0001-9.

Maisog, J. M., E. R. Einbinder, D. L. Flowers, P. E. Turkeltaub, and G. F. Eden. 2008. "A Meta-Analysis of Functional Neuroimaging Studies of Dyslexia." *Annals of the New York Academy of Sciences* 1145, no. 1: 237–259. https://doi.org/10.1196/annals.1416.024.

Majeed, N. M., A. Hartanto, and J. J. X. Tan. 2021. "Developmental Dyslexia and Creativity: A Meta-Analysis." *Dyslexia* 27, no. 2: 187–203. https://doi.org/10.1002/dys.1677.

McArthur, G. 2022. "Poor Reading and Anxiety (PRAX): Building a Theory and Practice." *Australian Journal of Learning Difficulties* 27, no. 1: 169–180. https://doi.org/10.1080/19404158.2022.2054834.

McCrae, R. R., and P. T. Costa. 1997. "Chapter 31—Conceptions and Correlates of Openness to Experience." In *Handbook of Personality Psychology*, edited by R. Hogan, J. Johnson, and S. Briggs, 825–847. Academic Press. https://doi.org/10.1016/B978-012134645-4/50032-9.

McNulty, M. A. 2003. "Dyslexia and the Life Course." *Journal of Learning Disabilities* 36, no. 4: 363–381. https://doi.org/10.1177/00222194030360040701.

Milani, A., M. L. Lorusso, and M. Molteni. 2010. "The Effects of Audiobooks on the Psychosocial Adjustment of Pre-Adolescents and

Adolescents With Dyslexia." *Dyslexia* 16, no. 1: 87–97. https://doi.org/10.1002/dys.397.

Misra, G., A. K. Srivastava, and I. Misra. 2006. "Culture and Facets of Creativity: The Indian Experience." In *The International Handbook of Creativity*, 421–455. Cambridge University Press. https://doi.org/10.1017/CBO9780511818240.015.

Nalavany, B. A., R. Kennedy, M. H. Lee, L. W. Carawan, and S. M. Knight. 2023. "Insights From a Web-Based Survey Into the Psychosocial Experiences of Adults With Dyslexia: Findings From a Final Comment Question." *Dyslexia* 29, no. 4: 441–458. https://doi.org/10.1002/dys.1756.

Novita, S. 2016. "Secondary Symptoms of Dyslexia: A Comparison of Self-Esteem and Anxiety Profiles of Children With and Without Dyslexia." *European Journal of Special Needs Education* 31, no. 2: 279–288. https://doi.org/10.1080/08856257.2015.1125694.

Oveis, C., A. B. Cohen, J. Gruber, M. N. Shiota, J. Haidt, and D. Keltner. 2009. "Resting Respiratory Sinus Arrhythmia Is Associated With Tonic Positive Emotionality." *Emotion* 9, no. 2: 265–270. https://doi.org/10.1037/a0015383.

Palser, E. R., N. A. Morris, A. R. K. Roy, et al. 2021. "Children With Developmental Dyslexia Show Elevated Parasympathetic Nervous System Activity at Rest and Greater Cardiac Deceleration During an Empathy Task." *Biological Psychology* 166: 108203. https://doi.org/10.1016/j.biopsycho.2021.108203.

Richlan, F., M. Kronbichler, and H. Wimmer. 2009. "Functional Abnormalities in the Dyslexic Brain: A Quantitative Meta-Analysis of Neuroimaging Studies." *Human Brain Mapping* 30, no. 10: 3299–3308. https://doi.org/10.1002/hbm.20752.

Robson, C. 1993. *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*. Blackwell.

Rominger, C., A. Fink, B. Weber, C. M. Perchtold-Stefan, M. Benedek, and A. R. Schwerdtfeger. 2024. "It Is Heart to Be Creative: Insights From Ambulatory Monitoring." *Psychology of Aesthetics, Creativity, and the Arts*. https://doi.org/10.1037/aca0000631.

Rominger, C., I. Papousek, A. Fink, et al. 2019. "Creative Challenge: Regular Exercising Moderates the Association Between Task-Related Heart Rate Variability Changes and Individual Differences in Originality." *PLoS One* 14, no. 7: e0220205. https://doi.org/10.1037/aca0000679.

Scharf, M., and O. Mayseless. 2009. "Socioemotional Characteristics of Elementary School Children Identified as Exhibiting Social Leadership Qualities." *Journal of Genetic Psychology* 170, no. 1: 73–94. https://doi.org/10.3200/GNTP.170.1.73-96.

Shaywitz, S. E. 1998. "Dyslexia." *New England Journal of Medicine* 338, no. 5: 307–312. https://doi.org/10.1056/NEJM199801293380507.

Steffert, B. 2009. *Visual Spatial Ability and Dyslexia: A Research Project*. Central St Martins College of Art & Design.

Stein, B., F. Hoeft, and C. G. Richter. 2024. "Stress, Resilience, and Emotional Well-Being in Children and Adolescents With Specific Learning Disabilities." *Current Opinion in Behavioral Sciences* 58: 101410. https://doi.org/10.1016/j.cobeha.2024.101410.

Stein, J. 2001. "The Magnocellular Theory of Developmental Dyslexia." *Dyslexia* 7, no. 1: 12–36. https://doi.org/10.1002/dys.186.

Sturm, V. E., A. R. K. Roy, S. Datta, et al. 2021. "Enhanced Visceromotor Emotional Reactivity in Dyslexia and Its Relation to Salience Network Connectivity." *Cortex* 134: 278–295. https://doi.org/10.1016/j.cortex.2020.10.022.

Tafti, M. A., M. A. Hameedy, and N. M. Baghal. 2009. "Dyslexia, a Deficit or a Difference: Comparing the Creativity and Memory Skills of Dyslexic and Nondyslexic Students in Iran." *Social Behavior and Personality: An International Journal* 37, no. 8: 1009–1016. https://doi.org/10.2224/sbp.2009.37.8.1009.

Tamdogon, O. G. 2006. "Creativity in Education: Clearness in Perception, Vigorousness in Curiosity." *Education for Information* 24, no. 2–3: 139–151.

Taylor, H., and M. D. Vestergaard. 2022. "Developmental Dyslexia: Disorder or Specialization in Exploration?" *Frontiers in Psychology* 13: 889245. https://www.frontiersin.org/articles/10.3389/fpsyg.2022.889245.

Thomas, D. R. 2006. "A General Inductive Approach for Analyzing Qualitative Evaluation Data." *American Journal of Evaluation* 27, no. 2: 237–246. https://doi.org/10.1177/1098214005283748.

Torrance, E. P. 1974. *The Torrance Tests of Creative Thinking: Norms-Technical Manual*. Personal Press.

Valdois, S. 2010. "Dyslexia (Developmental)." In *Encyclopedia of Behavioral Neuroscience*, edited by G. F. Koob, M. L. Le Moal, and R. F. Thompson, 454–460. Elsevier. https://doi.org/10.1016/B978-0-08-045396-5.00043-9.

Van Hove, L., I. Baetens, K. Van Leeuwen, et al. 2023. "Passive Suicidal Ideation in Childhood." *Crisis* 44, no. 2: 100–107. https://doi.org/10.1027/0227-5910/a000835.

Wagner, R. K., F. A. Zirps, A. A. Edwards, et al. 2020. "The Prevalence of Dyslexia: A New Approach to Its Estimation." *Journal of Learning Disabilities* 53, no. 5: 354–365. https://doi.org/10.1177/0022219420920377.

Wilkinson, E., L. T. V. Vo, Z. London, S. Wilson, and V. H. Bal. 2022. "Parent-Reported Strengths and Positive Qualities of Adolescents and Adults With Autism Spectrum Disorder and/or Intellectual Disability." *Journal of Autism and Developmental Disorders* 52: 5471–5482.

Willcutt, E. G., and B. F. Pennington. 2000. "Psychiatric Comorbidity in Children and Adolescents With Reading Disability." *Journal of Child Psychology and Psychiatry* 41, no. 8: 1039–1048. https://doi.org/10.1111/1469-7610.00691.

Yang, L., C. Li, X. Li, et al. 2022. "Prevalence of Developmental Dyslexia in Primary School Children: A Systematic Review and Meta-Analysis." *Brain Sciences* 12, no. 2: Article 2. https://doi.org/10.3390/brainsci12020240.

Yasutake, D., and T. Bryan. 1995. "The Influence of Affect on the Cchievement and Behavior of Students With Learning Disabilities." *Journal of Learning Disabilities* 28, no. 6: 329–334. https://doi.org/10.1177/002221949502800603.

Zheng, G., P. J. Schwanenflugel, and S. M. Rogers. 2016. "Emergent Motivation to Read in Prekindergarten Children." *Reading Psychology* 37, no. 3: 392–423. https://doi.org/10.1080/02702711.2015.1057787.

Zuell, C., and E. Scholz. 2015. "Who Is Willing to Answer Open-Ended Questions on the Meaning of Left and Right?" *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique* 127, no. 1: 26–42. https://doi.org/10.1177/0759106315582199.