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**Predictors of School Concern Across the Transition to Secondary School with
Developmental Language Disorder and Low Language Ability: A Longitudinal
Developmental Cascade Analysis**

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**Keywords: Developmental Language Disorder, Low Language Ability,
Transition, School Concern, Psychosocial, Literacy.**

Abstract

Background

Developmental Language Disorder (DLD) has clear functional ramifications in the areas of Social Competency, Emotion Recognition, Emotional Wellbeing and Literacy Skill, that have been found to persist from childhood through adolescence. These domains are important factors during the transition from primary to secondary school in typical development (TD). Nevertheless, there is a paucity of research on the transition from primary to secondary school for adolescents with DLD and Low Language (LL) ability.

Aims

This study aimed to investigate the association between psychosocial domains, literacy skill and concerns about school during the transition to secondary school for adolescents with DLD, LL and their TD peers. The first research question examined whether levels of Social Competency, Emotion Recognition, Emotional Wellbeing, Literacy Skill predicted School Concern for the three groups. The second research question explored the longitudinal relationship between School Concern and psychosocial and literacy indicators over the transition.

Methods & Procedures

Participants (aged 10-11) with DLD ($n = 30$), LL ($n = 29$) and TD ($n = 42$) were recruited for this longitudinal study from eight UK primary schools. Standardized language and psychosocial assessments were administered in Spring and Summer terms of the final year of primary school, and Autumn and Summer terms of the first year in secondary school.

Outcomes & Results

Regression analyses showed pre-transition school concern to be predicted by Emotion Recognition for the DLD group, by Social Competence and Emotional Wellbeing for the LL group, and by Social Competence for the TD group. Post-transition concern was predicted by

Longitudinal Analysis School Concern in DLD and LL

Emotional Wellbeing for the LL group; with no significant predictors for DLD/TD groups. Path analyses revealed an association between Literacy Skill and Emotion Recognition for the DLD group. A Developmental Cascade illustrated a relationship between Social Competence and Emotional Wellbeing for the TD group.

Conclusions & Implications

This study concludes that transition interventions must be differentiated according to language ability; support for DLD adolescents should focus on Emotion Recognition skill, provision for LL adolescents should centre on Emotional Wellbeing, and TD participants should be particularly supported in the domain of Social Competence in advance of the move to secondary school. Additionally, this study emphasises the importance of the inclusion of a LL group, as their outcomes cannot be predicted using DLD/TD research.

Keywords: Developmental Language Disorder, Low Language Ability, Transition, School Concern, Psychosocial, Literacy.

What This Paper Adds

There is limited research exploring the transition from primary school to secondary for adolescents with Developmental Language Disorder or Low Language ability. Research in typical development has highlighted vulnerable domains at this time. As these key areas are evidenced spheres of difficulty in DLD and LL, there was a strong impetus for this study.

This study reveals differences between language ability groups in the predictors of school concern both pre- and post-transition. Concerns of adolescents with DLD were predicted by Emotion Recognition, those of adolescents with LL were predicted by Emotional Wellbeing, and a longitudinal link between Social Competence and Emotional Wellbeing was evidenced for TD adolescents.

This study has implications for researchers and clinicians, as a need has been identified for a new clinical group. It also has practical implications for transition support planning for educational practitioners, families and adolescents.

Introduction

Developmental Language Disorder (DLD) is a neurodevelopmental disorder affecting 7.5% of children (cf. Norbury et al., 2016). The prevalence of DLD in adolescence is more difficult to ascertain but 40% of adolescents with a history of DLD are thought to have persistent language difficulties (Law et al., 2000). It is characterised by impairments across language areas and modalities. These impairments can be receptive, expressive or mixed and can contribute to functional impairment in everyday life (Bishop et al., 2017). Much of the literature concerning the population now categorised with DLD, uses the term Specific Language Impairment (SLI). Following a change in definition (Bishop et al., 2017), this study replaces SLI with DLD throughout. DLD is notoriously under-identified and underrepresented in research and educational provision. Although DLD can affect academic, social and emotional domains, it is often not conspicuous as a disorder (Leonard, 2014).

Additionally, adolescents with language skills lower than TD, yet above DLD diagnostic criteria are even more underrepresented. Bishop (2014) highlights the importance of diagnostic categories in communicating the requirement for resources. Without a diagnosis, difficulties may be attributed to factors such as poor teaching. Bishop (2014) also described the impossibility of conducting scientific research in the area of DLD and language impairment, without labels or diagnoses. Groups of children must be studied to further our understanding, and if labels cannot be applied or an established set of diagnostic criteria agreed, then groups cannot be formed. In order to ensure that the full spectrum of language ability is accounted for, the current study includes a Low Language (LL) group, to allow a clinical space for these adolescents.

The transition from primary to secondary school typically occurs at 11 years of age in the UK mainstream school system. This coincides with the onset of adolescence and its

myriad biological changes leading to a simultaneous developmental and systemic transition. The move can mean a greater degree of independence and responsibility and may be stressful for some children (Riglin et al., 2013). While, for a majority, this is a time of widening horizons and growing independence, it might also be a time when students' confidence as learners is reduced and they fail to progress academically as expected (Evangelou et al., 2008). Difficulties in the area of language comprehension have been found to be particularly enduring into adolescence (Bishop et al., 2017). DLD has clear functional ramifications in the areas of Social Competency, Emotion Recognition, Emotional Wellbeing and Literacy Skill that have been found to persist during adolescence (Conti-Ramsden et al., 2013). These areas will be discussed in turn in relation to DLD and school transition.

Adolescents with DLD can experience issues in peer interactions twelve times higher than their TD peers (Conti-Ramsden et al., 2013; cf. St Clair et al., 2011). However, it must be noted that there are exceptions in the literature; for example, Conti-Ramsden and Botting (2004) found 60% of their DLD sample not to experience peer problems. The diverse nature of DLD is as evident in peer interactions and sociability as in every other aspect of DLD. Friendships are very important in advance of the transition to secondary school (Evangelou et al., 2008; Keay et al., 2015), yet Riglin et al. (2013) report substantial instability in friendships across the transition to secondary school. Adolescents with stable friendships over the transition period do better academically, have lower rates of conduct problems and higher rates of prosocial behaviour than those who do not maintain such friendships (Keay et al., 2015). New friendships at this time are linked with higher self-esteem and greater confidence after the transition to secondary school (Evangelou et al., 2008).

Identification of others' emotions is an essential component of communication. The limited body of work investigating emotion recognition in DLD, shows that children and

adolescents experience deficits in emotion recognition relative to their TD peers (Griffiths et al., 2020; Spackman et al., 2005). Additionally, the literature investigating emotion recognition in DLD and LL has resulted in little being known about the possible ramifications of this deficiency, yet in TD, accurate emotion identification has been associated with positive psychosocial (Sette et al., 2017) and academic (Denham et al., 2012) outcomes. The transition from primary to secondary school has been shown to be more difficult for adolescents with emotional difficulties (Riglin et al., 2014). Conti-Ramsden et al. (2013) discussed the difficulties that poor communicative skills can create in relating to others, in expressing one's needs or feelings and in understanding messages. The transition from primary to secondary school has been shown to be more difficult (and result in poorer school attainment) for adolescents with emotional issues (Riglin et al., 2013; 2014). Riglin et al. (2014) suggest that early identification of young people with emotional problems and the implementation of appropriate interventions at this transitional stage may be a key first step in improving academic outcomes such as literacy skills.

A key predictor of longitudinal outcomes in psychosocial and academic domains is literacy skill, especially reading comprehension (Conti-Ramsden et al., 2017; Vilenius-Tuohimaa et al., 2008). Adolescents with DLD have difficulties with reading accuracy and reading comprehension (Catts et al., 2008; Palikara et al., 2011). Children with LL also find reading comprehension significantly more difficult than their TD peers (Myers & Botting, 2008). Literacy is one of the most important areas of academic progress because the compounding effects of a failure to meet expected levels in reading following the transition to secondary school are evidenced (Higgins et al., 2014). Given that the outcomes of adolescents with DLD in peer relationships (cf. Conti-Ramsden et al., 2013) and vocabulary levels (Bishop et al., 2017) are reduced relative to their TD peers, it is imperative that literacy

interventions during the transition from primary to secondary school are tailored according to the adolescent's language ability.

The importance of Social Competency, Emotion Recognition, Emotional Wellbeing and Literacy Skill (key areas of difficulty in DLD and LL) at the transition to secondary school, necessitates research investigating the experience for this population. More specifically, as looking forward to going to secondary school is one of the most influential factors promoting a positive transition among children (Evangelou et al., 2008), it is important that the concerns of these adolescents are investigated. In TD, the nature of concerns identified in advance of the transition to secondary school are consistent within the extant literature, with personal adaptability, peers and friendships, new teachers and rules, size of the secondary school and getting lost, and coping with work frequently cited as common concerns (Evangelou et al., 2008; Keay et al., 2015; Riglin et al., 2013). While most primary school pupils view the impending transition positively, more vulnerable pupils i.e., those with special educational needs and disabilities (SEND), and lower academic achievers likely need intervention prior to transition (Makin et al., 2017). The paucity of research on this transition in SEND has been highlighted (Bagnall et al., 2021), particularly in relation to psychosocial domains. Dockrell and Lindsay (2007), the only extant study concerning the transition from primary to secondary school in DLD, show this group to struggle with some of the practicalities and the academic level. However, the focus was primarily on parent and teacher perspectives of concerns, not the adolescent's own perspective. No studies have investigated this school transition in LL.

This dearth of information is why the current study is such a priority. Without further understanding, optimal support cannot be provided. This is imperative as improvements in educational support systems can improve outcomes for children with language needs (Conti-Ramsden et al., 2017). This study focuses on two research questions. The first research

Longitudinal Analysis School Concern in DLD and LL

question examines whether levels of Social Competency, Emotion Recognition, Emotional Wellbeing, and Literacy Skill predicted School Concern for adolescents with DLD, adolescents with LL and their TD peers. The second research question explores the longitudinal relationship between School Concern and psychosocial and literacy indicators over the transition. It is hypothesised that the DLD and LL groups will demonstrate levels of Social Competency, Emotion Recognition, Emotional Wellbeing, and Literacy Skill in line with group membership (cf. Catts et al., 2008; Conti-Ramsden et al., 2013; Griffiths et al., 2020; Palikara et al., 2011; Spackman et al., 2005; St Clair et al., 2011). It is also expected that the DLD and LL groups will report greater school concerns than the TD group (cf. Bagnall et al., 2021). The predictors of these concerns are hypothesised to differ between groups. The longitudinal interactions between Social Competency, Emotion Recognition, Emotional Wellbeing and Literacy Skill across the transition to secondary school are also expected to differ between groups, but the paucity of research in this domain makes it difficult to predict specific interactions.

Method

Participants

One hundred and seven adolescents participated in this study. The protocol for this study was approved by the Research Ethics Committee at the University of Roehampton. Informed consent was obtained from participants (verbal), parents, teachers, and headteachers (written).

Participants with DLD ($n = 30$) were on their school's SEND register for language difficulties. These difficulties were not due to a known biomedical condition. All participants completed a battery of standardized language assessments to confirm group membership. All adolescents included in the DLD group obtained a score at or below 1.25SD below the population norm on both a receptive and an expressive language task. These standardized assessments report a score of below 1.25 SD to be indicative of impairment. Please see Table 1 for details of participant's sex, language skill, and cognitive ability standard scores by group.

The LL group ($n = 29$) included those students who did not meet the criteria for DLD yet scored at or below 1.25SD on one of the language tasks. These difficulties were not due to a known biomedical condition. Teacher completion of the Child Communication Checklist-2 (Bishop, 2003) indicated concerns as to their communicative ability. Thus, they exhibited lower language ability than their peers included in the TD group but did not score at or below 1.25SD below the population norm on both a receptive and an expressive language task, as per the DLD group.

The TD group ($n = 48$) included 40 adolescents who achieved scores within 2SD of the population norm on all language tasks and eight participants who achieved scores within 2SD of the population norm on three of the language tasks and above 2SD of the population

Longitudinal Analysis School Concern in DLD and LL

norm on one of the language tasks. No members of the TD group had a history of language impairment.

The three groups, DLD, LL and TD, did not differ in sex nor chronological age. The DLD and LL groups had lower scores on the language measures and lower non-verbal ability than their TD peers, as was expected with their group status (cf. Norbury et al., 2016).

Table 1
Participant Sex Breakdown, Language Skill and Cognitive Ability Standard Scores by Group

Variable	Developmental Language Disorder Mean (SD) <i>n</i> =30	Low Language Mean (SD) <i>n</i> =29	Typically Developing Mean (SD) <i>n</i> =48	<i>Test statistics</i>
Sex Male	12	11	26	$\chi^2 (2, N=107) = 2.48, p = .289, \phi = .15$
Female	18	18	22	
Chronological Age (Years)	10.82 ^a (0.26)	10.86 ^a (.23)	10.84 ^a (0.23)	$F (2, 106) = 0.23, p = .796, \eta_p^2 = .01$
WASI-II Matrix Reasoning (T-score)	41.97 ^a (9.68)	48.69 ^b (7.57)	54.17 ^c (9.22)	$F (2, 106) = 17.26, p < .001, \eta_p^2 = .25$
Language skill:				
CELF Recalling Sentences (Scaled score)	7.13 ^c (3.61)	9.14 ^b (2.23)	11.27 ^a (1.85)	$F (2, 106) = 24.70, p < .001, \eta_p^2 = .32$
CELF Vocabulary Word Classes Receptive (Scaled score)	5.87 ^c (1.50)	9.38 ^b (2.04)	12.69 ^a (2.69)	$F (2, 106) = 86.45, p < .001, \eta_p^2 = .62$
CELF Vocabulary Word Classes Expressive (Scaled score)	5.93 ^c (2.00)	10.66 ^b (1.65)	13.90 ^a (2.47)	$F (2, 106) = 127.17, p < .001, \eta_p^2 = .71$
Test for Reception of Grammar (Standard score)	91.33 ^b (15.73)	92.76 ^b (16.78)	106.33 ^a (6.43)	$F (2, 106) = 16.65, p < .001, \eta_p^2 = .24$

Note: ^{a b c} Values with the same superscript do not differ when $p < .05$

Materials and Procedure

This was a longitudinal study with four timepoints; a screening assessment and three subsequent data collection points, pre- and post-transition. Each participant was individually assessed at all times. Participants were seen individually by the same researcher (Sheila Gough Kenyon) in a quiet room at their school. Measures are described below.

Longitudinal Analysis School Concern in DLD and LL

The Social Competence and Global Self-Worth subscales of the SPPC (Harter, 1985) consist of two opposite descriptions, e.g. ‘Some children often forget what they have learned’ but ‘Other children are able to remember all things easily’. Participants choose a description and indicate whether it is somewhat true or very true for them. Each item is scored on a four-point scale and a total score is computed by summing items. The Cronbach’s alpha of the SPPC in the current study was .92. This took approximately ten minutes to complete.

The Emotion Recognition measure was created using E-Prime 2.0. Participants were required to identify the emotion displayed by 48 facial stimuli selected from the NimStim set of facial stimuli (Tottenham et al., 2009) displayed on a laptop. The six emotions included are anger, disgust, fear, happiness, sadness, and surprise (cf. Spackman et al., 2005). Participants made a forced choice response by selecting a number on the keyboard. Accuracy was recorded. The Cronbach’s alpha of the Emotion Recognition measure in the current study was .59. This task took up to ten minutes to administer.

The Psychological Wellbeing and Autonomy and Parent Relations dimensions of the KIDSCREEN-27 (KIDSCREEN Group Europe, 2006) required adolescents to rate items on a 5-point Likert scale, evaluating each statement in the context of the past week, e.g. ‘Have you had fun’ and ‘Have you had enough time to yourself?’. In the current study, the Cronbach’s alpha values of the child self-report KIDSCREEN-27 was .83. This took approximately ten-fifteen minutes to complete.

The TOWRE-2 (Torgesen et al., 2011) tests two kinds of word reading skills. Sight Word Efficiency assesses the number of real printed words, Phonetic Decoding Efficiency measures the number of pronounceable printed nonwords, that can be accurately decoded within 45 seconds.

Longitudinal Analysis School Concern in DLD and LL

The Reading Comprehension subtest of the WIAT-11 (Wechsler, 2005) required participants to read passages aloud or silently. Following the reading of each passage, participants were asked the corresponding comprehension questions. The Spelling subtest involved the researcher reading aloud from a list of words. After each word, the researcher paused allowing time for the participant to write the word. This took up to 15 minutes to administer.

The SCQ (Rice et al., 2011) measured participant's feelings about the transition from primary to secondary school. This questionnaire includes twenty items detailing common concerns about the transition, e.g. 'making new friends', and 'following a timetable'. Participants attributed a numerical value (1–10) to each. The Cronbach's alpha of the SCQ in the current study was .92. This took approximately 5 min to complete.

Results

Analysis

Social Competency, Emotion Recognition Accuracy, Emotional Wellbeing (i.e. Psychological Wellbeing, Autonomy and Parent Relations, School Environment and SPPC Global Self-Worth), Literacy Skill (i.e. Sight Word Efficiency, Phonemic Decoding Efficiency, Reading Comprehension, Spelling Accuracy), and School Concern were compared between groups (DLD, LL and TD) pre- and post-transition, using one way ANOVAs. Pairwise comparisons were included post-hoc with a Bonferroni correction. Please see Table 2 for details of this analysis, together with descriptive statistics of each of these variables pre- and post-transition, by group.

School concern was compared between the end of the last year of primary school, the start of the first year of secondary school, and the end of the first year of secondary school for each of the three groups (DLD, LL and TD) using a Repeated Measures ANOVA. Pairwise comparisons were included post-hoc with a Bonferroni correction. Please see Table 3 for details of this analysis.

Regression analyses explored the predictive power of Social Competency, Emotion Recognition Accuracy, Emotional Wellbeing and Literacy Skill on School Concerns pre- and post-transition. Longitudinal analysis was conducted using Mplus8 (Müthen & Müthen, 2011), resulting in a Developmental Cascade (cf. Masten et al., 2005). This Developmental Cascade includes the impact of time across the transition to secondary school (Masten & Cicchetti, 2010).

Longitudinal Analysis School Concern in DLD and LL

Table 2
Variables Pre- and Post-Transition by Group

Variable	Developmental Language Disorder Mean (SD)	Low Language Mean (SD)	Typically Developing Mean (SD)	Test statistics
Pre-Transition	<i>n</i> =30	<i>n</i> =29	<i>n</i> =48	
SPPC Social Competence	14.02 ^a (5.07)	11.66 ^a (4.44)	12.41 ^a (3.98)	$F(2, 106) = 2.23, p = .113, \eta_p^2 = 0.04$
Emotion Recognition*	78.40 ^a (10.92)	80.96 ^{a,b} (8.02)	86.85 ^b (6.93)	$F(2, 106) = 10.12, p < .001, \eta_p^2 = 0.16$
Psychological Wellbeing	51.08 ^a (9.73)	52.35 ^a (10.71)	50.03 ^a (9.06)	$F(2, 106) = .52, p = .599, \eta_p^2 = 0.01$
Autonomy and Parent Relations*	46.06 ^a (10.07)	50.47 ^{a,b} (8.83)	51.07 ^b (9.36)	$F(2, 106) = 2.82, p = .064, \eta_p^2 = 0.05$
SPPC Global Self-Worth	10.82 ^a (3.81)	10.69 ^a (3.06)	10.54 ^a (3.89)	$F(2, 106) = .05, p = .948, \eta_p^2 = 0.01$
TOWRE Sight Word Efficiency*	74.97 ^a (16.59)	102.34 ^b (8.69)	118.92 ^c (16.45)	$F(2, 106) = 81.28, p < .001, \eta_p^2 = 0.61$
TOWRE Phonemic Decoding*	79.23 ^a (15.07)	100.93 ^b (8.22)	111.85 ^c (13.82)	$F(2, 106) = 58.72, p < .001, \eta_p^2 = 0.53$
WIAT Reading Comprehension*	91.93 ^a (18.02)	111.28 ^b (15.75)	121.46 ^c (10.24)	$F(2, 106) = 39.37, p < .001, \eta_p^2 = 0.43$
WIAT Spelling Accuracy*	86.60 ^a (14.66)	97.21 ^b (8.79)	113.13 ^c (12.31)	$F(2, 106) = 45.84, p < .001, \eta_p^2 = 0.47$
School Concerns*	93.97 ^a (41.52)	80.28 ^{a,b} (37.08)	67.69 ^b (27.48)	$F(2, 106) = 5.40, p = .006, \eta_p^2 = 0.09$
Post-Transition	<i>n</i> =29	<i>n</i> =28	<i>n</i> =46	
SPPC Social Competence*	16.07 ^a (3.45)	12.32 ^b (4.07)	11.33 ^b (4.72)	$F(2, 102) = 11.62, p < .001, \eta_p^2 = 0.19$
Emotion Recognition*	78.95 ^a (10.79)	81.25 ^a (7.69)	92.80 ^b (3.61)	$F(2, 102) = 38.52, p < .001, \eta_p^2 = 0.44$
Psychological Wellbeing	50.03 ^a (11.84)	48.54 ^a (8.80)	49.54 ^a (9.92)	$F(2, 102) = .16, p = .855, \eta_p^2 = 0.01$
Autonomy and Parent Relations	51.38 ^a (10.56)	47.43 ^a (7.62)	49.69 ^a (8.17)	$F(2, 102) = 1.46, p = .238, \eta_p^2 = 0.03$
SPPC Global Self-Worth*	13.52 ^a (3.38)	9.80 ^b (3.71)	9.91 ^b (3.48)	$F(2, 102) = 11.23, p < .001, \eta_p^2 = 0.18$
TOWRE Sight Word Efficiency*	77.14 ^a (14.67)	103.21 ^b (7.69)	120.91 ^c (15.52)	$F(2, 102) = 92.33, p < .001, \eta_p^2 = 0.65$
TOWRE Phonemic Decoding*	80.17 ^a (13.05)	102.61 ^b (7.44)	114.35 ^c (13.17)	$F(2, 102) = 73.99, p < .001, \eta_p^2 = 0.60$
WIAT Reading Comprehension*	86.93 ^a (16.99)	102.61 ^b (12.79)	117.80 ^c (8.19)	$F(2, 102) = 55.30, p < .001, \eta_p^2 = 0.53$
WIAT Spelling Accuracy*	86.62 ^a (13.89)	97.79 ^b (9.16)	117.35 ^c (12.21)	$F(2, 102) = 62.59, p < .001, \eta_p^2 = 0.56$
School Concerns	74.34 ^a (42.71)	57.46 ^a (31.51)	38.33 ^b (15.61)	$F(2, 102) = 13.30, p < .001, \eta_p^2 = 0.21$

Note: *Significant when $p < .05$ ^{a b c d} Values with the same superscript do not differ when $p < .05$

Stability of School Concern over the Transition

Significant differences in School Concern between the end of the last year of primary school, the start of the first year of secondary school, and the end of the first year of secondary school were identified for all three groups. Post-hoc analyses indicated that for the DLD group, there was a significant decrease in the level of concern between the end of primary school and the beginning of secondary school, but level of concern at the beginning of the first year of secondary school and the end of that first year remained stable/did not differ. The LL and TD groups however saw a significant decrease in the level of school concern reported at all three timepoints. Hence, the overall effect size of the change in school concern was lower for the DLD group ($d = 0.30$) than the LL ($d = 0.51$) and TD ($d = 0.55$) groups. Please see Table 3 for further details.

Table 3
Comparison of School Concern Scores across Timepoints by Group

Group	Pre-Transition Mean (SD)	(1) Post-Transition Mean (SD)	(2) Post-Transition Mean (SD)	Test Statistics	1 Vs 2 Bonferroni Corrected	1 Vs 3 Bonferroni Corrected	2 Vs 3 Bonferroni Corrected
Developmental Language Disorder	93.97 ^a (41.52)	78.60 ^b (41.19)	74.34 ^b (42.71)	$F(2, 56) = 11.92, p < .001, \eta^2 = 0.30$	$p = .008$	$p = .002$	$p = .241$
Low Language Ability	80.28 ^a (37.08)	66.45 ^b (33.96)	57.46 ^c (31.51)	$F(2, 54) = 28.05, p < .001, \eta^2 = 0.51$	$p < .001$	$p < .001$	$p < .001$
Typically Developing	67.69 ^a (27.48)	51.88 ^b (22.39)	38.33 ^c (15.61)	$F(2, 90) = 54.35, p < .001, \eta^2 = 0.55$	$p < .001$	$p < .001$	$p < .001$

Note: ^{a b c} Values with the same superscript do not differ when $p < .05$

Pre-Transition Variables Predicting Pre-Transition School Concern

A regression model explored the key variables of interest pre-transition (Social Competence, Emotional Wellbeing, Emotion Recognition and Literacy Skill) as predictors of school concern before the transition to secondary school. For the DLD group the total model was not significant, $F(4, 28) = 2.34, p = .084, \eta^2 = .53$, although Emotion Recognition was a

Longitudinal Analysis School Concern in DLD and LL

significant predictor ($p = .011$). For the LL group the model was significant, $F(4, 27) = 3.09$, $p = .036$, $\eta_p^2 = .59$, and explained 59% of the variance in School Concern. Social Competence and Emotional Wellbeing were significant predictors (both $p < .05$). For the TD group, the model was not significant, $F(4, 45) = 2.74$, $p = .110$, $\eta_p^2 = .41$. Social Competence was the sole significant predictor ($p = .027$). Please see Table 4 for further details.

Table 4
Regression Analysis Pre-Transition Measures Predicting Pre-Transition School Concern

	β	t	p	Confidence Intervals	Zero-order correlation	Semi-partial correlation
DLD Group						
SPPC Social Competence	0.17	1.01	.323	-0.18 - 0.51	0.26	0.17
Emotional Wellbeing	-0.01	-0.04	.967	-0.69 - 0.66	-0.14	-0.01
Emotion Recognition*	-0.54	-2.98	.006	-0.92 - -0.17	-0.41	-0.49
Literacy	0.37	1.93	.065	-0.04 - 1.18	0.17	0.32
LL Group						
SPPC Social Competence*	0.44	2.56	.017	0.09 - 0.80	0.37	0.42
Emotional Wellbeing*	-0.42	-2.46	.022	-1.14 - -0.10	-0.36	-0.41
Emotion Recognition	-0.10	-0.57	.574	-0.45 - 0.26	-0.22	-0.09
Literacy	0.07	0.44	.662	-0.55 - 0.85	0.06	0.07
TD Group						
SPPC Social Competence*	0.33	2.24	0.030	0.03 - 0.62	0.27	0.32
Emotional Wellbeing	0.05	0.37	0.716	-0.46 - 0.66	0.03	0.05
Emotion Recognition	0.22	1.44	0.156	-0.09 - 0.54	0.21	0.20
Literacy	0.08	0.53	0.598	-0.37 - 0.64	0.14	0.08

Note: *Significant when $p < .05$

Pre-Transition Variables Predicting Post-Transition School Concern

A regression model explored the key variables of interest pre-transition (Social Competence, Emotional Wellbeing, Emotion Recognition and Literacy Skill) as predictors of school concern post-transition. This regression analysis found that predictors differed by group. For the DLD group the total model was not significant, $F(4, 28) = 0.79$, $p = .543$, η_p^2

Longitudinal Analysis School Concern in DLD and LL

= .34, and there were no significant predictors (all $p > .05$). For the LL group the model was not significant, $F(4, 27) = 2.41, p = .078, \eta_p^2 = .54$. Emotional Wellbeing was the only significant predictor ($p = .019$). For the TD group, the model was not significant, $F(4, 45) = 0.96, p = .442, \eta_p^2 = .29$, and there were no significant predictors (all $p > .05$). Please see Table 5 for further details.

Table 5
Regression Analysis Pre-Transition Measures Predicting School Concern Post-Transition

	β	t	p	Confidence Intervals	Zero-order correlation	Semi-partial correlation
DLD Group						
SPPC Social Competence	-0.09	-0.44	.663	-0.64 - 0.42	-0.04	-0.09
Emotional Wellbeing	-0.04	-0.20	.847	-1.09 - 0.90	-0.07	-0.04
Emotion Recognition	-0.38	-1.69	.103	-0.90 - 0.09	-0.31	-0.33
Literacy	0.13	0.58	.566	-0.70 - 1.26	-0.04	0.11
LL Group						
SPPC Social Competence	0.31	1.73	.096	-0.06 - 0.64	0.27	0.30
Emotional Wellbeing *	-0.45	-2.52	.019	-1.18 - -0.12	-0.42	-0.44
Emotion Recognition	-0.09	-0.47	.643	-0.49 - 0.31	-0.21	-0.08
Literacy	-0.05	-0.30	.770	-1.24 - 0.93	-0.07	-0.05
TD Group						
SPPC Social Competence	0.23	1.52	.135	-0.04 - 0.26	0.21	0.23
Emotional Wellbeing	0.19	1.23	.226	-0.11 - 0.46	0.17	0.18
Emotion Recognition	0.09	0.57	.574	-0.14 - 0.26	0.07	0.09
Literacy	-0.02	-0.09	.926	-0.29 - 0.26	-0.01	-0.01

Note: *Significant when $p < .05$

Longitudinal Analysis – Developmental Cascade

All variables were converted to z scores and two composite scores were created (Emotional Wellbeing and Literacy Skill). The four indicators of emotional wellbeing (Psychological Wellbeing, Autonomy and Parent Relations, School Environment and SPPC Global Self-Worth) were correlated (r ranging from .26 - .51, all $p < .001$). They were used to create an average Emotional Wellbeing composite score. The four indicators of literacy skill

Longitudinal Analysis School Concern in DLD and LL

(Sight Word Efficiency, Phonemic Decoding Efficiency, Reading Comprehension and Spelling Accuracy) were correlated (r ranging from .57 – .92; all $p < .001$). They were used to create an average composite score.

Figure 1 depicts the results of the Developmental Cascade. Social Competence, Emotional Wellbeing, Emotion Recognition, Literacy Skill and School Concern pre-transition and post-transition were entered into three models, one for each group. The measurement model for the DLD group showed acceptable fit (cf. Obradović et al., 2009), Standardized Root Mean Square Residual (SRMR = .06) comparative fit index (CFI) = .99, Tucker–Lewis index (TLI) = .94, root mean square error of approximation (RMSEA) = .05, confidence intervals (CI) = .00 - .37. The measurement model for the LL group also showed acceptable fit, Standardized Root Mean Square Residual (SRMR = .02) comparative fit index (CFI) = 1.00, Tucker–Lewis index (TLI) = 1.00, root mean square error of approximation (RMSEA) = .00, confidence intervals (CI) = .00 - .14. Similarly, the measurement model for the TD group showed acceptable fit, Standardized Root Mean Square Residual (SRMR = .02) comparative fit index (CFI) = 1.00, Tucker–Lewis index (TLI) = 1.00, root mean square error of approximation (RMSEA) = .00, confidence intervals (CI) = .00 - .13.

For the DLD group, only Emotion Recognition was found to significantly predict School Concern pre-transition. This is consistent with the findings from the regression analysis. However, Emotion Recognition for the DLD group was predicted by Literacy Skill ($p = .002$). For the LL group, School Concern was found to be significantly predicted by Social Competence and Emotional Wellbeing, which is also consistent with the regression analysis previously described. No significant interaction was found between any other variables, i.e. Emotion Recognition and Literacy Skill (all $p > .05$). For the TD group, School Concern was found to be significantly predicted by Social Competence, which is also consistent with the regression analysis previously described. Again, no significant interaction

Longitudinal Analysis School Concern in DLD and LL

was found between any other variables, i.e. Emotional Wellbeing, Emotion Recognition and Literacy Skill (all $p > .05$).

For the DLD group, only Emotion Recognition was found to significantly predict School Concern pre-transition. This is consistent with the findings from the regression analysis, and also the findings from the previous timepoint in this study. Again, Emotion Recognition for the DLD group was predicted by Literacy Skill ($p = .002$), so there is a clear predictive path from Literacy to School Concern, despite Literacy not directly predicting School Concern. For the LL group, School Concern was found to be significantly predicted by Emotional Wellbeing, which is also consistent with the regression analysis previously described. No significant interaction was found between any other variables, i.e. Social Competence, Emotion Recognition, and Literacy Skill (all $p > .05$). For the TD group, no significant interaction was found between Social Competence, Emotional Wellbeing, Emotion Recognition, Literacy Skill or School Concern (all $p > .05$), which is consistent with the regression analysis.

For the DLD group, the relationship between Literacy Skill, Emotion Recognition and School Concern is emphasised. For the LL group, the relationships between Social Competence, Emotional Wellbeing and School Concern is shown to span the transition. For the TD group, the Developmental Cascade offers insight into a relationship between Social Competence and Emotional Wellbeing. Social Competence pre-transition was linked to School Concern pre-transition but also to Emotional Wellbeing post-transition. There were still no links made between School Concern post-transition and any of the other variables, Social Competence, Emotional Wellbeing, Emotion Recognition or Literacy Skill, at any timepoint.

Longitudinal Analysis School Concern in DLD and LL

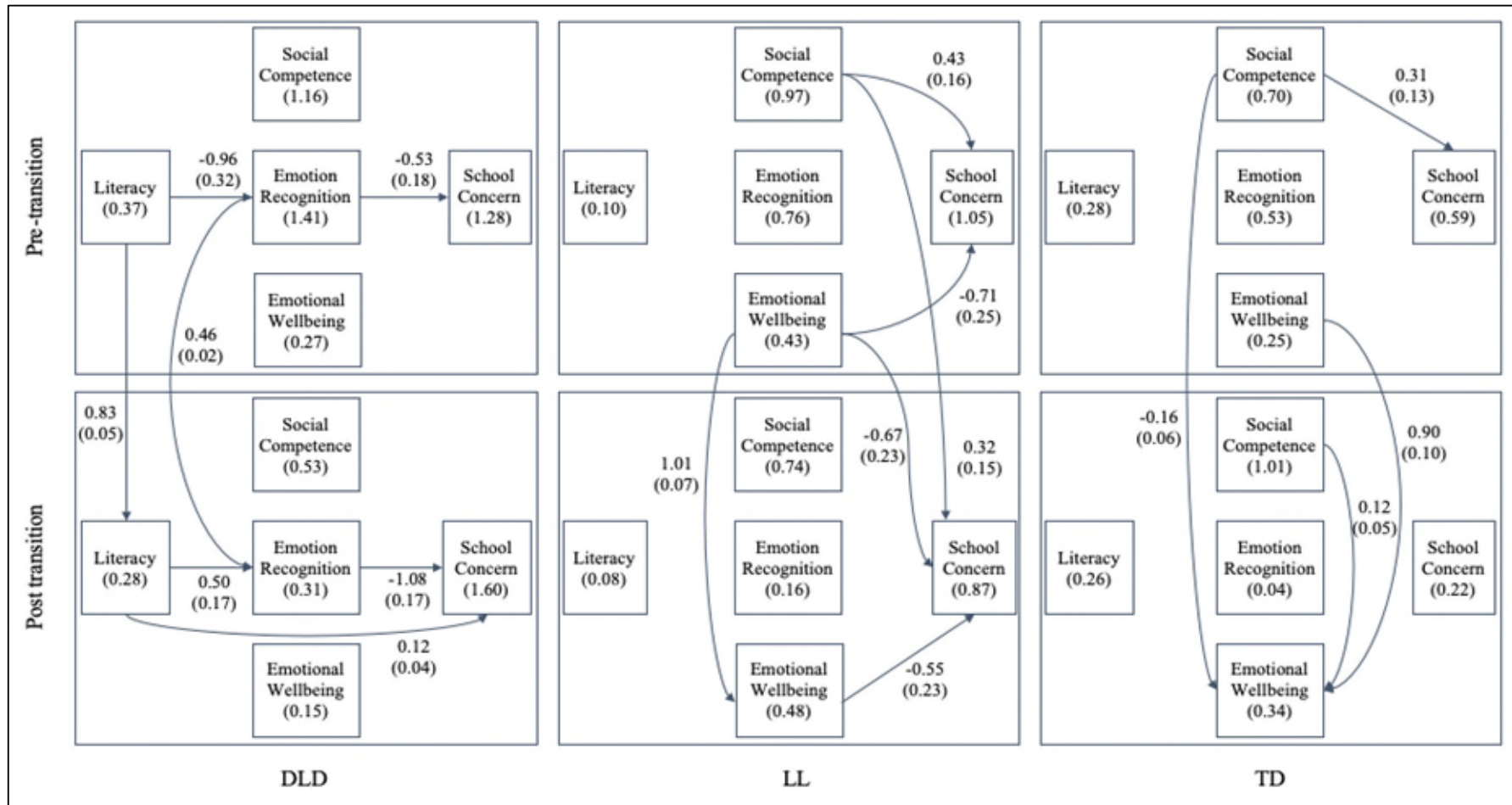


Figure 1 Developmental Cascade: Significant Relationships Between Variables Across the Transition for each Group, Estimate (Standard Error). Only significant paths ($p < .05$) are displayed. *Note:* R^2 values are in parentheses. DLD: $\chi^2(N = 104) = 2.12$, (CFI = .989, TLI = .943, RMSEA = .045). LL: $\chi^2(N = 104) = 0.21$, (CFI = 1.00, TLI = 1.00, RMSEA = 0.00). TD: $\chi^2(N = 104) = 0.21$, (CFI = 1.00, TLI = 1.00, RMSEA = 0.00).

Discussion

This longitudinal research study investigated the association between psychosocial domains, literacy skill and concerns about school during the transition to secondary school for adolescents with DLD, LL and their TD peers. The first research question examined whether levels of Social Competency, Emotion Recognition, Emotional Wellbeing, Literacy Skill predicted School Concern for the three groups. Group differences in Psychosocial Outcomes pre-transition were minimal, with differences only found between groups for Emotion Recognition Accuracy. Post-transition psychosocial differences were greater. The DLD group scored significantly lower than the LL group, who in turn scored significantly lower than the TD group in Social Competence post-transition. Both DLD and LL groups scored significantly lower than their TD peers in Emotion Recognition Accuracy. Post-transition, the DLD group had a significantly greater level of self-worth relative to both LL and TD peers. Pre-transition, there were significant differences between groups in all areas of Literacy Skill, in line with group status.

The second research question explored the longitudinal relationship between School Concern and psychosocial/educational indicators over the transition. Regression analyses showed pre-transition school concern to be predicted by Emotion Recognition for the DLD group, by Social Competence and Emotional Wellbeing for the LL group, and by Social Competence for the TD group. Post-transition concern was predicted by Emotional Wellbeing for the LL group; with no significant predictors for DLD/TD groups. Longitudinal analysis demonstrated that, for the DLD group pre- and post-transition; Literacy Skill predicted Emotion Recognition, which in turn predicted School Concern. For the LL group post-transition, it revealed a relationship between Emotional Wellbeing and School Concern post-transition. The Developmental Cascade across time showed, for the TD group, an

interaction between Social Competence pre-transition and Emotional Wellbeing post-transition.

Previous literature indicated that school concerns in anticipation of the transition to secondary school are associated with the quality of peer relationships in typical development (cf. Dockrell et al., 2007; Evangelou et al., 2008). These findings supported this association for both the LL and the TD groups, as Social Competence predicted pre-transition concern for these two groups. However, Social Competence did not predict pre-transition School Concern for the DLD group. This could potentially be due to different transition support provided by schools to students with SEND, but this is something that varies school to school (Evangelou et al., 2008). It could also possibly be attributed to the DLD group's self-report of Social Competence not being a true reflection of their social ability. Verzeletti et al. (2016) posited that adolescents with DLD may struggle to conceptualise and communicate their own internal status (cf. Griffiths et al., 2020; Gendron & Barrett, 2018). For both the LL and TD groups, Social Competence pre-transition had significant longitudinal effects on outcomes post-transition. For the LL group, Social Competence pre-transition predicted School Concern post-transition. For the TD group, Social Competence pre-transition predicted Emotional Wellbeing post-transition. This agrees with the literature highlighting peer relationships as an area of particular importance in the transition for a TD population.

As a successful school transition is facilitated by emotional competency (Riglin et al., 2014), it was predicted that Emotion Recognition skill and Emotional Wellbeing would predict school concern for all children, but particularly those with DLD and LL, who have an increased likelihood of emotional difficulties (cf. Griffiths et al., 2020; Norbury et al., 2016; Spackman et al., 2005). The current study found Emotion Recognition to be a significant predictor of every measure of School Concern over the course of the transition for the DLD group. For the LL group, Emotional Wellbeing was an important factor, significantly

Longitudinal Analysis School Concern in DLD and LL

predicting School Concern. Indeed, for this group, not only did Emotional Wellbeing both pre- and post-transition predict the School Concern felt at that time, but Emotional Wellbeing pre-transition also had an impact on longitudinal outcomes, as it predicted School Concern post-transition. This finding is novel information, adding to the previously non-existent evidence base concerning the outcomes of adolescents with LL over this transition period.

The importance of the ability to do schoolwork has been highlighted as a key factor in anticipation of the transition (Evangelou et al., 2008). It was therefore predicted that Literacy Skill would emerge as a predictor of School Concern. It was hypothesised that this effect would be exacerbated in adolescents with DLD and LL, due to the lower literacy ability relative to their TD peers evident in the literature (Dockrell et al, 2007). However, Literacy Skill did not directly predict School Concern for any of the three groups. Yet in the DLD group, Path Analyses revealed a significant link between Literacy Skill and Emotion Recognition. This is the first time that this finding has been reported, and is a unique contribution to the field of research on DLD. Literacy Skill predicting Emotion Recognition is potentially due to links between emotion regulation and vocabulary knowledge (cf. Beck et al., 2012). This could be evidence supporting the theory that language ability directly affects the ability of adolescents with DLD to fully conceptualise something as nuanced as emotion (The Theory of Constructed Emotion; Gendron & Barrett 2018). It is also notable that the three groups differed by WASI reasoning scores, so non-verbal IQ may be

Given that students with LL have a similar risk of negative outcomes due to language impairment as their TD peers (cf. Conti-Ramsden et al., 2017; Gough Kenyon et al., 2018), it was hypothesised that their results would be aligned with the results of the DLD group. This hypothesis was supported by the group differences in School Concern; pre-transition the LL group did not significantly differ from either DLD or TD groups, but post-transition they reported significantly higher concerns than their TD peers, but still aligned (with no

Longitudinal Analysis School Concern in DLD and LL

significant difference) with their peers with DLD. This is potentially due to needs associated with their language ability being exacerbated across the transition to secondary school, disproportionately to their TD peers. An alternative hypothesis was that this group would serve as a 'midpoint' between DLD and TD groups, and that the results would reflect this. This was partially supported; the LL were significantly different from their peers in Literacy Skill and non-verbal IQ (WASI reasoning) results. Additionally, these hypotheses were both supported in part by the LL group not differing from either the DLD or TD groups in Emotion Recognition Ability pre-transition, and then aligning with the DLD group post-transition. However, contrary to these hypotheses, the LL group scored significantly higher than both DLD and TD peers in Social Competence. This could potentially be because this group have not been labelled with a SEND (cf. Bishop, 2014) and therefore have not had any stigmatism associated with a label/diagnosis. A possible avenue for investigating this theory could be utilising the under-recognition of adolescents with LL. Some will be included on their school's SEND register due to teacher/SENCo recognition of a need in absence of a diagnosis, other's may be identified as in the current study, without inclusion on the SEND register. This would allow the effect of a label to be investigated for this particular group.

Possible explanations for the pattern of LL results relative to their peers with DLD include the simplest explanation of greater language skill directly enabling those adolescents with LL to communicate more successfully with peers, parents, teachers etc than adolescents with DLD. Similarly, they may be more able to reflect on internal processes and abilities. Alternatively, it may be related to attitudes held by parents/teachers; both may be susceptible to halo effects, whereby the impression formed by one trait or characteristic inadvertently skews judgment of unrelated factors. These halo effects could cause their perceptions of the adolescent's functioning in psychosocial areas to be skewed by the adolescent's language ability or associated deficits. This could compound as the treatment of the adolescent by their

Longitudinal Analysis School Concern in DLD and LL

parent or teacher may be different as a result and make them more aware of their own deficits, thus having more of a functional impact. Ultimately, these results provide strong evidence for the LL population warranting inclusion in research in their own right. The unpredictable pattern demonstrated in the current study highlights the fact that outcomes cannot be hypothesised based on research on either DLD or TD populations.

Research with a sample comprising DLD and LL adolescents is scarce, partly due to the difficulty in recruitment of this demographic. The sample in the current study is small, and yet the results are compelling. It is imperative that further research be conducted in this essential field, and that all measures be taken to ensure that language barriers do not provide an obstacle to the children and adolescents' representation of their own experiences.

Conclusions

This study has practical implications in clinical, research and educational domains. The inclusion of a LL group is of utmost importance, because the outcomes of this group cannot be predicted using research on DLD or TD populations. This has clinical and research ramifications, as this group is not currently recognised with a different set of needs to either DLD or TD peers. There are also educational imperatives derived from the findings of this study; interventions before and during the transition to secondary are critical. Further research must be conducted to ascertain how best to differentiate interventions according to language ability, because the success of this transition is predicted differently between groups. There is no 'one size fits all' ideal transition support, hence provision made to students at this time must be evidence based and cognisant of differences in psychosocial and educational domains.

Data Availability Statement

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

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