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Abstract

School transition at around 11-years of age can be anxiety-provoking for children, particularly those with special educational needs (SEN). The present study adopted a longitudinal design to consider how existing transition strategies, categorised into cognitive, behavioral or systemic approaches, were associated with post-transition anxiety amongst 532 typically developing children and 89 children with SEN. Multiple regression analysis indicated that amongst typically developing pupils, systemic interventions were associated with lower school anxiety but not generalized anxiety, when controlling for prior anxiety. Results for children with SEN differed significantly, as illustrated by a Group x Intervention type interaction. Specifically, systemic strategies were associated with lower school anxiety amongst typically developing children and higher school anxiety amongst children with SEN. These findings highlight strategies that schools may find useful in supporting typically developing children over the transition period, whilst suggesting that children with SEN might need a more personalised approach.

Keywords: anxiety; secondary transfer/transition; primary/elementary school; secondary/middle/junior high school; special educational needs; intervention.

Exploring the longitudinal association between interventions to support the transition to secondary school and child anxiety

Current context: School transition

At 11 years of age, children in many school systems make the transition from primary (or elementary) to secondary (or middle/junior high) school. This represents an important life-event characterised by changes in school environments, social interactions and academic demands (Anderson, Jacobs, Schramm, & Splittgerber, 2000; Kennelly & Monrad, 2007; Riglin, Frederickson, Shelton, & Rice, 2013), and also coincides with the biological and emotional changes associated with the onset of puberty. School transition is almost always accompanied by stress and concern for children, their parents and their teachers (Rice, Frederickson, & Seymour, 2010; Zeedyk, et.al, 2003). These concerns usually represent a normative and short-lived response that is generally accompanied by a sense of optimism about moving into a new school environment (Measor & Woods, 1984; Rice et al., 2010; Zeedyk et al., 2003). However, for some children, this anxiety can be long-lasting, continuing into the first year of secondary school (Zeedyk et al., 2003). This anxiety is particularly evident amongst children with Special Educational Needs (SEN) (Hughes, Banks, & Terras, 2013). In the UK, those with SEN comprise a heterogeneous group of pupils with learning difficulties sufficient to require their school or school district to provide additional special educational support.

Experiences of anxiety in adolescence can be detrimental, with evidence linking school and social anxiety to poor academic attainment (Payne, Smith & Payne, 1983; Van Armeringen, Mancini, & Frarvolden, 2003; Weeks, Coplan, & Kingsbury, 2009)

and psychiatric difficulties throughout the lifespan (Angold, Costello, Farmer, Burns, & Erkanli, 1999; Gregory et al., 2007; Kovacs, Gatsonis, Paulauskas, & Richards, 1989; Last, Perrin, Hersen, & Kazdin, 1996). In a specific focus on the move to secondary school, Rice et al. (2010) followed over 200 children in South East England across the transition period and found that children's concerns about the move were associated with internalising problems (depression, generalized anxiety, school anxiety and emotional issues) and peer problems. Such difficulties, if unresolved, can lead to poor outcomes in the long-term (Rutter, Kim-Cohen, & Maughan, 2006; West et al., 2009). It is therefore important that school staff and other professionals support children's mental wellbeing during significant life events, such as secondary transition and have the tools and the knowledge to allow them to do so.

Current interventions

Given that school transition is a long-term process, starting before children move to secondary school and continuing after, many argue that pupils need to be well-prepared before the transition occurs (c.f. Anderson et al., 2000; Jindal-Snape & Foggie, 2008). This highlights the need for primary schools to implement preventative interventions *before* secondary transition. A number of studies have investigated the impact of such approaches, both universal and specific, and reported somewhat mixed outcomes for the former, but generally positive outcomes for the latter.

Elias et al. (1986) considered the impact of a 'Social Problem-Solving' curriculum on middle school transition outcomes, and found that children who were exposed to the approach for a full-year prior to the move experienced significantly fewer stressors than children who had not received the intervention or who had only

taken part for half of the school year. Similarly, in a follow-up study using a modified version of the same intervention, Rosenblatt and Elias (2008) found that children who took part in the programme prior to the transition to middle school demonstrated a significantly smaller decline in their grade point average, compared to a non-intervention comparison group. By contrast, Choi (2012) considered the impact of a 'Personal Safety Behaviour' intervention, delivered during the final term at primary school in the UK, and found that, whilst children who took part in the intervention had significantly fewer unauthorized absences than a no treatment comparison group during their first term at secondary school, there was no difference in terms of their academic attainment. Similarly, a controlled evaluation by Reyes, Gillock and Kobus (1994) of an educational and peer support intervention with inner-city Hispanic students transitioning to high-school in the USA found no significant effect on self-reported school readiness and perceptions of support (school and home), academic attainment or attendance.

Other studies have focused on specific programmes delivered to vulnerable groups of pupils. Shepherd and Roker (2005) described the impact of a 10-week 'pyramid club' implemented with children in the final year of primary school in the UK, who were identified as being quiet, withdrawn and/or lacking in social skills. Using focus groups and questionnaires to elicit child, parent and teacher views, the authors reported that the intervention was generally accompanied by positive changes in self-esteem, a reduction in school concerns, improved social skills and greater preparedness for secondary school. A small scale study by Lyons and Woods (2012) provided some further support for this programme, in that pre- and post- intervention scores on standardised measures highlighted positive changes in children's social-emotional wellbeing and social and interpersonal functioning, and were supported with

information obtained using child interviews. However, the interpretation of results is limited by the descriptive nature of both studies, and small sample size in the latter.

Finally, Bloyce and Frederickson (2012) reported reduced post-transition school concerns amongst 457 'vulnerable children' (e.g. young carers, children who had been excluded from school) who took part in a 'Transition Support Team' intervention prior to secondary transition. Sessions focused on supporting children to develop the skills to address key changes at secondary school (social, institutional and curricular) and support was tailored according to individual pupil needs, as advised by a team of educational psychologists, specialist teachers and support assistants. Therefore, these studies highlight some novel and effective ways in which children can be supported across the transition period.

Although promising, this literature is limited in a number of ways. Firstly, researchers in the field have drawn upon a wide range of study designs and outcome measures, making it difficult to compare findings. Intervention programmes have focused on a variety of targets (e.g. self esteem, personal safety behaviour, school concerns) making it difficult to ascertain what is driving any observed beneficial effects. Whilst Bloyce and Frederickson (2012) considered child-reported school concerns, no published studies have focused specifically on anxiety as an outcome. Yet, as outlined, anxiety in childhood and adolescence can have far-reaching consequences. Studies suggest that the median age of onset for anxiety disorders is 11-years (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005) and late childhood/early adolescence is considered a critical time in the development of such difficulties (Dadds, et al., 1997). Given the heightened vulnerability for anxiety disorders that coincides

with secondary transition, it is therefore important to understand how transition strategies might be associated with this outcome. This is the focus of the current study.

Within the studies outlined, authors have often grouped together children with and without SEN, despite some evidence indicating that those with additional needs may be particularly vulnerable to poor transitions (e.g. Hughes, Banks, & Terras, 2013) and perceive changes associated with transition more negatively than their mainstream peers (Maras & Aveling, 2006). Moreover, studies that do consider the impact of preventative transition strategies within this population tend to focus on children, parent and teacher perceptions of approaches (e.g. Dann, 2011; Jindal-Snape, Douglas, Topping, Kerr & Smith, 2005), rather than evaluating specific programmes or methods.

Whilst children with SEN comprise a heterogeneous group, there is reason to believe that they might benefit from different types of transition support compared to their typically developing peers. This can be understood with reference to the ‘stage-environment fit’ theory (Eccles & Midgley, 1989), which suggests that positive outcomes for adolescents are most likely to be achieved when opportunities provided (e.g. interventions) ‘match’ the developmental needs of the child.

Empirically, it is well established that children with SEN require differentiated teaching approaches, modified to take into account their specific needs (DfE, 2014; U.S. Department of Education, 2010). Such adaptations are commonplace in therapeutic anxiety interventions for vulnerable populations, such as children with Autistic Spectrum Disorders (Lang, Regeister, Lauderdale, Ashbaugh, & Haring, 2010; Moree & Davis, 2010) and are also likely to be appropriate when intervening to reduce anxiety across secondary transition. Moreover, this personalised approach seems particularly important given evidence indicating that children with SEN often experience a number

of specific difficulties (e.g. lower self-esteem, social skills deficits) that are likely to influence transition outcomes (e.g. vulnerability to bullying) (Dykens, 2000; Evangelou et al., 2008; Terras, Thompson, & Minnus, 2009). The current study aims to overcome this limitation by comparing the importance of transition interventions separately for children with and without SEN.

Finally, the most recent studies in the field have focused on resource-intensive interventions with small groups of vulnerable pupils and led by highly trained professionals. Therefore, whilst helpful in highlighting effective methods to support vulnerable groups of children, these provide little information regarding universal approaches that can be used to support whole classes of children. In a focus on universal approaches, studies by Galton, Gray and Ruddock (1999) and Evangelou et al. (2008) have used interviews and questionnaires to obtain information from teachers, parents and pupils regarding strategies that have been used to support children across the transition period; resulting in published lists of commonly used approaches. However, whilst providing useful information about what is available, studies in this domain are yet to identify which strategies are associated with successful outcomes.

Such studies are also limited in the extent to which they draw upon psychological theory to understand the basis of identified approaches. By failing to consider psychological underpinnings, studies in this domain have produced indiscriminate lists of strategies for which there is no clear method of prioritisation. This makes it difficult for teachers and other professionals to draw upon clear theoretical frameworks to guide the selection of transition interventions. An understanding of the theories that underlie the most successful strategies could guide school staff and other professionals in generating innovative strategies in order to

support pupils through the challenges that they face at this time. Further investigation is needed to not only evaluate approaches currently used by schools to support children across secondary transition, but to also consider the psychological models that could account for successes achieved. Such an approach might allow school professionals to put in place evidence-informed support within a clear theoretical framework.

Psychological processes implicated in anxiety interventions

To address the key issues outlined above, the current study drew upon psychological theories of anxiety to group existing transition strategies used by primary schools, and consider how approaches with similar components related to children's anxiety following the transition to secondary school. In clinical practice, therapeutic anxiety interventions often draw upon cognitive and behavioral models, as well as targeting factors within the wider systems in which an individual might operate (Dadds et al., 1997; 1999; Kendall, 1994; Bernstein et al., 2008). It is therefore proposed that such models can be used to group existing transition strategies according to their theoretical basis. Firstly, cognitive theories suggest that anxiety is a product of maladaptive core beliefs, which lead individuals to experience negative thoughts about themselves, the world and the future (Beck & Emery, 1985; Turk, Heimberg, & Hope, 2001). On this basis cognitive interventions aim to provide individuals with opportunities to share their worries, identify any negative thoughts that may be influencing their adjustment and modify any maladaptive or unrealistic concerns. When considering transition practices employed in primary school, 'cognitive-type' approaches might include strategies such as talking to children about the transition during whole-class discussions.

Alternatively, behavioral models suggest that anxiety is learned through operant conditioning (Skinner, 1974). Specifically, it is proposed that, when experiencing anxiety, individuals attempt to reduce this negative emotion by avoiding the anxiety-provoking event. If this is successful, avoidance is negatively reinforced and the initial fear is maintained. Therefore, behavioral interventions focus on exposing an individual to an anxiety inducing object or situation until their symptoms are alleviated (Lohr, Lilienfeld, & Rosen, 2012). When considering practices to prepare children for secondary school, ‘behavioral-type’ approaches might include secondary school visits and open days or exposure to aspects of transition that children fear (e.g. stricter teachers).

Finally, systemic models focus on the impact of wider systems in which children operate. Within the literature, there is a wealth of evidence to suggest that children’s anxiety may be influenced by family (e.g. Last & Strauss, 1990; Spence, Najman, Bor, O’Callaghan, & Williams, 2002) and peer group (e.g. La Greca & Harrison, 2005; Tillfors, Perrsson, Willén, & Burk, 2012) factors. Furthermore, within the transition literature, studies have shown that children’s concerns during the move to secondary school tend to focus on relationship and social issues (Ashton, 2008; Bloyce & Frederickson, 2012; Rice et al., 2010; Zeedyk et al., 2003). Systemic strategies might therefore overlap with cognitive and behavioural approaches to some degree, but with a stronger focus on adapting the systems in which children operate, for example by widening support networks or establishing links between primary and secondary settings – with the intention that children feel less uncertain about the move and better equipped to deal with organisational and procedural changes that account for many of their pre-transition concerns (Rice et al., 2010).

Whilst the approaches outlined are applicable to both specific and generalized anxiety, it is anticipated that, when implementing strategies, schools are likely to select those that specifically aim to reduce anxiety related to school. As a result, it is proposed that transition strategies are more likely to be associated with lower school related anxiety than generalized anxiety. However, this is yet to be tested.

The present study

The present study used a longitudinal design to identify which universal intervention strategies employed by primary schools were associated with children's post-transition anxiety, whilst controlling for their anxiety before the move. Firstly, the study examined the extent to which children's exposure to transition strategies, categorized into cognitive, behavioral and systemic approaches, was associated with self-reported anxiety across the transition period. Given the naturalistic design, strategies were categorized by independent raters according to the type of approach they most closely approximated. This aspect of the study was exploratory in nature given that there is no clear evidence to indicate that one approach might be more effective than any other. School and generalized anxiety were examined separately; with the prediction that transition interventions would be associated with lower levels of school anxiety given that they mainly seek to reduce transition related concerns. Finally, interactions tested whether effects differed for children with and without SEN, and the importance of SEN specific strategies was also examined. We hypothesized that there might be differences in findings for typically developing and children with SEN given that the latter are likely to require differentiated approaches that take into account their specific needs.

Method

Participants

Pupils attending 10 non-selective secondary schools in South East England participated in the study, nine schools participated in all study phases and provided data on SEN status from school records. Participants in the present study therefore come from the nine schools that provided data on SEN. Data were collected over two phases; the first in May, when children were in their last year of primary school (Time 1), and the second in November when pupils were in their first year of secondary school (Time 2). Pupil response rates for the nine participating schools were 35% at T1 and 88% at T2. In order to be included in the present study, valid data on pupil anxiety at Time 1 and Time 2, transition strategies (as reported by primary school teachers, parents or pupils) and SEN status from school records were required. Following these selection criteria, there were 621 participants with approximately equal numbers of boys ($n=311$) and girls ($n=310$). At Time 1 (T1) the mean age was 11.21 years ($SD=0.29$ years). Additional information provided by secondary schools indicated that 14.3% ($n=89$) were on their school special educational needs (SEN) register. Of the 621 participants 12.6% were eligible for free-school meals (an indicator of socio-economic status [SES]), 37% were from a minority ethnic background, and 27.7% spoke a primary language other than English.

Procedure

The current study was part of a larger longitudinal study of secondary school transition, the School Transition and Adjustment Research Study (STARS; www.ucl.ac.uk/stars)

Time 1. Participating schools sent letters to the parents of pupils who were due to join in September inviting them to take part. Parents were provided with postal questionnaire booklets for their children, including measures of school and generalized anxiety. In addition, questionnaires were posted to each child's primary school class teacher asking them about the strategies employed to support transition. In the UK, this person is responsible for transition preparation with their class and therefore has the most accurate knowledge, amongst school staff, regarding the support that each child received.

Time 2. Measures were administered under the supervision of the class teacher to classroom groups of pupils with members of the research team available to offer assistance. Additional postal questionnaires were sent to parents, asking about the strategies used by primary schools to support their children's transition. At each assessment, parents were given the opportunity to opt their children out of the study and informed pupil consent was obtained, in accordance with the study's ethics approval.

Measures

Primary Intervention Strategy Questionnaires, designed for the current study, were used to measure the extent to which children had been exposed to a range of transition strategies that are currently employed in UK schools. Seventeen strategies were identified with reference to existing literature (e.g. Evangelou et al., 2008; Galton et al., 1999) and in consultation with relevant professionals (teachers, educational psychologists) (listed in Table 1). Items were categorized by 11 independent raters, all of whom were postgraduate students completing a Doctorate in Educational and Child Psychology. Raters were presented with a description of each theoretical approach

(cognitive, behavioral, systemic) and instructed to write, next to the 17 strategies, which they most closely resembled. Disagreement was addressed by categorizing items according to the majority response. This resulted in the identification of eight behavioral strategies, four cognitive strategies and five systemic strategies. As shown in Table 1, inter-rater agreement ranged from 66.7-83.3% (median: 75%) for behavioural strategies, 83.3-91.67% (median: 91.7%) for cognitive strategies and 66.7-100% (median: 75%) for systemic strategies.

Teacher measures. The 17 strategies were split across two questionnaires, completed by each child's primary school 'class teacher'. All measures adopted the same format. Specifically, teachers were presented with a list of strategies and asked, for each item, 'did you use this strategy?' Responses were recorded using a 3-point scale ('no', 'yes a little', 'yes a lot').

First, each teacher completed the *Whole-class Transition Strategy Questionnaire*, in which they rated their use of seven strategies designed to be delivered with all children in their class. Teachers completed this measure once and the results were applied to all children in their class who were participating in the study. Second, teachers completed the *Individual Pupil Transition Strategy Questionnaire* for each child in the study. This listed the remaining 10 intervention strategies that were not included within the whole-class measure. Finally, for pupils with SEN, teachers completed an additional five-item *SEN Transition Strategy Questionnaire* to indicate whether they had used any SEN specific strategies with each pupil (also listed in Table 1). This followed the same format as the measures previously described.

Parent & pupil measures. Parents and pupils each completed a single

questionnaire. This listed strategies from the teacher measures with wording adapted to make the questions appropriate (e.g. ‘Please indicate whether your child’s primary school...provided you and your child with written information about their secondary school’-Parent Transition Questionnaire; ‘Did your primary school...give you leaflets and other written information about your secondary school?’-Pupil Transition Questionnaire). Some items included in the teacher measures were omitted on the basis that parents and pupils may not have been explicitly aware of their use (Piachenti, Cohen & Cohen, 1992) (see Table 1). The response scale in the pupil questionnaire matched that of the teacher measures. Within the parent questionnaire participants were required to respond to using the options ‘yes’, ‘no’ or ‘don’t know’. Measures are available to download from the study website (<https://www.ucl.ac.uk/stars>).

TABLE 1 ABOUT HERE

Calculating scores. To determine whether each of the transition strategies had been implemented a composite measure of teacher, parent and pupil ratings was calculated. Specifically, transition strategies were considered to have occurred if at least one informant reported their use to any extent (parent or pupil response of ‘yes’, or teacher response of ‘yes a little’ or ‘yes a lot’). This approach is recommended for scales measuring the occurrence of events, in which disagreement usually reflects a lack of knowledge or memory lapse on behalf of one or more raters, rather than true disagreement as to whether the event occurred (Gest, Reed, & Masten, 1999). For each strategy, each child within the study therefore received a score of 1 if they, their parent, or their teacher had identified the strategy as being implemented, and 0 if no-informant indicated that the strategy was used. Ratings were summed across each type of

approach to provide an overall measure of the extent to which each participant had been supported by cognitive (0-4), behavioral (0-8) and systemic (0-5) interventions, with higher scores indicating greater levels of exposure. Children with SEN received an additional score for SEN specific strategies (0-5).

Generalized and school anxiety were measured using pupil reports on the school and generalized anxiety subscales from the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, et al., 1997), rated on a 3-point scale ('not true or hardly ever true', 'somewhat true or sometimes true', 'very true or often true'; with scores of 0, 1 and 2 respectively). The school anxiety measure consists of four items (e.g. 'I worry about going to school'), whilst the generalized anxiety measure has nine (e.g. 'I am nervous'). Scores for each subscale are summed to provide an overall score (0-8 school anxiety, 0-18 for generalized anxiety), with higher scores indicating greater levels of anxiety (clinical-cut points of 9 or above for generalized anxiety and 3 or above for school anxiety). The authors report Cronbach's alphas of $\alpha = .88$ for the generalized anxiety scale and $\alpha = .91$ for the school anxiety scale (Birmaher, et al., 1997). Within the current study, reliabilities were: generalized anxiety $\alpha = .86$ time 1; $\alpha = .88$ time 2; school anxiety $\alpha = .65$ time 1; $\alpha = .72$ time 2.

Data analysis

Hierarchical regression was used to determine the extent to which exposure to each type of transition strategy (cognitive/behavioral/systemic) was associated with pupil self-reported anxiety scores (school/generalized) post-transition when controlling for anxiety measured before transition. Measures of anxiety at T1 were entered into the first step of each model, whilst measures of exposure to the different types of

intervention strategy were entered simultaneously into step two. At step three, we looked for interactions between SEN group and strategy use. As outlined by Cohen, Cohen, West and Aiken (2003) this requires variables included in the interaction term to be centred or standardized in order to allow interpretation.

Significant interaction findings were followed up by including the individual strategies that comprised the composite measures to identify whether any specific intervention practices were significantly associated with T2 school anxiety, whilst controlling for anxiety at T1. Analyses were also conducted to explore whether the observed associations differed dependent on Time 1 anxiety scores. Interactions were followed up by conducting separate regressions for typically developing children and children with SEN with higher T1 school anxiety scores and those who scored within the normal range, using the clinical cut-point reported by Birmaher, et al. (1997). Finally, for SEN children, additional analyses were conducted to look at the importance of SEN specific strategies on anxiety at T2.

We considered multilevel analyses. As the focus was the role of transition strategies predominantly implemented by individual teachers in primary school classrooms, it was considered more appropriate to cluster at the primary class level (224 primary classes) than at the school level (Snijders, 2005). Multilevel analysis showed that only a very small portion of variance (5.7%) in children's school anxiety was explained at the primary class level ($\sigma^2 = 0.14$, $p=0.134$, $ICC = 0.057$) and the results of multilevel analyses were entirely consistent with the results of the analyses described below, suggesting a negligible effect of clustering. For simplicity, findings using multiple regression without adjustment for clustering are therefore reported.

Results

Descriptives

Descriptive statistics are shown in Table 2. Children with SEN had higher school (T1: $t(619)=-5.19, p<0.001$; T2: $t(619)=-2.95, p<0.01$) and generalized (T1: $t(619)=-4.23, p<0.001$; T2: $t(619)=-1.73, p<0.1$) anxiety scores than typically developing children at T1 and T2. For both groups, anxiety at T1 and T2 was generally low considered against the SCARED clinical cut-points of 3 or above for school anxiety and 9 or above for generalized anxiety consistent with this being a community sample.

On average children were exposed to three cognitive strategies, four behavioral strategies and three systemic strategies and exposure to individual strategies ranged from 24.8% to 94.1% (Table 1). The most commonly used strategies included giving children additional responsibilities in year 6 and discussing transition concerns with the whole-class. Drama workshops and parent support groups were used the least. Pearson's correlations indicated that all intervention strategies were positively correlated with one another, with medium to large effect sizes (range= .32 to .65) (Table 2). There were no significant differences between SEN and typically developing children in terms of their exposure to each type of approach (Cognitive: $t(619)=1.51, p=.13$; Behavioral: $t(619)=-1.54, p=.13$; Systemic: $t(619)=-.65, p=.51$). Children with SEN also experienced an average of 3 SEN specific approaches, exposure to individual SEN strategies ranged from 6.6-22.0%. For all strategies there appeared to be little variation in teacher ratings of 'extent of use' (range 1.14-1.87), indicating that similar time and effort was extended to all approaches employed.

TABLE 2 ABOUT HERE

Regression analyses

Table 3 shows results of regression analyses testing the association between strategy use and anxiety over time. For all models, there was moderate continuity between school and generalized anxiety measured at T1 and T2 (Step 1).

The addition of transition strategies and SEN group at step two did not significantly improve either model (School Anxiety: R^2 Change=.007, p =.22; Generalized Anxiety: R^2 Change=.003, p =.63). However, inspection of individual predictors in model 1 (school anxiety) highlighted a main effect of systemic strategies (β = -.09, p =.03), indicating that these were associated with lower school anxiety (adjusting for prior school anxiety). No significant main effect was found for cognitive (β = .03, p =.53) or behavioral (β = .01, p =.77) strategies. Similarly, no strategies were associated with generalized anxiety at T2 (Cognitive strategies: β =-.01, p =.80; Behavioral strategies: β =.02, p =.64; Systemic strategies: β =-.05, p =.17). SEN specific strategies were not associated with school (β =.04, p =.83) or generalized (β =-.23, p =.19) anxiety within the SEN population.

The addition of the SEN x Strategy interaction term accounted for an additional 1.2% of the variance in school anxiety (p =.03) and 0.3% of the variance in generalized anxiety (p =.50) at T2. For school anxiety, inspection of individual predictors highlighted a significant SEN x Systemic strategy interaction (β =.12, p =.02) (shown in Figure 1). To further understand this interaction, follow-up regressions were conducted separately for each group. Findings indicated that systemic strategies were associated with lower school anxiety (adjusting for prior school anxiety) amongst typically developing children (β =-.14, p <.01) and somewhat higher school anxiety (adjusting for

prior school anxiety) amongst children with SEN ($\beta=.12, p=.27$). No significant interactions were found for cognitive ($\beta=.05, p=.28$) or behavioral strategies ($\beta=-.05, p=.30$).

For generalized anxiety, no significant interactions were found for cognitive ($\beta=.00, p=.96$), behavioral ($\beta=.01, p=.88$) or systemic strategies ($\beta=-.04, p=.33$).

FIGURE 1 & TABLE 3 ABOUT HERE

Exploratory Analysis- Investigation of systemic strategies for typically developing pupils

Hierarchical regression analyses were used to determine if any specific systemic strategies were associated with lower school anxiety amongst typically developing children and higher school anxiety amongst children with SEN. For each group, T1 school anxiety was entered at step one and individual systemic strategies were entered at step two.

As shown in Table 4, for typically developing children the final model contained bridging units, ($\beta=-.13, p<.01$) and school anxiety at T1 ($\beta=.47, p<0.001$), accounting for 23.3% of the variance in school anxiety at T2 ($p<0.001$). Exposure to bridging units was associated with significantly lower school anxiety within this population ($\beta=-.13, p<.01, R^2 \text{ change}=.02$). For children with SEN, no specific systemic strategies were associated with post-transition anxiety and therefore only school anxiety at T1 was included in the final model ($\beta=.36, p<.01$).

Finally, we considered whether systemic strategies had different associations depending on children's levels of school anxiety at T1. To test this, we included

interaction terms between Time 1 anxiety and all types of strategy. This interaction term was significant only for systemic strategies (Systemic: $\beta = -.089$, $p < .05$; Cognitive: $\beta = .024$, $p > .1$; Behavioural: $\beta = .038$, $p > .1$). We next examined whether this interaction was present in typically developing children and children with SEN by carrying out regressions separately for each group. This showed that the interaction was present only in the typically developing group (Typically developing: $\beta = -.163$, $p = .001$; SEN: $\beta = -.045$, $p = .753$). We followed up the interaction with systemic strategies and Time 1 anxiety by conducting separate regressions for typically developing children meeting the clinical cut-point for school anxiety at T1 and typically developing children whose anxiety scores fell within the average range. Findings indicated that, systemic strategies had a larger association with later school anxiety ($\beta = -.329$, $p < .05$) for pupils with elevated T1 school anxiety scores, compared to pupils scoring within the normal range for school anxiety at Time 1 ($\beta = -.113$, $p < .05$).

TABLE 4 ABOUT HERE

Discussion

The current study sought to investigate the extent to which approaches, used by primary schools in the UK, are associated with children's anxiety across secondary transition. Findings for typically developing children indicated that systemic interventions, in particular bridging units, were associated with lower levels of school anxiety across the transition period (adjusting for prior school anxiety). Interestingly, associations were stronger for children with clinically significant levels of school anxiety at T1 compared to those whose scores fell within the average range. This

indicates that systemic strategies may operate differently within the typically developing group and suggests that such interventions delivered at a universal level are associated with positive outcomes even for more vulnerable populations. No significant associations were found for behavioral and cognitive approaches implemented prior to transition.

Bridging units refer to work projects that children begin in primary school and complete in secondary school. Consistent with the findings of the current study, this strategy is often highlighted as an example of good practice across the transition (e.g. Galton et al., 1999; Evangelou et al., 2008). This can be explained in a number of ways. Firstly, findings indicate that prior to the transition children often worry about the changing academic demands at secondary school (Evangelou et al., 2008; Zeedyk et al., 2003). Therefore, by introducing children to projects that will be continued into the first year of secondary school, bridging units are well placed to address this particular focus of worry and subsequently reduce children's anxiety.

Alternatively, given the time and effort required to develop such interventions, primary schools implementing bridging units are likely to have particularly strong relationships with children's prospective secondary schools, resulting in greater continuity between settings. Given that the transition is effectively a systemic change (Rice, 1997), it seems logical that systemic interventions, which focus on creating consistency across settings, would be able to alleviate feelings of uncertainty associated with transition and subsequently reduce anxiety. Finally, compared with cognitive and behavioral approaches, systemic interventions tend to be longer in duration and this is particularly true for bridging units, which are likely to span the entire transition period. Findings have shown that during the transition period parents and children value long-

term support rather than brief interventions (Jindal-Snape & Foggie, 2008; Measor & Woods, 1984; Zeedyk et al., 2003) so the greater duration of systemic interventions may be important.

These arguments are consistent with Eccles and Midgley's (1989) 'stage-environment fit' theory, in showing that transition interventions are more likely to be associated with positive outcomes when these 'match' the developmental needs of the child –i.e. by addressing their specific academic concerns and/or by providing the longer-term input that they desire across the transition period. This theoretical account could also help explain the observation that systemic strategies were associated with different outcomes within the typically developing sample depending on children's initial anxiety levels. There are therefore a number of plausible explanations for the present finding that systemic interventions, particularly bridging units, were associated with reductions in school anxiety across transition.

The second aim of the study was to identify the methods of support associated with positive transition outcomes for children with SEN. Findings indicated that no specific approaches were associated with lower levels of anxiety amongst this population, and SEN specific strategies did not predict outcomes over and above those used universally. It is important to note that the SEN sample was considerably smaller than the typically developing group and this reduced statistical power; thereby limiting the ability to detect small intervention effects. However, interaction analysis highlighted a significant SEN Group x Systemic Strategy interaction, indicating that systemic approaches had different relationships in each sample. Specifically, these approaches were associated with *lower* post-transition school anxiety amongst typically developing children, but *higher* post-transition school anxiety within the SEN sample.

Exploratory analysis indicated that, within the SEN sample, these findings were not associated within any particular systemic strategy. Instead, it is likely that the observed relationship resulted from the combined effect of these approaches. There are various reasons to think that the systemic strategies used could operate differently within the different samples. First, it is possible that some strategies, such as parent meetings and support groups, serve to make parents of children with SEN more aware of the difficulties that their children could face at secondary school. As a result, such approaches might actually increase parent anxiety, which in turn is likely to increase anxiety amongst their children (c.f. Rice, 2014).

Alternatively, one could speculate that while strategies such as bridging units may serve to reassure typically developing pupils that they can meet the academic demands of secondary school so reducing anxiety, the work involved may be experienced as too challenging by pupils with SEN, so instead provoking anxiety. This explanation is, once again, consistent with the 'stage-environment fit' model (Eccles & Midgley, 1989) in suggesting that whilst an increase in work over the transition period might 'match' the developmental needs of typically developing children who are ready for more complex academic tasks (Eccles et al., 1993), such changes might lead to a 'mismatch' between the approaches used and the developmental needs of those with SEN. These suggestions therefore merit consideration in future studies.

Whilst no firm conclusions can be drawn as to why certain strategies were associated with different outcomes amongst typically developing children and those with SEN, the current findings appear consistent with those of Maras and Aveling (2006) in suggesting that children with SEN may require different forms of transition support to their mainstream peers. Given the small sample size, current outcomes

should be considered tentatively. However, if replicated with a larger sample, this would suggest that there is no *'one size fits all'* approach to intervention for children with additional needs and they may instead require highly individualised intervention approaches targeting their specific concerns. In fact, in-depth explorations of the experiences of children with SEN, and in particular those who are likely to find the transition anxiety-provoking, may be necessary to ensure that the needs of these individuals are not left unaddressed. This is particularly important, both in understanding how to meet the needs of these children, and in ensuring that schools do not rely solely on the strategies outlined in the current study, which could potentially increase anxiety in those with SEN.

Finally, the current study sought to investigate the extent to which transition strategies were associated with lower generalized anxiety across the move to secondary school. No significant effects were obtained for children with or without SEN. This is not surprising, given that transition interventions focus on ensuring that children are not excessively worried about starting their new schools and have the knowledge and skills to address this challenge, and so are likely to target short-term school-focused anxiety, rather than more generalized worries and concerns. Alternative approaches would need to be implemented in order to support children who are at risk of developing more generalized anxiety that extends beyond transition specific worries.

When considering the study outcomes it is important to take into account their practical significance. Whilst the observed association between systemic strategies and T2 anxiety amongst typically developing children is small, the authors consider that these findings are nonetheless noteworthy. The primary aim of the current study was to explore the association between current practice and post-transition anxiety amongst

typically developing children and children with SEN and in doing so it became apparent that these groups may benefit from different approaches, thereby informing practice. In addition, follow-up analysis indicated that associations were stronger for typically developing children with elevated levels of school anxiety, compared to those with scores in the average range. This indicates that existing interventions which do not require considerable resources, are easy to implement and can be delivered at a universal level might have positive outcomes amongst children most vulnerable to school anxiety, and therefore warrant future research.

The following limitations of the current study should be acknowledged. Firstly, despite using a longitudinal design, given the timing of data collection, it is likely that a number of transition strategies had already been implemented prior to children first completing measures of anxiety. It is possible therefore that children's anxiety had already been influenced by the interventions in place, so the size of the associations may have been underestimated.

Secondly, the study drew upon a naturalistic design, in that transition strategies were implemented by schools outside of the control of the research study. When selecting and designing strategies, schools may not have maintained an exclusive focus on anxiety or drawn upon psychological theory regarding therapeutic anxiety interventions. Therefore, when categorising approaches it was evident that many did not fit neatly into the groups selected for the current study and whilst the individual strategies generally reflected cognitive, systemic and behavioral approaches, it was not possible to determine the extent to which their delivery was consistent with the approach. For example while the independent raters, who were knowledgeable about transition practices in schools generally, classified increases in homework,

responsibilities, and vocabulary while still in primary school as a behavioural strategy assuming a successful process of graduated exposure, it could not be established that this occurred in all classes. Likewise, whilst class discussions might have provided children with an opportunity to discuss their concerns it is not clear to what extent any maladaptive beliefs were modified as a result, and this is a key component of cognitive approaches. It is possible that different schools implemented the same strategies in different ways and to different standards, and, as a result, children who were identified as receiving the same forms of support may have had somewhat different experiences. Similarly it possible that additional variables, such as time and effort spent on strategy implementation, might have influenced the findings. In the present study, it was difficult to reliably compare the effects of time and effort on strategy implementation because no objective measure of this was available - although teacher reports did indicate that all strategies were implemented to a comparable degree. This therefore warrants further investigation in future studies of this nature.

The study was conducted with a sample of children attending schools in the South East of England and, as a result, findings might not generalize beyond the UK. Similarly, limited data were provided with regard to type of SEN, and given the relatively small number of pupils with SEN, it would not have been meaningful to analyse outcomes for different groups even if this data had been available. However, children with SEN are not a homogenous group (c.f. Maras & Aveling, 2006), and different interventions may be better suited to some difficulties than others. While the size of the SEN group per se is likely to have been sufficient for the detection of any clinically significant findings, it is likely that heterogeneity within the group contributed to the current inconclusive results. Therefore, future studies could valuably investigate

the types of support associated with positive transition outcomes amongst different SEN groups. Finally, it is important to note that whilst this study focused specifically on anxiety, this is just one aspect of a successful transition. Therefore, future research could extend the current findings by investigating the extent to which existing transition strategies are associated with other important outcomes, such as academic attainment and motivation.

Summary and conclusions

The current study investigated whether commonly used methods of transition support were associated with lower anxiety across the transition to secondary school. Findings indicated that systemic approaches, particularly bridging units, were associated with lower school anxiety amongst typically developing children, but not children with SEN who, it is suggested, may require more personalised interventions that target their specific areas of concern. Taken together, these findings add to the evidence-base regarding strategies associated with a successful transition to secondary school and suggest the potential effects on anxiety of strategies that schools can implement within their existing resources. Specifically, for typically developing children, findings indicate that the continuity between settings achieved by the use of systemic strategies such as bridging units may be particularly important. By contrast, when supporting children with SEN, schools and other professionals should recognise that full inclusion in all elements of the school's regular transition programme may not be helpful and instead adopt an individualised approach, tailored to children's specific needs.

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Table 1

Information about 'Transition Strategy Questionnaires' and descriptive statistics describing strategy use

Strategy	Category	% rater agreement with final category	Questionnaires in which item was included					% of pupils who experienced this approach	Mean level of strategy use (SD)	
			Teacher (whole class)	Teacher (individual pupil)	Teacher (SEN pupils)	Parent	Pupil			
Whole-class visit(s) to secondary school(s)	Behavioral	83.3	✓				✓	59.7	1.44 (.50)	
An increase in homework in year 6 (<i>Reflecting secondary school homework demands</i>)	Behavioral	75	✓					44.1	1.49 (.50)	
Changes to year 6 timetables to reflect secondary school timetables (<i>E.g. multiple subject specific teachers.</i>)	Behavioral	75	✓				✓	40.6	1.34 (.48)	
Additional responsibilities given to students in year 6 (<i>E.g. monitor duties</i>)	Behavioral	83.3	✓				✓	94.1	1.87 (.34)	
Drama workshops to develop skills needed for transition	Behavioral	83.3		✓				24.8	1.24 (.43)	
Teaching secondary school vocabulary (<i>E.g. words such as 'tutor'</i>)	Behavioral	66.7		✓				35.6	1.14 (.34)	
Additional visits to secondary school (<i>Beyond visits organised for whole year group</i>)	Behavioral	75		✓			✓	✓	55.6	1.36 (.48)
PSHCE programmes tailored towards transition issues (<i>E.g. teaching key skills such as using timetables</i>)	Behavioural	66.7	✓					55.3	1.38 (.49)	

Running head: Secondary transition interventions and anxiety

Class discussions about transition issues/worries (<i>E.g. during discussion time at the start/end of the day</i>)	Cognitive	91.7	✓		✓	93.3	1.70 (.46)
Assemblies for year 6 students about secondary move (<i>E.g. addressing student concerns about transition</i>)	Cognitive	91.7	✓		✓	85.0	1.29 (.46)
Use of web-based resources	Cognitive	91.7		✓	✓	69.7	1.19 (.40)
Provision of written information about secondary school (<i>E.g. leaflets, maps</i>)	Cognitive	83.3		✓	✓	84.5	1.19 (.39)
Peer support groups with students who are going to the same secondary school (<i>E.g. group work on joint projects</i>)	Systemic	75		✓	✓	74.2	1.20 (.40)
Shared projects/bridging units with secondary school (<i>E.g. projects taught before and after the transition</i>)	Systemic	66.7		✓	✓	53.6	1.28 (.45)
Pupil passports (<i>Booklets completed by pupils about themselves which are passed on to secondary school</i>)	Systemic	75		✓	✓	70.2	1.22 (.42)
Meetings with parents to discuss options (<i>E.g. open evenings</i>)	Systemic	100		✓	✓	54.4	1.32 (.47)
Parent support groups (<i>Informal groups for parents to discuss concerns</i>)	Systemic	91.7		✓	✓	28.8	1.20 (.40)
Transition review meeting	SEN	N/A		✓	✓	19.8	-
Sharing written information with secondary teachers on pupils needs (<i>E.g. information about support at primary</i>)	SEN	N/A		✓	✓	22.0	-
Liaison between primary staff and secondary SENCO (<i>E.g. meetings, emails, telephone calls</i>)	SEN	N/A		✓	✓	22.0	-

Training regarding pupil's needs provided by primary teachers to secondary staff (<i>E.g. opportunities for secondary staff to observe pupil at primary</i>)	SEN	N/A	✓	✓	8.8	-
External agency support to address transition issues (<i>E.g. support regarding travel arrangements</i>)	SEN	N/A	✓	✓	6.6	-

Note. Mean level of strategy used based on teacher ratings (1= 'A little', 2= 'A lot'). SEN strategies were not categorised according to the underlying psychological theory, therefore no data is available regarding inter-rater agreement.

Table 2

Descriptive statistics and correlations between anxiety and transition strategy measures amongst typically developing children and those with SEN

	1.	2.	3.	4.	5.	6.	7.	8.	Typical Mean (SD)	SEN Mean (SD)	Typical vs. SEN (<i>t</i>)
1. School Anxiety T1		.420 ^{***}	.592 ^{***}	.398 ^{***}	.039	.081	-.016	.091	.91 (1.29)	1.74 (1.93)	-5.19 ^{***}
2. School Anxiety T2	.468 ^{***}		.327 ^{***}	.562 ^{***}	.163	.073	.138	.160	1.08 (1.48)	1.60 (1.70)	-2.95 ^{**}
3. Generalised Anxiety T1	.528 ^{***}	.358 ^{***}		.528 ^{***}	.054	.111	.050	.034	3.49 (3.59)	5.29 (4.38)	-4.23 ^{***}
4. Generalised Anxiety T2	.350 ^{***}	.605 ^{***}	.583 ^{**}		.077	.014	.051	.034	3.50 (4.06)	4.30 (3.88)	-1.73
5. Cognitive strategies	.037	-.014	.003	-.007		.408 ^{***}	.424 ^{***}	.593 ^{***}	3.36 (.86)	3.21 (.89)	1.48
6. Behavioral strategies	.083	.011	.048	.040	.350 ^{***}		.476 ^{***}	.380 ^{***}	3.97 (2.01)	4.33 (2.17)	-1.54
7. Systemic strategies	.038	-.105 [*]	-.012	-.055	.324 ^{***}	.420 ^{***}		.647 ^{***}	2.80 (1.44)	2.91 (1.44)	-.65
8. SEN strategies	-	-	-	-	-	-	-		-	2.89 (1.56)	-

Note. Correlations for typically developing children are presented below the diagonal line and above the line for SEN children. * $p < 0.05$, ** $p < 0.01$,

*** $p < 0.001$

Table 3

Regression analysis predicting anxiety from strategy use

Predictor	Model 1: School Anxiety				Model 2: Generalised anxiety			
	R ²	β	p	R ² Change	R ²	β	p	R ² Change
<i>Step 1: Pre-existing anxiety</i>	.22				.33			
T1 Anxiety		.47	<.001			.57	<.001	
<i>Step 2: Main effect of strategy</i>	.23			.007	.33			.003
T1 Anxiety		.46	<.001			.58	<.001	
Z Cognitive Strategies		.03	.528			.01	.796	
Z Behavioral Strategies		.01	.769			.02	.635	
Z Systemic Strategies		-.09	.025			-.05	.174	
SEN Group		.03	.473			-.03	.429	
<i>Step 3: SEN x Strategy interactions</i>	.24			.012*	.34			.003
T1 Anxiety		.47	<.001			.58	<.001	
Z Cognitive Strategies		.01	.876			.00	.998	
Z Behavioral Strategies		.04	.550			.039	.334	

Z Systemic Strategies	-0.13	.003	-0.07	.115
SEN Group	-0.02	.715	-0.01	.668
SEN Group* Z Cognitive Strategies	.05	.279	.03	.504
SEN Group * Z Behavioral Strategies	-0.05	.303	-0.07	.161
SEN Group* Z Systemic Strategies	.12	.018	-0.02	.406

*Note. n=619; *p<0.05.*

Z is used to indicate that variables were transformed into standardized scores (z-scores).

T1 anxiety refers to T1 school anxiety in model 1 and T1 generalised anxiety in model 2.

Table 4

Exploratory regression: Final models predicting school anxiety from exposure to individual systemic strategies

Predictor	Model 1: Children without SEN			Model 2: Children with SEN			
	R ²	β	p	R ² Change	R ²	β	p
<i>Step 1: Pre-existing anxiety</i>	.22				.13		
T1 Anxiety		.47	<.001			.36	.002
<i>Step 2: Main effect of systemic strategies</i>	.23*			.016			
T1 Anxiety		.47	<.001				
Bridging units		-.13	.003				

*Note. Model 1 n=423, model 2 n=69 *p<0.05.*