

# A systematic review on test anxiety in children and young people with learning difficulties

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# **A Systematic Review on Test Anxiety in Children and Young People with Learning Difficulties**

## **Abstract**

This systematic review explores test anxiety in children and young people (CYP) with learning difficulties. Research has found that students with learning difficulties experience higher levels of anxiety about school compared to peers without. One area of school that has had little research is test anxiety, therefore further exploration is needed. Nine papers resulted from the systematic search. It was found that CYP with learning difficulties can experience test anxiety. There are a variety of internal and external factors which have an interactional relationship with test anxiety. A model was developed to illustrate these factors including characteristics of tests, perceptions of support, self-belief and cognition and learning skills. This can be used to explore potential reasons for test anxiety in CYP with learning difficulties and to provide subsequent support.

**Keywords:** learning difficulties, test anxiety, exam anxiety, mental health, systematic review

## **1. Introduction**

### **1.1. Testing and exams around the world**

Testing and exams have increasingly become a key part of children and young people's (CYP) education across the world. The Global Education Census in 2018 (Cambridge Assessment International Assessment, 2018) found that 28% of students worldwide have multiple practice exams throughout the year and at least one full set of exams at the end of the year. Therefore, whilst there are differences in how students are tested across the world, students are frequently tested which in turn has an impact on their well-being. The Programme for International Student Assessments (PISA) 2015 report (OECD, 2017) explored well-being of 15-year-olds across the world and found 66% of students were worried that they will get poor grades, 59% of students were worried that it would be difficult to take a test and 55% of students felt anxious about exams even if they were well prepared. Therefore, exams appear to have a multidimensional impact on students' well-being. Whilst these reports explore the students as a general population, it is unclear how students with learning difficulties feel about exams and the impact on their well-being. This is an important area to explore as it has been established that CYP with learning difficulties are more likely to develop mental health difficulties (Lavis et al., 2019). Therefore, the focus of the review is on test anxiety in CYP with learning difficulties.

### **1.2 Definition of Test Anxiety**

A widely recognised definition of test anxiety is 'the set of phenomenological, physiological and behavioural responses that accompany concern about possible negative consequences or failure on an exam or a similar evaluative situation' (Sieber et al., 1977, p. 174). That is, an individual may view situations where they are being evaluated, such as exams or tests, personally threatening. Therefore, they may respond with perceptions of threat, display lower

levels of self-belief, anticipating failure and showing intense emotional reactions at hints of failure (Zeidner, 1998).

However, this broad definition by Sieber et al. (1977) has been interpreted in different ways. This has led to researchers exploring different facets of test anxiety rather than viewing it as a unitary construct. Early researchers differentiated test anxiety as *emotionality* which are the physiological reactions and *worry* which relates to concerns about failure (Liebert & Morris, 1967). More contemporary definitions have suggested that test anxiety contains three facets: *cognitive* (e.g. worry and irrelevant thinking), *affective* (e.g. reactions of the body, tensions) and *behavioural* (e.g. avoidance, difficulties with study skills) (Zeidner, 1998). Someone who is test anxious may experience these to varying degrees and it will be dependent on the individual, the cause and levels of anxiety. In turn, different elements of test anxiety can be related to different psychological constructs and explained by various psychological theories.

### **1.3 Theories of Test Anxiety**

Researchers developed theories to explain the causes and processes of test anxiety. Generally, the theories fall under two different perspectives: *deficit* and *self-regulatory theories* (Zeidner & Matthews, 2005). *Deficit theories* tend to focus on the ‘processes that mediate the detrimental effects of anxiety’ and *self-regulatory theories* focus on ‘the dynamic interplay between personal characteristics and external demands over periods of time’ (Zeidner & Matthews, 2005, p. 151).

An example of a deficit theory is the Cognitive-Attentional (Interference) Model which suggests that those who are highly test anxious engage in increased levels of self-focus and cognitive worry, causing their attention to be diverted away from the task (Wine, 1971).

Therefore, cognitive interference is when an individual perceives testing to be a threat and irrelevant thoughts interfere with the retrieval of relevant information. For example, Coy et al. (2011) found that cognitive interference and an increase in off-task negative self-dialogue

were related to higher levels of test anxiety. However, these models tend to focus on one process or cause of test anxiety and overlook other facets such as behavioural factors.

One theory which attempts to take into account the different facets of test anxiety is a self-regulatory theory proposed by Spielberger and Vagg (1995) named the Transactional Process Model. Zeidner (1998) explained the model using four areas:

- (1) situational conditions and individual dispositional characteristics which impacts the response to a test situation such as the subject to be tested (e.g. Maths, English)
- (2) mediating cognitive and emotional processes such as worry and test-irrelevant thoughts
- (3) correlates of test anxiety such as study-skills
- (4) emotion- or cognitive-focused strategies to alleviate test anxiety such as avoidance behaviours

A key feature of the model is the dynamic and interactional relationship between the factors. Cognitive processes such as memory and retrieval can also impact anxiety levels if the relevant information cannot be identified and retrieved. Although research has supported segments of this model, it has been difficult to study the model as a whole due to its complexity (Zeidner, 1998).

#### **1.4 Students with Learning Difficulties and their Mental Health**

The Department of Health and Social Care (2001, p. 14) describe individuals with learning difficulties as experiencing the '*presence of*:

- *A significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with;*
- *A reduced ability to cope independently (impaired social functioning);*
- *Which started before adulthood, with a lasting effect on development'.*

Some have specific learning difficulties which means that they find specific areas challenging, for example in literacy or mathematics (Royal College of Psychiatrists, 2017).

Lavis et al. (2019) state that CYP with learning difficulties are four times more likely to develop a mental health difficulty compared to those without. Thakkar et al. (2016) also found that students with specific learning difficulties were more likely to self-report higher levels of anxiety compared to their peers without specific learning difficulties. Individuals with specific learning difficulties may develop higher levels of anxiety as a by-product of experiencing difficulties in school and learning. Therefore, it is important to explore the factors which impact the mental health of CYP with learning difficulties.

### **1.5 Students with Learning Difficulties: Schools, Achievement and Anxiety**

More specifically, research has also explored anxiety in students with learning difficulties in relation to school and learning. Alesi et al. (2014) found that primary aged children with specific learning difficulties had higher levels of school anxiety and lower self-esteem compared to peers with no learning difficulties. In addition, Sainio et al. (2019) found that those with specific reading and mathematics difficulties were more likely to have higher anxiety towards reading and mathematics, respectively. This is likely due to their needs in the specific subject area. Therefore, there does seem to be a relationship between anxiety and learning for those with learning difficulties.

Sainio et al. (2019) also found that students with learning difficulties may have lower academic achievement compared to their peers with no learning difficulties. Low academic achievement in turn increases negative perceived self-competence and self-efficacy, which then further reduces engagement in learning (Alesi et al., 2014; Hampton & Mason, 2003). Furthermore, when CYP with learning difficulties encounter challenges in learning and are less engaged, task-irrelevant thinking increases and concentration decreases. This interferes with information processing and subsequent use of metacognitive skills, further exacerbating

difficulties in learning (Alesi et al., 2014). Alesi et al. (2014) describe this as the ‘Matthew effect’ whereby, negative self-perception and reduced opportunities to acquire and practise academic skills reinforces underachievement and lower levels of emotional well-being. This suggests an interactional relationship between learning difficulties and academic achievement which impacts on self-efficacy and self-competence. Subsequently, this can increase anxiety levels as individuals with learning difficulties struggle to access academic learning and may not feel that they can achieve.

Therefore, if lower academic achievement can indirectly impact anxiety levels of students with learning difficulties, it is equally important to explore whether test and exams also impact.

### **1.6 Rationale and Research Questions for Review**

A key rationale for the systematic review is that whilst there have been reviews exploring test anxiety in children and young people as a general population, there has not been a systematic review on test anxiety in those with learning difficulties. More specifically, it would be useful to highlight what factors are related to test anxiety in students with learning difficulties to formulate a model that could guide intervention.

Therefore, this systematic review aims to answer the following research questions:

1. Do students with learning difficulties have test anxiety and are levels higher compared to those without learning difficulties?
2. What internal or external factors are associated with test anxiety in students with learning difficulties?

## **2. Method**

This review used the 6 key stages of conducting a systematic review outlined by Siddaway et al. (2019). The stages include: Scoping, Planning, Searching, Screening, Eligibility and Study Quality.

### **2.1 Scoping**

Scoping involved formulating the research question based on the literature and clarifying whether there had been a systematic review conducted in this area. After initial scoping, no systematic reviews on test anxiety in CYP with learning difficulties was found.

### **2.2 Planning**

Planning involved formulating the search terms which answered the research questions. The search terms used were based on two main phrases, that is test anxiety (exam anxiety, exam stress and test stress) and learning difficulty (special educational need, learning disabilit\*, learning need\*, additional need\*, intellectual difficult\*, learning disabled, reading disabilit\*, math disabilit\*)

Additionally, exclusion and inclusion criteria were defined in order to address the research questions and to create a boundary for the search. Inclusion and exclusion criteria were: (1) English language, (2) Peer reviewed journal article or thesis, (3) Conducted between 1996-2020 (4) Not intervention based.

### **2.3 Searching, Screening and Eligibility**

The systematic search was conducted using five databases: Web of Science, EBSCO, PROQUEST, PsycInfo and PsycArticles in August 2020 (see Figure 1: Flow chart of search process). Titles and abstracts were screened with papers excluded as irrelevant or duplications. Subsequently, full text papers and their reference lists were screened using the



inclusion and exclusion criteria. Nine papers were deemed eligible to be included in the systematic review.

INSERT Figure 1: Flow chart of search process

## **2.4 Study Quality**

Siddaway et al. (2019) highlighted the importance of assessing the quality of the studies, so the Joanna Briggs Institute Critical Appraisal Tool for Analytical Cross-sectional Studies was used (Moola et al., 2017). The studies were assessed based on eight questions focusing on areas such as reliability and validity of measures, managing confounding variables and defining the participants. Whilst no papers were removed due to the low number of articles in this topic area, the results of the critical appraisal are considered within the limitations and discussion sections.

## **2.5 Data Analysis**

The nine studies were summarised into a table (see Table 1; Summary of the included studies). For the first research question, the quantitative results of studies were examined and compared, in order to gain an understanding of whether participants with learning difficulties experienced test anxiety or not, and if their rates of test anxiety were different to the general population (Siddaway et al., 2019). For the second research question on the internal and external factors associated with test anxiety in CYP with learning difficulties, a narrative analysis was used (Siddaway et al., 2019) as the articles used different methodologies and explored different constructs and relationships. This enabled the studies to be reinterpreted and interconnected in order to develop or build upon a theory. Therefore, the data was analysed to draw out the factors that were explored alongside test anxiety for both university and school-aged students. These factors were then grouped into overarching themes: *external and internal factors*. The factors were then further categorised into sub-themes. Within

external factors, the sub-themes included: *test conditions* and *support*, and within internal factors, the sub-themes included: *self-beliefs* and *cognition and learning skills*.

INSERT Table 1: Summary of the included studies

### **3. Results**

#### **3.1 Description of the Studies**

A summary of the characteristics of the studies can be found in Table 1: Summary of the included studies. Six of the studies are peer-reviewed journal articles (Datta, 2013, 2014; Lewandowski et al., 2016; Nelson et al., 2015; Peleg, 2009; Swanson & Howell, 1996). The remaining three studies are unpublished theses (Custodero, 2013; Stevens, 2000; Weprin, 1999). Five of the nine studies were conducted within the past 10 years which suggests that the research topic is still currently of interest. The studies were conducted in three countries; six in USA (Custodero, 2013; Lewandowski et al., 2016; Nelson et al., 2015; Stevens, 2000; Swanson & Howell, 1996; Weprin, 1999); two in Australia (Datta, 2013, 2014) and one in Israel (Peleg, 2009).

#### **3.2 Participant Characteristics**

The sum total of participants included in all of the studies is 1515, and the study by Lewandowski et al. (2016) had the largest number of participants with 776. Datta (2013), Datta (2014), Lewandowski et al. (2016), Peleg (2009), Swanson and Howell (1996) utilised participants aged between 13-18 and Weprin (1999) had participants who were aged between 9-10. Nelson et al. (2015), Custodero (2013) and Stevens (2000) focused on university and post-graduate students. For participants with learning difficulties, Peleg (2009), Swanson and Howell (1996) and Weprin (1999) recruited participants who attended specialist schools.

The studies also focused on a variety of learning difficulties across the different age groups. Custodero (2013), Datta (2013), Peleg (2009) and Stevens (2000) focused on learning difficulties more broadly whilst Lewandowski et al. (2016), Nelson et al. (2015) and Weprin (1999) recruited participants with specific learning difficulties in reading. Two studies explored various types of learning difficulties within their research; Datta (2014) explored students who had a visual impairment or general learning difficulties and Swanson and Howell (1996) explored individuals who had general learning difficulties, behavioural difficulties and/or attention-deficit difficulties. Four studies included participants of the same age, without learning difficulties as a comparison (Custodero, 2013; Lewandowski et al., 2016; Peleg, 2009; Stevens, 2000).

### **3.3 Study Characteristics**

The design of the studies can also be found in Table 2: Summary of the included studies. Custodero (2013), Datta (2014), Lewandowski et al. (2016), Peleg (2009) and Weprin (1999) utilised a cross-sectional, between-participants design whereas Nelson et al. (2015), Swanson and Howell (1996) and Stevens (2000) used a cross-sectional correlational design. Datta (2013) used a mixed methods design, whereby they used descriptive statistics for the quantitative section.

### **3.4 Test Anxiety in Students with Learning Difficulties**

The first research question focused on whether students with learning difficulties have test anxiety and whether test anxiety levels are higher compared to those without learning difficulties. Datta (2014) found that those with general learning difficulties and visual difficulties had moderate to high levels of test anxiety.

Six of the studies also compared levels of test anxiety between students with learning difficulties and those without. Nelson et al. (2015) found that university students with reading difficulties reported having significantly higher test anxiety, worry and general test anxiety

(medium effect sizes) compared to those without. Custodero (2013) and Stevens (2000) also found similar results in relation to test anxiety alone. For those aged between 15-17, Peleg (2009) also found significant differences for fear of social condemnation and excitement and tension (test anxiety sub-scales), with medium to large effect sizes.

However, Lewandowski et al. (2016) found that there was no difference in timed test anxiety between students with and without learning difficulties. Moreover, Weprin (1999) found that amongst 9-10 years olds, students with *no* learning difficulties had significantly higher levels of test anxiety compared to those with learning difficulties.

Therefore, students with learning difficulties can experience higher levels of test anxiety compared to those without learning difficulties, but this was not a consistent finding.

### **3.5 Test Anxiety and External Factors**

The second research question aimed to explore what *external* factors were related to test anxiety in students with learning difficulties. The narrative analysis drew out the factors *testing environment/aspects of the test* and *perception of support received*. They were under the overarching theme of *external factors*. *Testing environment/aspects of the test* also fell under the *test condition* sub-theme and *perception of support received* fell under the *support* sub-theme (See Figure 2: Model to show internal and external factors related to test anxiety in CYP with learning difficulties). Stevens (2000) provided participants with various characteristics of tests and testing situations such as *multiple-choice tests* and *a crowded exam room*. University students with and without learning difficulties were asked to rank these characteristics in order of most to least anxiety provoking. The rankings were then compared to highlight if there were any significant differences between what was rated as anxiety provoking between students with and without learning difficulties. Stevens (2000) reported that students with learning difficulties had significantly more anxiety about 11 out of 20 situations such as *cumulative final exams*, *lack of review sessions*, *multiple choice tests*,

*crowded exam room and timed tests*. The largest differences were found in factors including: *lack of reviews sessions, crowded exam room, timed test and closed book*. There was no significant difference for factors such as *essay tests, oral presentations, short answer tests, tests outside of class time*.

INSERT Figure 2 here: Model to show internal and external factors related to test anxiety in CYP with learning difficulties

Furthermore, Custodero (2013) asked participants in a questionnaire if they felt that they had a good support group (family, friends or academic staff) to help them. They found that there was a significant difference in perceptions of support received between those with learning difficulties who had high test anxiety and those with low test anxiety, whether they had learning difficulties or not. Those with higher levels of test anxiety and learning difficulties reported lower perceived support.

### **3.6 Test Anxiety and Internal Factors**

The second research question also aimed to explore what *internal* factors were related to test anxiety in CYP with learning difficulties. The narrative analysis drew out the factors:

*control over academic tasks, self-esteem, academic self-concept, working memory and non-verbal skills, study skills and cognitive interference*. They were also categorised into sub-themes: *self-beliefs and cognition and learning skills*. Within *self-beliefs*, factors include *control over academic tasks, self-esteem and academic self-concept* (See Figure 2: Model to show internal and external factors related to test anxiety in CYP with learning difficulties). Within *cognition and learning skills*, factors include *working memory and non-verbal skills, study skills and cognitive interference*.

In relation to the sub-theme of *self-beliefs*, Stevens (2000) used various measures of locus of control, the degree to which an individual believes a consequence or outcome is dependent on their behaviour or skill, or whether it is down to external factors beyond their control such as luck (Rotter, 1990). He found that academic locus of control and external perceived control was significant and positively related to test anxiety with a moderate strength. There was also a small, negative correlation between internal perceived control of testing and test anxiety.

Swanson and Howell (1996) also explored academic self-concept which is the perception of one's own academic competence and abilities (Urhahne et al., 2011). They found a moderate, negative correlation between test anxiety and academic self-concept. However, they conducted a step-wise multiple regression and found that academic self-concept did not significantly contribute to the test anxiety variance. Peleg (2009) further explored self-esteem which is the perception of one's own value to others and the world (Sideeg, 2015). He found a strong, negative correlation between test anxiety and self-esteem.

In relation to the sub-theme of *cognition and learning skills*, Nelson et al. (2015) conducted cognitive assessments with participants and measured their test anxiety. They found that test anxiety had a strong, negative correlation with working memory. There was also no correlation between test anxiety and reading skills, processing speed and verbal ability.

Additionally, Swanson and Howell (1996) found self-reported study habits (sub-scales included work methods, avoidance, teacher acceptance and educational acceptance) had a moderate, negative relationship with test anxiety with 6% of the variance in test anxiety due to self-reported study habits. They also measured cognitive interference, which is related to an individual's increased level of cognitive worry, causing their attention to be diverted away from the task. They found that self-reported cognitive interference had a strong, negative and significant correlation with test anxiety and accounted for 32% of the variance in test anxiety.

## **4. Discussion**

### **4.1 Test Anxiety in Students with Learning Difficulties**

In line with previous research and the PISA Report (OECD, 2017), the studies in the current review found that in general, students with learning difficulties can experience high levels of test anxiety like those without learning difficulties (Datta, 2013, 2014). This was found amongst students with various learning difficulties. It further supports the idea that factors within school such as testing and studying can impact mental well-being. However, Datta (2013) and Datta (2014) did not control for confounding variables and so results should be interpreted with caution.

Moreover, this review also found that university and school-aged students with learning difficulties were more likely to have higher levels of test anxiety compared to peers without, (Custodero, 2013; Nelson et al., 2015; Peleg, 2009; Stevens, 2000). The effects sizes were generally moderate or large which suggests that this difference is likely to be meaningful. This supports the study by Alesi et al. (2014) who found that students with learning difficulties were more likely to have anxiety in relation to school compared to their peers.

However, not all studies in this review found that CYP with learning difficulties experience increased levels of test anxiety. Lewandowski et al. (2016) found that there was no difference in anxiety in timed tests between those with and without learning difficulties. One of the reasons for this could be because they explore timed test anxiety specifically. Time pressure in tests would likely be anxiety provoking regardless of whether an individual has a learning difficulty or not. For example, it was found that timed tests contributed to maths anxiety as students reported worrying about not finishing on time (Boaler, 2014). Therefore, there may be specific characteristics of tests and exams which are likely to impact anxiety in all students. However, a limitation of the study by Lewandowski et al. (2016) is that they only included 35 students with learning difficulties in comparison to 741 students without. This

can impact on whether comparisons can be made and whether results show an actual difference between those with learning difficulties and those without.

Interestingly, Weprin (1999) found that students *without* reading difficulties had increased levels of test anxiety compared to those with reading difficulties. One of the reasons presented is that the participants recruited in the study were from a specialist setting for those with reading difficulties. The author suggests that the students may receive specialist support in managing their difficulties in reading, which in turn could be an important factor in managing test anxiety. This is further supported by Yildirim et al. (2008) who found that perceived support from teachers was related to lower levels of test anxiety in students. The authors highlighted the importance of teachers' understanding of test anxiety and potential strategies so that students can be supported.

#### **4.2 Test Anxiety, Testing Situations and Perceived Support**

The results of the review found that there were some external factors which were related to test anxiety for students who have learning difficulties. Firstly, the testing situation/aspects of the test were overall factors associated with anxiety levels. Based on the Transactional Process Model (Spielberger & Vagg, 1995), situational conditions are important to consider in relation to test anxiety levels. This adds to the understanding as to why tests can be anxiety provoking and subsequently what support can be provided. However, the study by Stevens (2000) focused on university students and so results may not be relevant to younger age groups. For example, primary aged students may not have exams in large halls unlike secondary or university aged students. Therefore, future studies should explore different aspects of tests and testing conditions and how that impacts different age groups.



Custodero (2013) also found that perception of support received was significantly lower in students with learning difficulties and high test anxiety. As mentioned previously, Weprin (1999) found no difference in levels of test anxiety in children who were educated in specialist settings. They suggested that this could be due to the support received in their education. Therefore, both studies support the idea that the perceptions of receiving guidance and support from teachers may help to alleviate test anxiety.

#### **4.3 Test Anxiety and Self Beliefs**

The review found that internal factors were related to test anxiety, more specifically, *self-beliefs*. Lower external locus of control was found to be related to decreased levels of test anxiety (Stevens, 2000). Also, higher perceived control over testing was related to lower levels of test anxiety. This supports other research which found that university students with higher levels of internal control was related to lower anxiety as they feel they have control over their academic learning (Arslan et al., 2009). In turn, those with an external locus of control may feel more helpless when encountering difficulties in learning.

In relation to this, it was found that higher academic self-concept and self-esteem was negatively correlated with test anxiety with moderate to strong relationships (Peleg, 2009; Swanson & Howell, 1996). There are also suggested reciprocal relationships between test anxiety and academic self-concept and self-esteem (Ahmed et al., 2012; Dan & Raz, 2015). That is, if an individual feels they have the skills to manage an academic task and have higher self-perceived value, this may lower their test anxiety levels and in turn further increase academic competence and self-esteem. This supports the Transactional Process Model (Spielberger & Vagg, 1995) which suggests personal characteristics may have a reciprocal relationship with test anxiety. Therefore, it is suggested an internal locus of control, a positive academic self-concept and higher levels of self-esteem are factors which should be fostered

in students with learning difficulties.

#### **4.4 Test Anxiety, Cognition and Learning Skills**

Also, within internal factors, *cognition and learning skills* was found to be related to test anxiety. The review found that working memory and cognitive interference had moderate to strong, negative associations with test anxiety (Nelson et al., 2015; Swanson & Howell, 1996). The relationship with cognitive interference supports the Cognitive-Attentional (Interference) Model (Wine, 1971) and may also explain why test anxiety is related to working memory. If an individual's cognitive capacity is taken up by task-irrelevant thoughts such as worry, then there will be less resources to be able to process information in the working memory. This also supports previous research by Coy et al. (2011) which found that off-task negative self-dialogue was related to higher levels of test anxiety. This negative self-dialogue could also be related to an individual's self-esteem and academic self-concept, which further supports the interactional nature of the Transactional Process Model (Spielberger & Vagg, 1995).

Lastly, Swanson and Howell (1996) found that test anxiety was negatively related to study habits which supports the correlates of the Transactional Process Model. When further analyses were done, study habits only accounted for 6% of the variance in test anxiety. Therefore, this suggests that 'study habits' is one factor out of many which is related to test anxiety and other factors are at play too. However, as Swanson and Howell (1996) did not specify the students' learning difficulties, individuals with different learning difficulties may find various aspects of studying challenging. For example, Alesi et al (2014) found that CYP were more likely to have test anxiety in the subjects of their specific learning difficulty, which in turn could impact their study habits too

## **5. Limitations and Conclusion**

### **5.1 Limitations**

One of the main limitations was that there were few studies conducted in this area and all were included despite limitations. Some of the papers could be considered dated and three of the studies used were theses and therefore not peer-reviewed.

### **5.2 Implications for Practice**

There are a number of implications for practice for educational professionals. Firstly, it is important to increase their awareness and knowledge of test anxiety for CYP with learning difficulties. Whilst test anxiety will have an impact on all students, it may have a larger impact on those with learning difficulties. The factors which compound levels of anxiety for students with learning difficulties should be highlighted. Subsequently, proactive strategies can be taken in order to try to minimise the impacts of tests on anxiety levels. Based on this review, factors such as testing conditions and characteristics of tests could be modified to support with test anxiety.

### **5.3 Conclusion**

In conclusion, there is evidence to suggest that students aged between 9-25 with learning difficulties can experience high levels of test anxiety. Additionally, there are a variety of factors based on different theories which can impact levels of test anxiety. Therefore, different theories and models may illuminate different aspects of test anxiety and causes. As the Transactional Process Model (Spielberger & Vagg, 1995) states, test anxiety levels are dependent on individual characteristics and situations. Therefore, the model exploring internal and external factors relating to test anxiety in CYP with learning difficulties could hypothesise potential reasons and help to provide personalised support. There is also a need

for further research on the factors that influence test anxiety in CYP with learning difficulties in different countries. More importantly, it would be useful to explore the views of students with learning difficulties on testing, potential causes of anxiety and what can be done to help them.

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