

Foreign language classroom anxiety levels of dyslexic and average readers: a comparative study

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Abstract

Mental health covers a wide range of psychological health conditions. This hides the true extent of the severity of the emotional challenges that children and adolescents encounter early in their lives. Students with dyslexia too can experience these emotional difficulties. This study involves the administration of an anxiety scale to Form 4 and Form 5 students with dyslexia and average readers. In total, 314 respondents with and without learning difficulties attending state and church schools took part. The principal aim of this study was to explore the anxiety levels of students with dyslexia in comparison to average readers in foreign language classes. The secondary aim was to consider gender differences and school type in relation to participants' reported levels of anxiety when attending such classes. The authors employed a quantitative method and utilised the 'Foreign Language Classroom Anxiety Scale' questionnaire developed by Horwitz et al. (1986) to gather data. The research analysis found significant results when the variables mentioned above were taken into consideration. This study adds to the existing body of knowledge about the vulnerability of students with learning difficulties. It also discusses the validity of the measure used, albeit in a context that it was not intended to be used in.

Keywords: students with dyslexia; average readers; anxiety scale; secondary schools

Introduction

It is reasonable to assume that children who struggle at school with learning difficulties of a dyslexic nature may well have their feelings of self-esteem negatively affected. Literacy is a highly valued skill, and the inability to acquire it is likely to harm any individual's conception of himself or herself as competent (Burden, 2008). Studies concerning gender and anxiety among students in a school setting also confirmed that females reported higher anxiety on all anxiety subscales than males (Birmaher et al., 1997; Crocetti, Hale, Fermani, Raaijmakers, & Meeus, 2009; Essau, Muris, & Ederer, 2002; Freudenthaler, Spinath, & Neubauer, 2008; Kareemi, 2016; Steinhausen, Müller, & Metzke, 2008; Weiss & Last, 2001). As children progress through their education, they typically sit for more tests and assessments and with these come expectations of good performance, causing stress and anxiety (McDonald, 2001). Bakhla et al. (2013) suggest that in English speaking countries, more girls than boys develop anxiety symptoms and disorders with adolescent girls reporting a more significant number of worries, and higher levels of generalised anxiety. Zeleke (2004) notes that self-concept, global self-esteem, global self-worth and general self-esteem have all been used synonymously in the literature on children's issues related to self-confidence and dyslexia. Issues relating to the equivalence of meaning in the use of different terminologies abound in the area and may affect the replicability of findings (Burden, 2008). However, there appears to be some consensus that authors use the terms "self-concept" and "self-perception" synonymously to connote one's perceptions in domain-specific areas; "self-esteem" connotes perception of one's global sense of wellbeing as a person (Zeleke, 2004).

Children identified as having dyslexia question their intellectual abilities and lose motivation as a consequence of their unexplained difficulties (McNulty, 2003). Furthermore, dyslexic students are likely to experience significantly lower self-esteem and a higher degree of anxiety than matched controls (Riddick, Sterling, Farmer, & Morgan, 1999). Second language researchers and theorists opine that anxiety is often associated with language learning and students generally perceive anxiety as a significant obstacle to learning to speak another language. It directly threatens an individual's self-concept and worldview. The subjective feelings evoked in anxious foreign language learners are essentially the same as for any specific anxiety; apprehension and worry that express themselves as difficulty in concentrating, forgetfulness, sweating, and palpitations (Horwitz, Horwitz, & Cope, 1986). In this study, the

authors used Horwitz et al.'s (1986) Foreign Language Classroom Anxiety Scale (FLCAS) to explore anxiety issues and academic self-concept in a group of Maltese adolescents learning a language other than the one spoken at home.

Malta has a complex language-learning context, with most students being bilingual in Maltese and English to varying degrees, but with one language being dominant (Fabri, 2012; Grech & McLeod, 2011). While on the one hand Maltese is reported to be the language most frequently used at home by 90% of the population aged 10 years and over, and English by 6% of the population, Maltese does not hold sway alone (Vella, 2013). When it comes to the written medium, a culture survey (National Statistics Office, 2011) revealed that written English was preferred by 44.5% of the population, compared to the use of written Maltese, at 43.1%. When asked about their preferred language when reading, 46.3% opted for English, while 38.6% preferred Maltese. English is valued for its instrumental value and prestige, while Maltese is associated with more integrative and identity feelings (Bonnici, 2010; Caruana, 2007). Given the difficulties that children with dyslexia experience in learning language, the authors wished to explore their anxiety levels when attending classes for the second language, be this English, as was the case for most students or Maltese, as was the case for fewer students.

Academic self-concept and classroom anxiety

Academic self-concept is a multifaceted hierarchical construct that involves self-perceptions in various domains (Marsh & Martin, 2011). However, self-concept need not be seen as a unidimensional construct and can be explored with reference to its different facets (Szenczi, Kis, & Józsa, 2018). Academic self-concept is an evaluative self-perception that is formed through the student's experience and interpretation of the school environment (Marsh & Craven, 1997). The multidimensional perspective of self-concept finds broad acceptance and support in educational psychology with its focus on academic self-concept and its relation to academic achievement, school grades, student learning, and other academic outcomes (Marsh & Craven, 2006). Determining the direction of the relation between academic self-concept and academic achievement has been a critical issue in this field of research. While researchers of mathematics and science education opine that self-concept can be enhanced through achievement (the skill development model), educational psychologists opine that self-concept enhances achievement (the self-enhancement model) (Chiu, 2011). Marsh and Craven (2006) advocate for a positive academic self-concept being crucial in buffering the potentially damaging effects of failure on

achievement. Based on several statistical models, they support the self-enhancement model to the extent that they suggest that proactive strategies should be integrated into everyday classroom practice rather than implemented as separate “interventions” that are isolated from the setting where learning takes place.

School or classroom anxiety is one of the most common categories of anxiety experienced in middle childhood (Ahlen, Breitholtz, Barrett, & Gallegos, 2012). It is a “discomfort reaction associated with unpleasant emotions and a state of distress occurring in response to school tasks or situations that are perceived as threatening to self worth” (Rappo, Alesi, & Pepi, 2017, p. 466). It is characterised by “an anticipatory cognitive process involving repetitive thoughts related to possible threatening outcomes and their potential consequences” (Vasey, Crnic, & Carter, 1994, p. 530). High levels of school anxiety are detrimental to children because of the negative effect on their bodily and emotional wellbeing and on their ability to achieve their potential. Anxiety symptoms are associated with impairment of memory and cognitive functions and can contribute to poor school performance, maladaptive behaviour and academic failure (Mazzone et al., 2007). In the short term, anxious children and adolescents are likely to have limited career options and even increased suicide ideation and attempts (Teubert & Pinquart, 2011). Tramonte and Willms (2010), in their Canadian study, found that approximately 55% of students experience some degree of school anxiety.

Similarly, Leonard et al. (2015) reported a rate of about 49% of students experiencing considerable stress daily, and 31% reported feeling somewhat stressed. While the results of the studies are subject to geographical, cultural, societal and temporal variables and assessed different types of school-related anxiety, there seems to be considerable convergence among them. This suggests that it would be reasonable to expect a third of children to experience significant levels of school-related stress during their scholastic career. Our literature review also found that among students, females have higher levels of overall school-related anxiety than males. As explained above, most studies in this domain have found that adolescent girls more frequently suffer school-related anxiety than boys do. Specifically, Leonard et al. (2015) found significant gender differences in school-related stress, with 60% of females reporting school anxiety in contrast to 41% of male students. When Kareemi (2016) assessed differences in the levels of experienced anxiety across the genders through the administration of the Beck Anxiety Inventory to 600

secondary school students, matched for sex, age and a broad measure of socioeconomic status, females reported experiencing significantly higher anxiety than their male counterparts.

In this study, the authors opted to explore academic self-concept in terms of dyslexic learners' specific language competence and the anxiety that this reduced competence evokes in such learners, effectively narrowing down the academic self-concept to the factors under consideration. The authors examined the link between school anxiety and being dyslexic.

Dyslexia

Dyslexia is defined as “a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling” (Rose, 2009, p. 10). Additionally, the DSM-5 affirmed that dyslexia refers to children who have difficulty in mastering the relationships between the spelling patterns of words and their pronunciations (American Psychiatric Association, 2013). Although children with dyslexia can understand spoken language or text read to them, they experience difficulty while reading on their own as they experience problems of word decoding and recognition, spelling, and phonological recoding (Tunmer & Greaney, 2010). Dyslexia is one of the most common language-based learning difficulties. Dyslexia International (2017) suggested that approximately 5% to 10% of the population experience dyslexia, which potentially equates to around 700 million people worldwide. It can affect “those who cannot read to those with higher education awards” (Parsons, 2012, p. 2).

Students with dyslexia find it challenging to cope with the demands of an educational system, and they may experience anxiety as they have a fear of making mistakes, being ridiculed, or appearing foolish in front of their classmates (Carroll & Iles, 2006). Consequently, dyslexic students in secondary education perceive themselves as different from others as they feel inferior and stupid, mainly when bullied or teased because of their reading and writing problems (Ingesson, 2007). Anxiety in such students can occur as a future threat in the form of failure within these educational performances (Zeidner & Matthews, 2005).

“The dyslexic child’s self-image may be seriously affected within days if not hours, of entering a secondary school” (Peer & Reid, 2001, p. 232). Recent research has shown that the experience of having dyslexia has clear and

demonstrable adverse effects on the academic self-concept and the self-esteem of children. Given the fact that many children with dyslexia have been labelled lazy or stupid from an early age (Humphrey, 2001; Humphrey & Mullins, 2002), it is not surprising that they also tend to perceive themselves of lower intelligence than their peers (Humphrey, 2003). Even so, students with learning difficulties have lower academic self-concept when it comes to scholastic and cognitive abilities as they encounter difficulties in learning specific skills. The damage done to a child by destroying self-esteem may well be far higher than neglecting education, for it undermines all those elements that motivate succeeding in life (Cosden & McNamara, 1997).

Dyslexia and anxiety

There is evidence that intense emotional distress and the early experience of unexplained and unsupported failure in the crucial academic areas of reading and writing impact the lives of affected individuals for the rest of their lives (Firth, Frydenberg, Steeg, & Bond, 2013). Children consider many school tasks stressful, worrisome and anxiety-provoking because underlying them, there is an element of examination or assessment stress that can have a significant influence on the learners' academic achievement (Putwain, 2007). In view of the significant gender differences in dyslexia (Willcutt & Pennington, 2000), affected male learners reported higher rates of aggressive behaviours than affected female learners; the latter pupils reported higher rates of internalising problems such as school-related test anxiety (Cassady & Johnson, 2002). "Female dyslexics are more prone to anxiety-related symptoms than male dyslexics" (Carroll & Iles, 2006, p. 658). Additionally, parents reported that female students with dyslexia experienced more anxiety than females without reading difficulties (Willcutt & Pennington, 2000), something also found by Leonard et al. (2015) as reported above. This might be due to female dyslexic students feeling more able to talk about their experiences than males (Carroll, Maughan, Goodman, & Meltzer, 2005; Hales, 1994). Cassady & Johnson (2002) explained this difference through females' higher levels of emotionality and expression of feelings when compared to males. The 2018 Programme for International Student Assessment (PISA) showed that in general, the fear of failure and anxiety experienced by boys and girls also differed across countries with girls reporting fear of failure more often, and to a more considerable extent than boys from 70 different countries (Givord, 2020). In the local context of this same programme, "Maltese girls experience fear of failure significantly more than their male counterparts, particularly in Church and Independent schools" (MEDE, n.d., p. 187).

Even if some literature suggests that students with dyslexia typically do experience anxiety, this is not universally true, and research has been somewhat equivocal. Miller, Hynd, and Miller (2005) argue that in consideration of any limitations of their study, children with dyslexia are no more likely to have internalising problems than children with average reading achievement. Furthermore, the children in their sample with the most severe reading impairments also had mean scores for behaviours associated with anxiety, depression, and somatic complaints. They attributed these results to the specific diagnostic models that they used to select their sample. They suggested that children with dyslexia were not at increased risk for internalising symptomatology, including anxiety and that children with severe reading impairments in their study were not at higher risk for internalising symptoms when compared to less reading impaired children. Novita (2016) found that children with and without dyslexia had similar anxiety profiles in general, even if children with dyslexia had a higher generalised anxiety profile and lower self-esteem in the school setting compared to children without similar difficulties. Despite sizeable effect sizes, her results did not find any significant differences between dyslexic and average readers.

In the same vein, Tsovili (2004) wrote that it was not clear how children and adolescents with dyslexia experienced anxiety. She designed her study to evaluate the anxiety that adolescents with dyslexia would report after reading (state anxiety) and their trait anxiety, to define the individual differences in anxiety-proneness. In her study, adolescents with dyslexia reported higher levels of reading anxiety when compared to adolescents without dyslexia. Adolescents with dyslexia exhibited relatively lower trait anxiety than the control adolescents, but this could not be interpreted to mean that they were less anxious. Instead, "they perceive dyslexia and its subsequent problems as a more important source of anxiety than any other in their daily life" (p. 80). However, despite using a wide array of measures and tests, Tsovili (2004) found no clear cut distinction between the dyslexic group and the controls in terms of the participants' trait anxiety levels. Instead, it appeared to depend to some degree on how participants reconciled themselves with their difficulties and how children's levels of reading ability varied within a broader context of teacher support and personal constructs.

Materials and method

The research tool employed in researching the anxiety level of dyslexic students in secondary schools was the Foreign Language Classroom Anxiety Scale (FLCAS) questionnaire developed by Horwitz et al. (1986). The FLCAS is available in the public domain and comprises 33 items scored on a Likert scale to gather information from respondents. The items presented are reflective of communication apprehension, test-anxiety, and fear of negative evaluation in the foreign language classroom (Horwitz et al., 1986). "This self-report measure assesses the degree of anxiety, as evidenced by negative performance expectancies and social comparison psychophysiological symptoms, and avoidance behaviors" (Horwitz, 1986, p. 559). This test explores the tendency to be anxious in a specific situation. Children with specific anxiety about language learning can be anxious when engaged in or contemplating second language tasks even if they experience little anxiety in other situations (Horwitz, 2016). Furthermore, this measure is reliable and has good criterion validity when compared to other measures of anxiety (Horwitz, 1986).

A total of 316 students attending state and church secondary schools in years 10 and 11 participated in our study. Two participants were excluded due to their being outliers, reducing the number to 314, as shown in Table 1 below. Sex was roughly equally distributed between the two school sectors, even if there appears to have been more dyslexic participants attending church schools. This was a non-probability sample, and equal distribution of sex and literacy status could not be controlled for strictly.

Table 1. Breakdown of participants by dyslexic status, sex, and school type

	Males	Females	State	Church	Total
Dyslexic learners	24	12	11	25	36
Average learners	148	130	85	193	278
Total learners	172	142	96	218	314

In this study, all the students classified as having dyslexia underwent diagnosis by educational psychologists earlier in their lives. Consequently, they were all registered as having a Statement of Special Educational Needs by the Ministry of Education. The prevalence of reading difficulties was typically higher in

males than in females, something also reported by Rutter et al. (2004). The researchers adhered strictly to all the procedures laid down by the institutional ethics committee for recruiting participants. Irrespective of their status, all learners and their parents gave their informed assent and consent, respectively. Where learners with dyslexia offered to participate in the study, their class peers were also invited to participate, and most did. The sample was effectively a convenience sample, collected from schools that were known to the second author.

Analysis and results

Data obtained from this study were processed using IBM SPSS Statistics Version 23 and Factor 10.10.02 (Lorenzo-Seva & Ferrando, 2020). Some items were reverse coded due to the wording style of the specific items in the questionnaire. Normality of distribution of the dependent variables was assessed statistically and visually according to procedures suggested by Maxwell and Delaney (2004). The Shapiro-Wilk test p-values exceeded the 0.05 level of significance for the FLCAS (.991). The quantile-quantile (Q-Q) plot suggested that the data set came from the same distribution, with the points forming a roughly straight line. A box plot of the data also revealed a symmetrical pattern of distribution of scores. Given the sizeable population completing the FLCAS, we converted the raw scores to a standardised scale with a mean of 100 and a standard deviation of 15 points. We did this to norm the test on the specific sample participating in this study.

Participants with dyslexia ($n = 36$) scored a higher mean ($m = 104.24$, $sd = 15.895$) than the participants without dyslexia ($n = 278$) ($m = 99.14$, $sd = 14.390$) on the FLCAS. This difference was only statistically significant at $t(312) = 1.980$, $p = .049$; Cohen's $d = .336$. Females ($n = 142$) scored a higher mean ($m = 102.68$, $sd = 16.134$) than male participants ($n = 172$) ($m = 97.28$, $sd = 12.81$). This difference was statistically significant at $t(266.446) = 3.233$, $p = .001$; Cohen's $d = .373$. State school children ($n = 96$) scored a higher mean ($m = 104.84$, $sd = 13.882$) than church school children ($n = 218$) ($m = 97.47$, $sd = 14.417$). This difference was statistically significant at $t(188.095) = 4.285$, $p = .001$; Cohen's $d = .529$. The effect sizes reported are considered to be moderate (Cohen, 1988).

When the participants with dyslexia and those who were average readers were compared for language anxiety using a two-sided, independent samples t-test, they differed significantly with a moderate effect size as explained above. When an item by item analysis of each measure was computed using the Mann-

Whitney U test, significant differences were only noted between those participants with dyslexia and average readers on questions 2, 3, 4, 7, 12, 16 and 21 as shown below. This suggests that participants' scores varied significantly only on seven of the 33 items in the scale.

Table 2. Significant differences between participants with dyslexia and average readers by questionnaire item

Item number	Median score Dyslexic	Median score Average	U-statistic	Asymptotic level of significance
2	4	3	3619.5	.005
3	3	2	3724.5	.009
4	3	2	4023.5	.048
7	3	3	3833	.019
12	3	2	3599	.004
16	3	2	3708	.009
21	3.5	2	3751.5	.012

A factorial ANOVA was conducted to compare the main effects of dyslexic status, sex, and school type and the interaction effects between dyslexic status, sex, and school type on foreign language anxiety. There was one main effect for sex as reported above. There was one significant two-way interaction between dyslexic status and type of school attended. This yielded an F ratio of $F(1, 308) = 6.269, p = .013$, indicating that participants with dyslexia attending church schools registered statistically significantly higher levels of foreign language anxiety (105 points) than dyslexic participants attending state schools (102 points). Conversely, average participants attending church schools registered significantly lower levels of foreign language anxiety (96 points) than did average participants attending state schools (105 points).

In a bid to explore the structure of the FLCAS, an exploratory factor analysis (EFA) was conducted, given that this measure was reported to have good construct and concurrent validity. To the authors' knowledge, no study was ever conducted on the actual structure of the questionnaire. Exploratory (unrestricted) factor analysis (EFA) is a particular type of structural equation model (SEM) with latent variables. To do this, the authors used FACTOR, a computer program to fit the exploratory factor analysis model (Lorenzo-Seva & Ferrando, 2006). The programme's main strength is that it is intended as an

exploratory tool that uses, among other parameters, a measure of goodness of fit as an essential requirement for judging an EFA solution as appropriate. Ferrando and Lorenzo-Seva (2018) emphasised how in EFA, the use of the factor indeterminacy score assesses the indeterminacy between the factor score estimates and relevant criteria and how this statistic should be assessed routinely in FA studies of this type. The extent to which scores are indeterminate can be measured by a “factor determinacy index” (FDI) in their programme. When the FDI value is near one, the factor score estimates are good proxies for representing the latent factor scores, and the different factor score estimates that are compatible with the given structure are also highly correlated with one another (Guttman, 1955). Gorsuch (1983) considered that FDI values around 0.80 are adequate for research purposes, but for more rigorous individual assessment, a value of 0.90 should be a minimal requirement (Grice, 2001). In this EFA, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors was 0.94742 which is considered to be very good. High values (close to 1) generally indicate that factor analysis may be useful with one’s data; values less than .5 suggest that the results of the factor analysis probably won’t be very useful (IBM Knowledge Center).

Likewise, Bartlett’s test of sphericity, that tests the hypothesis that one’s correlation matrix is an identity matrix, indicating that variables are unrelated and therefore, unsuitable for structure detection was very good. The Bartlett’s statistic (3478.8 (df = 528; $p = 0.000010$)) was less than .05 of the significance level, indicating that factor analysis would be useful with the set of data under consideration (IBM Knowledge Center). The EFA identified two factors, the first with a Factor Determinacy Index of .895 and the second with an index of .892, which Gorsuch (1983) considered adequate for research purposes. The EFA with obliquely rotated factors and loadings lower than absolute .4 omitted, suggested two factors with an eigenvalue greater than 1. Factor 1 comprised 17 items reported on a 5-point Likert scale that explained 36% of the variance with factor loadings from .4 to .6. The second factor explained an additional 5.5% of the variance and comprised 12 items reported on a 5-point Likert scale with factor loadings from .4 to .7. These factors are shown below.

Table 3. Exploratory factor structure of the FLCAS

	Factor 1 – 17 items	Factor 2 – 12 items
Dimension	Severe, physical reactions to anxiety-provoking situations	Less severe reactions related to lack of self-confidence
1	Q3. I tremble when I know that I'm going to be called on in language class.	Q1. I never feel quite sure of myself when I am speaking in my foreign language class.
2	Q4. It frightens me when I don't understand what the teacher is saying in the foreign language.	Q5. It wouldn't bother me at all to take more foreign language classes.
3	Q7. I keep thinking that the other students are better at languages than I am.	Q6. During language class, I find myself thinking about things that have nothing to do with the course.
4	Q9. I start to panic when I have to speak without preparation in language class.	Q8. I am usually at ease during tests in my language class.
5	Q10. I worry about the consequences of failing my foreign language class.	Q14. I would not be nervous speaking the foreign language with native speakers.
6	Q12. In language class, I can get so nervous I forget things I know.	Q17. I often feel like not going to my language class.
7	Q 13. It embarrasses me to volunteer answers in my language class.	Q18. I feel confident when I speak in foreign language class.
8	Q15. I get upset when I don't understand what the teacher is correcting.	23. I always feel that the other students speak the foreign language better than I do.
9	Q16. Even if I am well prepared for language class, I feel anxious about it.	26. I feel more tense and nervous in my language class than in my other classes.
10	19. I am afraid that my language teacher is ready to correct every mistake I make.	Q27. I get nervous and confused when I am speaking in my language class.
11	20. I can feel my heart pounding when I'm going to be called on in language class.	28. When I'm on my way to language class, I feel very sure and relaxed.
12	24. I feel very self-conscious about speaking the foreign language in front of other students.	32. I would probably feel comfortable around native speakers of the foreign language.

13	25. Language class moves so quickly I worry about getting left behind.	
14	29. I get nervous when I don't understand every word the language teacher says.	
15	30. I feel overwhelmed by the number of rules you have to learn to speak a foreign language.	
16	31. I am afraid that the other students will laugh at me when I speak the foreign language.	
17	33. I get nervous when the language teacher asks questions which I haven't prepared in advance.	

Discussion

Several conclusions may be drawn from these results concerning the overall findings as well as the suitability of the measure that was used to explore foreign language anxiety. It became patently clear that there were significant differences between the participants when they were divided into separate groups. Participants with dyslexia experienced somewhat more foreign language anxiety than their average counterparts in the same classes. When the participants were divided into two groups by sex, females experienced foreign language anxiety significantly more than males. When the participants were divided into two groups based on the type of school they attended, state school students expressed significantly more foreign language anxiety than did church school students. When all three variables were entered into the equation together, these differences disappeared except for a significant difference between females and males with females experiencing significantly more foreign language anxiety than males.

An interaction was evident between dyslexic status and school type with students with dyslexia attending church school reporting significantly more foreign language anxiety than their average peers, with this relationship being inverted for state school children. The initial findings seem to suggest that in the sample of children participating in this study, students with dyslexia reported a significantly higher level of language classroom anxiety than their average peers in keeping with (Riddick et al., 1999). These findings support

evidence presented by Carroll and Iles (2006), Peer and Reid (2001) and Zeidner and Matthews (2005) to the effect that learners with dyslexia are deleteriously affected in terms of self-image, self-esteem and ultimately experience a sense of classroom anxiety. The number of students with dyslexia in this study is far too small to afford any solid support to Willcutt and Pennington's (2000) imbalance in the ratio of males to females. Similarly, in the case of Cassady and Johnson's (2002) findings that females with dyslexia have higher rates of internalising problems such as school-related test anxiety, the numbers are not sufficiently large to support this claim. What this study did find, however, through the ANOVA, is that females, in general, expressed higher rates of foreign language anxiety than males.

This finding was robust enough to retain significance even when we accounted for the moderating effects of the type of school attended, and the prevalence of the dyslexic condition. At this level of analysis, there appears to be some support for Burden's (2008) and Miller et al.'s (2005) counsel that the relationship between dyslexia and anxiety warrants more in-depth study and is not a foregone conclusion. What this study does support robustly, however, is the notion of females being more inclined than boys to develop anxiety symptoms and to exhibit higher levels of generalised anxiety (Bakhla et al., 2013). The interaction between school type and dyslexia and its effect on foreign language anxiety is unexpected and warrants further investigation. At this stage, we can only say that possibly, just possibly, participants with dyslexia in the participating church schools may have been more acutely aware of their difficulties than their peers in participating state schools. This is purely conjectural, given the small numbers of participants involved but is not improbable. In Malta, church schools are valued for their robust academic performance (Said Camilleri, 2018), and children with dyslexia in these schools may perceive their difficulty more acutely than would otherwise be the case in a state school.

Reference is now being made to the structure of the (FLCAS) questionnaire developed by Horwitz et al. (1986). Overall, these analyses indicated that two distinct factors were underlying the participants' responses to the FLCAS questionnaire. All questionnaire items loaded to one of the two factors. However, due to truncating the factor loading at .4 in the rotated loading matrix for ease of interpretation, four items were omitted from the factor structure table above. When we investigated how dyslexic and average readers responded to all the items on the FLCAS, significant differences were only

evident for seven of the 33 items, all of which loaded on the first factor of the EFA and none on the second factor. These seven items were items q2, q3, q4, q7, q12, q16 and q21. Two of these items (q2 and q21) are not shown in the table above for the reason cited.

The exploratory factor analysis suggested a two-factor solution; one factor comprised physical reactions to anxiety-provoking situations, and the other comprised less severe reactions related to generalised lack of self-confidence in the situation of foreign language learning. The first factor, which explained 36% of the variance for the FLCAS was by far the more robust of the two factors. It suggested that the test has good construct validity separating what we interpreted as being a strong emotional reaction to foreign language anxiety, accompanied by specific physical symptoms associated with states of autonomic arousal. These included trembling, fright, panic, pounding heart, and nervousness, among others. The second factor explained a mere 5.5% of the variance for the FLCAS. It comprised issues like being unsure of oneself, feeling nervous, not feeling at ease and feeling nervous in foreign language situations. We interpreted the first factor as one comprising immediate, intense emotional reactions to the foreign language situations listed in the questionnaire. In contrast, we interpreted the second factor as one comprising long term, stable sensations of unease and nervousness experienced in connection with the notion of foreign language learning; something akin to state anxiety and apprehension. The postulated structure of the EFA would suggest that the seven specific question items that identified significant differences between symptomatic (dyslexic) and asymptomatic (average) respondents were all extracted in the main factor, implying that respondents with dyslexia experienced higher autonomic arousal than average readers.

Limitations and suggestions for future research

This study suffers from limitations like many other studies of its nature. The main limitation is that the number of participants with dyslexia is on the low side, and the numbers of symptomatic and asymptomatic participants do not match evenly, somewhat reducing the power of the findings. Ideally, all the participants in this study should have been assessed for ability to ensure that everyone possessed comparable cognitive abilities, if for no other reason than to ensure that all participants completed the questionnaire with broadly the same level of cognitive insight. Similarly, we could have improved the quality of the data set had we assessed all participants for mental wellbeing and a stable home background in a bid to reduce extraneous variables affecting the

results. Future research may address issues like balanced numbers of male and female participants, screening for mental wellbeing, more information about the socioeconomic status of each participant, and the perceived parenting styles of the children's parents, among others.

Ultimately, it appears that teachers and parents of students with dyslexia should be aware that having this learning difficulty predisposes one to experience a low self-concept. Furthermore, female learners are more likely than male learners to experience anxiety and unease. In the context of schools with a strong achievement ethos, students with dyslexia are more likely to experience anxiety than in other settings, particularly girls. Those closest to these students must keep these considerations in mind throughout each student's scholastic career. One must refer to Tsovili (2004) to emphasise that ultimately the broader concepts of teacher support and personal constructs may play significant roles in allaying students' fears and levels of anxiety and that schools can play a role in mitigating them.

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