Literacy difficulties in Higher Education: identifying students' needs with a Hybrid Model

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Literacy difficulties in Higher Education; identifying students' needs with a Hybrid Model

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Key words: literacy difficulties; identification; learning support; Higher Education

Abstract

Aims:

Studies on literacy difficulties have mainly focused on children or adults who have a diagnosis of dyslexia. Some students enter university without such a diagnosis, but with literacy difficulties, and this may impact their ability to become independent learners and achieve academically. This exploratory study aims to employ a *Hybrid Model* for developing profiles for such individuals. The Hybrid Model encompasses the Causal Modelling Framework (CMF) (Morton & Frith, 1993), the proximal and distal causes of literacy difficulties (Jackson & Coltheart, 2001) and the conceptual framework for identification of dyslexia (Reid & Came, 2009).

Method:

In this multiple case study design, three young adults with literacy difficulties were interviewed. Using narrative analysis, we compared the cases' responses with the responses of a matched control student without literacy difficulties.

Findings:

The main findings of the comparison suggested that the proposed *Hybrid Model* could be an effective way to highlighting potential obstacles to learning in those with literacy difficulties and would, therefore, be an invaluable tool for Educational Psychologists who work in adult educational settings.

Limitations:

This is an exploratory study based on multiple case studies. A group study with more individuals should be conducted in order to further validate the proposed Hybrid Model.

Conclusions:

The current study highlights the importance of understanding the psychosocial, as well as the cognitive and biological aspects of literacy difficulties, without claiming generalisability.

Introduction

Richardson and Wydell (2003) and Richardson (2009) reported that dyslexic students were more likely to abandon studies during their first academic year and tend to obtain lower overall marks in comparison to non-dyslexic students (also see, Bergey et al., 2015). Although dyslexia was found to be detrimental to attainment and achievement in Higher Education (henceforth: HE), it does not preclude educational accomplishment as long as the students receive appropriate support and resources and demonstrate a high level of engagement and commitment. Dyslexic students often believe that the support offered in HE is not adequate (Carroll & Iles, 2006; Shaw & Anderson, 2018). Research on literacy difficulties has to some extent focused on young adults in universities, as these students may exhibit higher levels of anxiety and stress and perform less well when compared with students without dyslexia (Carroll & Iles, 2006; Jorgensen et al., 2005; Shaw & Anderson, 2018).

Less research has been conducted on university students who enter academia with a number of literacy and cognitive difficulties but without a formal diagnosis of dyslexia. The British Dyslexia Association (BDA, 2016) emphasised the importance of early identification and diagnosis as *in simple terms identification of dyslexia is the key to unlocking talents and abilities that otherwise may be lost in society*. Students with literacy difficulties, but without a diagnosis of dyslexia, entering university might have developed effective ways of dealing with their difficulties and the academic demands placed upon them. However, we are still unclear as to what these might be (Singleton et al., 2009). In the current research, we aim to explore the cognitive, literacy, social and emotional characteristics of three students with literacy difficulties who approached the first author at the University for learning support. Case study research on associated deficits with university students with undiagnosed literacy difficulties is sparse (Jorgensen et al., 2005) as research mainly focuses on younger learners or students who

have a diagnosis of dyslexia. Although, the case study students, did not have a formal diagnosis of dyslexia, we will adhere in the current paper to the British Psychological Society (BPS) Working Party (1999) definition of dyslexia as this captures effectively the difficulties presented by the individuals. Accordingly (BPS, 1999) 'dyslexia is evident when accurate and fluent word reading and/or spelling develops very incompletely or with great difficulty. This focuses on literacy at the word level and implies that the problem is severe and persistent despite appropriate learning opportunities.

In order to provide a profile of the strengths and difficulties our individuals had, we used a control student (matched for age), with no literacy difficulties, from the same university. Identification of similarities and differences in the literacy and language development of the cases and the 'typical' control should provide valuable information about the needs students with literacy difficulties have and how these may impact on their academic attainment and their emotional wellbeing. The study utilises a multiple case design which has been extensively used in the past in similar insightful qualitative accounts (Ivanic et al., 2007).

The Causal Modelling Framework (CMF) developed by Morton and Frith (1995) suggests that biological, cognitive, behavioural and environmental elements intertwined can affect a person's literacy and language development. For example, biological factors like prematurity and birth weight (Jansson-Verkasalo et al., 2010; Rossetti, 2001; Tanner, 2012) or middle ear infection (Capewell, 2014; Shapiro et al., 2009) can be related to later language and literacy difficulties. Cognitive factors such as phonological ability or memory can also affect language and literacy development (Alloway T. & Alloway R., 2011; Snowling, 2000). Language and literacy skills are the behavioural/observed factors and all these different components (biological, cognitive and behavioural) interplay with environmental factors (family and school support). Holistic approaches, such as the CMF proposed by Morton and Frith, have also been

suggested by other theorists. Jackson and Coltheart (2001) and Reid and Came (2009) emphasised the importance of adopting a holistic framework, similar to Morton and Frith's (ibid.), in order to understand literacy difficulties and atypical language development.

Jackson and Coltheart (2001) in the 'proximal and distal causes of literacy difficulties framework', suggested that the causes of atypical reading and spelling can be distal. For example, they can relate to environmental, biological or cognitive aetiologies. These can indirectly affect reading skills. They also suggested that the causes can be proximal, related for example, to the reading architecture itself (processes used when reading regular (e.g., <cat>) and irregular words (e.g., <yacht>) and nonwords (e.g., <mave>)). The inclusion of proximal and distal causes in Jackson and Coltheart's framework is the main difference between this approach and the CMF, which does not make the same distinction when looking at the causes of dyslexia. Inclusion of both distal and proximal causes in the causal model of dyslexia can help educators tailor appropriate interventions (e.g. Niolaki & Masterson, 2013; Tezopoulos et al., 2018) targeting not only the distal causes (for example phonological ability) but also proximal ones (such as nonword or irregular word recognition). However, neither this model, nor the CMF, refers to social and emotional aspects such as emotive states (stressors and motivators) linked to the home or/and classroom environment which can also potentially affect the individual's literacy performance.

Reid and Came (2009) also proposed a holistic model as a means of identification of literacy difficulties (*conceptual framework for the identification of dyslexia*). Similar to the CMF and the distal and proximal causes model described above, this model suggests that a framework for literacy difficulties must look at the cognitive, environmental, educational and social/emotional aspects of reading failure. Although the proposed holistic model does not include the biological factors, it extends the previous two models by including social/emotional

factors such as self-esteem, confidence, stress/anxiety and inappropriate labelling. It also captures the importance of avoiding learner's helplessness due to cumulative experiences of repeated failure (Smiley & Dweck, 1994), which can be a major barrier to learning at any level of education (see also, Shaw & Anderson, 2018).

We explored whether a model of literacy difficulties should combine aspects of all three models to more accurately describe an individual's profile and determine their specific needs (see Fig. 1). In addition, the proposed hybrid model encompasses interactions between biological factors, observed/behavioural factors and social/emotional factors and interactions between cognitive and social/emotional factors. The reason for these additions is that the different factors can affect any other component at any time during literacy development. Falling behind in literacy due to reading and writing difficulties might negatively impact the individual's self-esteem and motivation to learn and attend school. Individuals can develop school dismay and as a consequence present not only psychological side effects but also biological ones (e.g., frequent complaints about an upset stomach or headaches) (Hjern et al., 2008; Torsheim & Wold, 2001). None of the three aforementioned models include *all* these factors. We suggest assessors must consider biological, cognitive, behavioural, environmental and social/emotional factors within any assessment; something which is also in line with current practice recommended by PATOSS, BPS and SASC (SpLD Assessment Standards Committee) for assessments in HE (e.g. BPS, 2017; Jones & Kindersley, 2013; SASC, 2019). This notion that literacy and specific reading difficulties should be studied in a multi-factorial context is also consistent with the contemporary view that to understand literacy difficulties we need to consider them in the broader context of factors that underpin literacy performance and development (Pennington, 2006; Protopapas & Parrila, 2018). Our aim here is to demonstrate why this is the case.

The current research

In this multiple case study approach, and for the first time, the characteristics of individuals with self-reported literacy difficulties, but not formally diagnosed as having dyslexia, will be assessed, using the *hybrid of the proposed models.* We will also evaluate the hybrid model as a tool (as the essential first steppingstone) to assist the learning support tutor in identifying the needs of an individual who believes that literacy difficulties can be a barrier to a successful academic career.

The literacy and language profiles will now be presented with a focus on each of the factors (i.e. biological, cognitive, behavioural, environmental and social/emotional) intertwined in the *hybrid model*.

(Insert Fig 1 here)

Case Studies

The three case study students were in their first year of university studying psychology. None had a formal diagnosis of dyslexia/dysgraphia or any other known developmental disorder. All the students were females. The case study students, (P1, P2 and P3) reported that they had literacy difficulties; specifically, severe spelling and reading processing difficulties and they stated that they had *fear about coursework and managing deadlines*. They also mentioned that throughout primary and secondary school, *they received some support with reading, spelling, writing and handwriting skills*. The control student, CS, reported that she did not have any literacy difficulties. All students mentioned that English is their first language, P1 is white

British, P2 is black British, and P3 has British Asian background. CS is a British Asian (Indian background) student. Prior to any data collection, ethics approval was obtained from the university where the students were enrolled. All students read a participant information letter which explained the study's aim and signed a consent form. Students at the end of the study were debriefed about the outcomes.

Haglund's (2004) recommendations as to how to carry out life history research were adopted so as to complete the profiles and identify differences and similarities between the participants. The participants first answered questions about their past, following a semi-structured schedule created by the researchers. Haglund (2004) acknowledged that a life history approach with adolescents and young adults is workable because they have the memory ability and capacity to rebuild their past. However, data from the very early years of development need to be provided by the parents. Gilger (1992) and Lefly (1997) also acknowledged that adults with learning difficulties provide reliable, valid self-reports. They suggested that if the individuals could not answer a question reliably, they should forward it to their parents for an answer. All planned questions were asked, but new ones also emerged during the interview process which lasted approximately an hour per participant[1]. Questions were carefully constructed so as not to influence the students' responses.

Here, we will not treat data collected in relation to only one aspect of the participants' difficulty. Instead, we will endeavour to intertwine them in the next sections addressing the biological, cognitive, educational, environmental and social/emotional aspects outlined in our proposed hybrid model.

Biological Factors Related to Literacy and Language Skill

Participants were prompted to provide information related to their prenatal development and early developmental milestones. P1 was prematurely born at 36 weeks gestational age. However, P3, P2 and CS were full-term born infants. Gestational age of 36 weeks and less is considered to be premature (Jansson-Verkasalo et al., 2010; Tanner, 2012). P1 was not only prematurely born; she also weighed 2,270 grams which could be considered as an additional risk factor for later literacy difficulties (Rossetti, 2001). Jansson-Verkasalo et al. (2010) conducted a longitudinal study with pre-maturely and full-term born infants. They assessed the infants when they were 6 and 12 months and two years aiming to detect differences in the perception of native and non-native phonemes. Assessments conducted by the researchers showed that at two years prematurely born infants had less-complex vocabulary and shorter utterances in comparison to full-term infants. This indicates that the former have a language delay at 2 years. According to the researchers, this discrepancy could relate to the prematurely born infants' delay in tuning in to their native phonemes (Kuhl et al., 2008; Newman et al., 2006). P1 was pre-maturely born, low weight, and indeed, her parents reported that they had concerns about P1's oral language development when she was 2 and 3 years old. Relating to the theoretical framework, this biological factor (pre-maturity and low birth weight) may be the distal cause for P1's reported language delay and later literacy difficulties.

Another issue that warrants further exploration is the heritability of literacy difficulties (Olson et al., 1999). P1's and P3's relatives did not report any literacy difficulties, but P2's did. This finding supports the heritable nature of the difficulty as a distal cause of literacy difficulties for some individuals (Castles et al., 1999; Olson et al., 1999). Additionally, P1 and P2 did not suffer from early ear infections (another biological factor) which could have affected their auditory discrimination, phonological awareness and phonological memory (Capewell,

2014; Faulds, 2014; Shapiro et al., 2009), but P3 suffered and frequently had to miss school, not only at a young age but also when she was in Year 11; a critical year for GCSE exams.

Further exploration of the biological difficulties experienced by our participants revealed vision-related difficulties which could impact their studies. P2 and P1 had corrected vision and wore glasses and contact lenses respectively, but not P3. P1 and P2 also reported that when reading they suffered from '*eye strain, letters are blurry and that they cannot keep on one line'* which could relate to Scotopic Sensitivity Syndrome (SSS, Noble et al., 2004). This could also relate to P1's reported attention difficulties '*I couldn't focus for a long period of time on a subject or in classroom'*. Similar difficulties were reported by P2 *'I can not keep attention on a task for more than a few minutes'*. Irlen (1991) found an association between the SSS and the ability to focus for a longer period of time. However, there is also research evidence which questions the association between reading disability and SSS (e.g. Ritchie et al., 2011) as a proportion of individuals with learning difficulties do not have the syndrome, and many individuals who have the syndrome do not have literacy difficulties. For example, P3 did not report any difficulties of this type. So far, we can see that three different individuals have three different biological profiles which could have triggered their later literacy difficulties. This supports the suggestion that a single-cause approach should be avoided and that, we must acknowledge heterogeneity in profiles of literacy difficulties (Parrila & Protopapas, 2017; Pennington, 2006).

Cognitive and Behavioural Factors Related to Literacy and Language Skill

In this section, both cognitive and behavioural factors that may be associated with atypical language and literacy will be presented. From a behavioural perspective, one can infer a cognitive difficulty, for example, slow reading and non-phonologically appropriate errors can

indicate a phonological difficulty and vice versa (Jackson & Coltheart, 2001; Snowling, 2000). Currently, there is a lot of controversy related to the cognitive cause/s of dyslexia. The main aetiologies have been linked to phonological processing and phonological ability (the ability to process and manipulate the sounds of a word) (Snowling, 2000), but there are also other causes which aim to explain the reading and spelling difficulties of students with average or above-average intelligence; for example rapid naming (Stainthorp et al., 2013; Wolf & Bowers, 1999), visual memory (Goulandris & Snowling, 1991) and multi-character processing difficulty (i.e. *visual attention span hypothesis*, Valdois et al., 2003). For the purposes of the current paper, we will look at the core phonological deficit hypothesis and visual discrimination deficits as difficulties in these two areas were reported as problematic by some of the students. CS (our control participant) did not have any difficulties in phonological or visual discrimination skills and her reading and spelling, according to her report, was typical. All of the case study students, in contrast, did report such difficulties. Thus, we will mainly focus on difficulties reported by our three cases and how these link to theories of learning difficulties.

Phonological Processing Deficits

P1 reported that she has difficulties in discriminating sounds within longer words and that she makes errors when writing visually similar letters and numbers (for example, a postcode like the following <9Pe>). She also mentioned that she confuses visually similar letter combinations, such as < TAN > and < TON > when reading and that she frequently makes mispronunciations (e.g., *specific* -> < SPEFICIC >). P1 also mentioned that she never uses phonological strategies when spelling a word, but instead, she tries to visualise the word. Similar, difficulties were reported by P2 who found the discrimination between <n> and <r> tricky and she had major difficulty in blending the sounds of words (she received specialist training by a teacher assistant in primary school). P2 also mentioned that she still makes

frequent letter reversals when spelling <RECIEVE> instead <receive>, especially when she is under stress. P3 also reported visual and auditory confusions such as with <g> and <j>, and <e> and <i>. All three students reported significant difficulties with spelling and handwriting, and that they disliked reading aloud to the class as they were slow, and they made errors and omissions. They also felt that others made fun of them. In relation to learning to spell all said that they were taught to use the LOOK-SAY-COVER-WRITE-CHECK technique. They reported that after a few days with no practising, they were unable to remember the correct spelling of the words and their spelling tests were often not 100% correct. They also added that they found it difficult to read and understand their own writing. The errors made by all three students can be linked to poor phonological ability and difficulties with auditory and visual discrimination abilities when the sounds and graphemes are similar (Shovman & Ahissar, 2006; Snowling, 2000).

The core *phonological deficit hypothesis* suggests that a failure in phonological ability can lead to reading and spelling difficulties (Ramus, 2003; Ziegler & Goswami, 2005). It can be assumed that since the type of errors the students reported they produced are mainly disphonetic, this difficulty can be accommodated by the phonological deficit hypothesis. All three students also reported, in contrast to the control student, that they could not easily remember multiplication times tables and telephone numbers. This difficulty could relate to phonological working memory difficulty (Alloway T. & Alloway R., 2011). Difficulties in working memory can also have a detrimental effect on the ability to correctly pronounce longer words or recall appropriate words; something that was also reported by P1 and P3, respectively (Berninger et al., 2008; Gathercole et al., 2006). Alloway T. and Alloway R. (2011) also reported that visual confusions such as *was* and *saw,* which were mentioned by all three

participants, can relate to difficulties in working memory. However, other researchers, as discussed next, claimed that these errors might relate to visual and not phonological difficulties.

Visual Processing Deficits

Ramus (2003) has reported that not all deficits can be explained by the phonological hypothesis. Vidyasagar (2004) suggested that difficulties encountered by people with developmental dyslexia (i.e. confusions of similarly spelt words (<*was*> as <*saw*>) and difficulty to attend on the line) might relate to visual-spatial and rapid processing of visual stimuli. Different prominent theories have been proposed as alternatives to the core phonological deficit hypothesis relating to difficulties nested in the magnocellular system (Livingstone et al., 1991; Lovegrove et al., 1980; Stein & Walsh, 1997). These difficulties have been challenged by a series of studies (Amitay et al., 2002; Birch & Chase, 2004; Hulme, 1988; Ramus, 2003). However, further research conducted in relation to visual difficulties proposed that the deficit might be linked to spatial visual attention and not to low-level visual deficits (Valdois et al., 2003; Vidyasagar & Pammer, 1999; Zoubrinetzky et al., 2016). According to Ans et al. (1998), a reduced visual attention span window can be a possible cause of a reading difficulty because it does not allow letters forming an orthographic unit to be simultaneously processed. In the case of the three students considered here, their reported difficulties in speed of processing (an example provided is that they find it difficult reading subtitles on television, as they disappear fast), their reluctance to read aloud, their reported difficulty to read quickly and at the same pace as their peers and their visual confusions can be also explained by a narrow visual attention span which does not allow the simultaneous processing of many characters in a multi-character array. Based on the evidence presented above, it is questionable that there might be a single cognitive cause when investigating developmental dyslexia (for a similar discussion, please also see Parrila & Protopapas, 2017).

Environmental and Social/Emotional Factors Related to Literacy and Language Skill

The three case study students reported that although their home environments were supportive of engagement with literacy, they actively avoided reading or doing homework when possible. Our control student, in contrast, grew up in a literacy-rich environment and she was, and is still, an avid reader. Whitehurst et al. (1999) found that home literacy activities are precursors for later reading achievement and literacy performance. Sullivan and Brow (2013) in a more recent study, found that children who read for pleasure have a better academic performance in comparison to children who do not favour reading. The effect of reading for pleasure was significant even when the researchers controlled for parental education and child's cognitive skills. The three cases' aversion to reading might, therefore, have accelerated their reading difficulties. The *Matthew effect* was used by Stanovich (1986) to describe the reciprocal association between reading and engagement. Good readers, according to Stanovich, will engage more in literacy activities in comparison to poor readers. The latter group, as they progress, will find the new literacy material extremely difficult, and so they will perceive reading to be less rewarding and more frustrating. This typically leads to disengagement and amotivation. The lack of engagement with literacy will ultimately have a detrimental impact on automaticity and scaffolding of high-quality literacy representations, therefore leading to the type of spelling or vocabulary problems reported by all three of our students.

The students were asked about the grades they achieved in entering university. P1 mentioned that she gained a B in Geography and a C in Psychology and Physical Education. P2 achieved C in Psychology, Chemistry and Physics. P3 got B in Mathematics and C in Textile Technologies and Computer Science. CS reported that her A-Level results were a B in Literature and Psychology and a C in Biology. The results for the three case study students are in accordance with Richardson and Wydell's (2003) observation that students with disabilities

were more likely to have a lower entrance result in comparison to students without disabilities. Additionally, when the researchers controlled for age, gender and ethnicity, they did not find that these factors significantly contributed to any outcome, which indicates that the difference observed between students with literacy difficulties and those without was due to their difficulties and not due to the aforementioned factors.

P1 and P3 also reported that they will not take initiative in the class discussions. This finding agrees with Reid and Came's (2009, p.201) notion that a student with literacy difficulties will avoid *taking responsibility for their own learning* and thus will not adopt an independent approach towards learning. If this is the case, P1's and P3's reported avoidance strategy is in conflict with the universities' learning approach, which aims to develop independent learners (OFSTED, 2013/14). It could also conceivably be a bi-product of low academic self-esteem; a result of their earlier difficulties; resulting in lower participation which in turn affects their academic development.

Conversely, CS and P2 did not avoid taking initiative and responsibility for their learning according to their reports. Kelly (1955, 1991) in his theory of personal constructs, concluded that each individual creates a version of the reality related to their own perceptions and experiences. Morris (2004) suggested that this theory has important implications for people with learning difficulties as they might have conceived reality completely different when compared to people without such difficulties. For example, the language, memory and processing difficulties frequently encountered by students with learning difficulties might have shaped their ability to successfully complete reading and reading comprehension tasks (e.g. Alexander-Passe, 2006; Edwards, 1994; Scott, 2004). Thus, accumulation of negative experiences might have shaped and consolidated a strategy of avoidance in order not to fail or not to be considered by others to have failed (Alexander-Passe, 2006; Edwards, 1994; Reid,

1988; Scott, 2004). This, avoidance strategy could help the individual protect their self-concept (Alexander-Passe, ibid.).

In order to explore further the issue of avoidance, the students were asked if they *liked attending school or if they preferred to stay at home with their mother*. They were also asked *if they enjoyed doing homework and if they had any favourite teachers*. The case study students responded negatively to all questions asked and P2 reported that *school was a nightmare as she was continually bullied*. By contrast, CS was very attentive and focused, according to her self-report, and loved school and her friends.

Discussion

This study aimed to investigate if considering the interplay of biological, cognitive, behavioural environmental, and socio-emotional factors can provide a holistic approach to profiling students with literacy difficulties. The *hybrid of the proposed models* was adopted with student participants here to describe their difficulties in detail and construct a profile of their specific strengths and weaknesses in all domains. The profiles that arose from the interviews conducted and the narrative responses provided by the participants suggest that the factors proposed by the *hybrid of the proposed models* explained all of the details provided by the participants and elucidated how each factor has interacted so as to reveal their specific difficulties and shape their attitudes towards learning.

P1 was prematurely born, P2 had members in her family with a dyslexia diagnosis and P3 had frequent ear infections. All of these (very different) biological causes (distal factors) could have contributed to the later literacy difficulties that the students reported they had. They expressed primarily phonological and recall difficulties which co-existed with visual deficits. There is ample research evidence tying these cognitive difficulties to issues that relate to literacy

development (Alloway T. & Alloway R., 2011; Snowing, 2000; Valdois et al., 2003). Therefore, it is suggested that prior to testing the individual using behavioural tasks (i.e., literacy assessments), it would be beneficial to explore whether the individual experiences specific cognitive difficulties.

Using the interview as a starting point, we can make assessment choices that can enable the generation of an accurate cognitive and behavioural profile for each participant. Perhaps most importantly, we are able to move towards understanding the impact of literacy difficulties on their attitudes towards literacy and school in general (a social/emotional factor). The implications of this are that, if these individuals are to overcome their difficulties so as to achieve academically, they will not only need to be trained to use alternative efficient cognitive and learning strategies, but they will also need strategies to build a healthy and robust self-perception which will increase their resilience and protect their mental health. From the interview, it is evident that all three case study students did not like reading and they were not always happy in school. At university P1 and P3 did not like to play an active role in the class discussions (maybe linked to a tendency to hide reading or reading comprehension difficulties) and they reported anxiety concerning their ability to successfully complete coursework and their time management skills. The latter was attributable to the fact that they needed more time to complete reading tasks and to process and understand information. They also mentioned that they could not adequately note-take in lectures and classrooms which meant that they had to complete further work to subsidise their notes after class. So, for the students, the support put in place should not only focus on developing study skills but also on helping them value their accomplishments and through this realisation minimise their elevated anxiety to perform and succeed.

A hybrid model which acknowledges the importance of biological, cognitive, behavioural, social/emotional and environmental factors while identifying literacy difficulties and their possible aetiologies and consequences can be a useful theoretical account for professionals supporting students with literacy difficulties in HE. The power of this proposed hybrid model, as demonstrated by the presented case studies, is in its ability to provide a detailed description of the individual's profile but also highlight their strengths and difficulties in different domains. In addition, it captures the social and emotional challenges the individuals encounter and helps professionals understand the psychosocial aspects of literacy difficulties in addition to the cognitive and behavioural aspects. The psychosocial aspects are usually overlooked, as professionals and researchers usually centralise their interest around the cognitive and behavioural aspects of literacy difficulties (Nalavany et al., 2011).

We believe the case studies presented here, have provided a first examination of a hybrid model that fills the gaps in existing models for profiling and assessing individuals with literacy difficulties. The current study highlights the importance of understanding the psychosocial, as well as the cognitive and biological aspects of literacy difficulties, without claiming generalisability. Future research with larger samples could investigate further the interplay of the aforementioned factors and provide evidence for their significance and role in the development of reading difficulties. Importantly, adopting the proposed hybrid model will help professionals (educational practitioners, tutors, students' services) adopt a holistic approach that could prove more efficient and more effective when designing individual support. Crucially, it will also benefit the individual to understand the factors that have contributed to their specific difficulties. This should enable them to develop strategies, coping mechanisms and resilience that should, in turn further contribute to the development of the cognitive and behavioural abilities that are specifically affected. The use of an appropriate theoretical

framework in addition to a full diagnostic assessment would also enable the student to access appropriate, targeted and individual student support. Without this, students may miss opportunities to achieve and flourish and may not complete their degree successfully.

Conclusion

The research conducted and presented here aimed to demonstrate the importance of utilising a holistic approach when trying to identify the difficulties students with literacy difficulties, who enter university without a formal diagnosis of dyslexia have. Research with university students with literacy difficulties is sparse, despite its importance, as Richardson (2009) suggests. These students it seems, work harder than their typically developing peers to complete their coursework and exams successfully, and they do not have the dyslexia label to boost their self-esteem (Taylor et al., 2010) or allow them to access support such as extra time in exams. Students with literacy difficulties but with no formal label might prefer to adopt avoidance strategies, due to the negative educational experiences they experience in the classroom. They might be withdrawn and avoid expressing their opinions or answering questions in comparison with the 'typical' students. Despite the positive findings presented here, a study including a larger number of university students with literacy difficulties would be even more informative of the strength of the proposed *hybrid model*. By utilising the holistic approach in the identification and assessment of literacy difficulties, this study aimed to demonstrate that it is important when identifying literacy difficulties, not to be confined to biological, cognitive and behavioural factors but that it is key that social and emotional factors are also considered. Students with literacy difficulties, such as our case study students present frustration, lack of confidence, low self-esteem and consecutively experiences of rejection and isolation from their peers. It is essential that both the assessment of difficulties and the support provided to students afterwards take into account these social and emotional factors. It may be that the social and

emotional factors persist, even after cognitive and behavioural interventions are undertaken. These may continue to act as barriers to academic (and other) success, even if specific support with reading is given. The negative experiences of underachievement can be so deeply engraved into an individual's self-concept that they affect the persons' entire life, stretching far beyond the purely academic. By acknowledging that many negative affective characteristics coexist with literacy difficulties and by taking these social/emotional factors into account, we are in a better position to support our students who join university with impoverished literacy skills.

Note: [1]The interview aimed initially to establish a trustworthy relationship between the participants and the researcher. All interviews were carried out in a quiet room at the university.

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Figure 1: Hybrid of the proposed models which encompasses all of the factors