How does the understanding of dyslexia impact on University support in the UK: a survey of staff.

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Abstract

Dyslexia is a condition that impacts throughout the lifespan, particularly affecting the progress of students at University level. Continued support needed is in advice and planning, writing and studying, and goal setting (Stack-Cutler et al., 2015).   In a previous article (Meehan, 2016) the author examined the experiences of a group of dyslexic students in a university setting in the UK. A comparable questionnaire study is reported here, 91 staff from the same university providing their views on the difficulties experienced by dyslexic students at University level.

Interestingly, there is significant evidence of ongoing problems with spelling, but variability in the other skill needs identified. Although some staff were skeptical about the needs of dyslexic students, most staff used multi-sensory techniques and aids to support students, and this was not dependent on the age or training of the teacher, suggesting a high level of awareness of dyslexia. The potential impact of changes in government funding on support and implications for Asian countries where support is still developing are considered.

Keywords: Dyslexia, higher learning, multi-sensory teaching,

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Introduction

The disability landscape of universities, most particularly with regard to government funding, has changed considerably in line with the prevailing economic climate in the UK. As of April 2016, universities in the UK with English students, as opposed to Welsh, Scottish or Northern Irish students need to pay for level 1 and 2 support for disabled students formerly paid for by their funding body. This type of support includes, for example, note takers, scribes, laboratory assistants and readers. This potentially sets up a difference in support provision across different funding bodies. There is even more necessity for universities to provide an inclusive environment for students with disabilities (Mortimore, 2012) and for more HE institutions to become Dyslexia Friendly Universities, (Pavey et al, 2010). Universities need to be flexible and to alter their policies and practices to comply with legislation and funding changes. These changes make demands on professional and academic staff on top of the pressures of research (Research Excellence Framework) the drive for widening participation and student employability. Universities and careers departments (Stack-Cutler, 2015) as well as employers need to work together to provide an outstanding student experience as well as an excellent education.

According to the British Dyslexia Association Board:

Dyslexia is a specific learning difficulty that mainly affects the development of literacy and language related skills. It is characterised by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities. It tends to be resistant to conventional teaching methods, but its effect can be mitigated by appropriately specific intervention, including the application of information technology and supportive counselling, (BDA, 2007).

This definition applies to children learning to read, but there is a considerable literature that identifies ongoing problems for adults with dyslexia, even at the university level. The question is, does the profile of dyslexia in adult students show the same problems with phonology and reading and spelling difficulties? While it is clear that no two dyslexic students present identical profiles, there is consistent evidence of ongoing problems, even when basic levels of reading are adequate. There is strong evidence for continued problems in phonology, speed of processing and cerebellar function (Ramus et al, 2003; Reid et al, 2007) particularly in phonology. Spelling, non-word reading, digit span, and writing speed difficulties have been identified in 95% of a small sample (Hatcher et al, 2002).

Phonological skills may be adequate for familiar words, but orthographic problems, (Kemp et al., 2009), and morphological deficits remain (Deacon, Parrila and Kirby, 2006; 2008), and they are more dependent on context (Corkett and Parrila 2008). There are different profiles for compensated and uncompensated dyslexia (Birch and Chase, 2004), with no phonological, and only non-word reading deficits in the

compensated group. There is strong evidence for non-word reading deficits even in well-compensated dyslexic adults (Gross-Glenn et al., 1990; Felton et al., 1990). It depends how good the basic reading skills are and how complex the task students are asked to complete. It is important to bear in mind here that much of the new vocabulary and technical phrases for a university course will be equivalent to a nonsense word for these students. There may be additional problems with speed and accuracy in mental and written arithmetic (Simmons and Singleton, 2006). Problems may be compounded by slow speed of processing in verbal and non-verbal tasks (Miller-Shaul, 2005).

Most dyslexic students will show verbal working memory deficits, spatial deficits on complex tasks, (Smith-Spark et al., 2003; 2007), and everyday cognitive lapses (Smith-Spark et al., 2004). Problems have been identified in a range of learning tasks including consolidation of learning (Needle et al., 2015). It is therefore hardly surprising that university students may also show elevated levels of academic and social anxiety (Carroll and Iles, 2006) and experience more psychiatric problems (Undheim, 2003).

Based on these residual problems, a number of practical issues may emerge for students at university. These may include the following:

- ◆ Speed of reading and preparing essays
- ◆ Residual problems in spelling even for relatively fluent readers
- ◆ Difficulty in processing the large amounts of information

presented in different subjects
- ◆ Coherence and organisation in written work
- ◆ Self-esteem and anxiety
- ◆ Organising a new environment without support

A key issue here may be time management in juggling multiple deadlines. This may lead to issues in either needing to input greater effort than others of similar ability, or an unrealistic failure to recognise the need to do this, impacting on the quality of the work.

Academic and professional staff in universities need to be more aware of inclusive provision for dyslexic students and embed it in their courses.

A number of key points have been suggested for creating a dyslexia friendly environment, and these may be particularly important at this level of engagement. Based on Pavey et al., (2010), these include respecting students with dyslexia, allowing students to volunteer to write on the board or read aloud, making sure handouts are available, keeping copying from the board to a minimum, and allowing extra time for students to complete tasks. In particular, multisensory teaching is recognised as good practice in teaching students with dyslexia (Kamala, 2014). All of these points are included in the Dyslexia Friendly Self-Evaluation Audit Tool (Pavey et al., 2010, Appendix 2).

Current practice in the UK sees a university course as a contract between the university and the student, with each participant contributing to the successful implementation of the contract. In the

case of a dyslexic student, the university would be seen as contributing dyslexia friendly practices and study skill support, while the student would contribute good attendance, motivation to succeed, organisation and time keeping, in addition to the academic skills that have gained them a university place in the first place.

Looking back to the previous article (Meehan, 2016) the author established that dyslexic students at university continued to show problems in reading, spelling, writing speed and accuracy. This might suggest continuing problems with automaticity of performance even at this level (Nicolson and Fawcett, 1990) and would suggest that these students will find their university degree more effortful. This is borne out by the evidence for lower degree classifications in this group (Meehan, 2016). Bear in mind that the students interviewed for that study will have encountered many of the staff whose views were solicited for this study.

It is not clear how well staff deliver on these key aspects of dyslexia support. Against the current backdrop of change, it is important to consider existing attitudes towards support in UK staff. In this study, the author examined the attitudes of staff towards dyslexic students and the support provided to support them, how well they are able to fulfil their contract to successfully deliver the university course and how well they feel that dyslexic students deliver on their part of the contract. Lessons for other areas of the world where support systems are less well advanced can also be drawn, with the impact of best practice identified, as well as areas where further training is needed.

Method

The methodology for this study involved sending out a questionnaire to selected academic Schools. The questionnaire included questions and sections which allowed staff to give free written comments. Thus, the data collected lent itself to a descriptive and quantitative approach (Cambridge Institute for Research, 2004). This scientific positive approach (Hitchcock and Hughes, 2003, p 21) was also in accord with the author's scientific background.

The list of variables to be considered for the staff questionnaire were as follows:

- Why staff answered the questionnaire? Did they have a special interest in dyslexia? Did they have an agenda?
- Tickbox questions force respondents to select a category and they may want to give an intermediate answer.
- Lickert-style questions might be answered by staff selecting the mid value or selecting the answers that put them in a good light.
- Staff may answer only part of a question or only certain questions.
- The teaching experience of staff.
- The age of staff.
- Whether staff knew someone, other than students, who had dyslexia or were dyslexic themselves.
- How much training about disability or equal opportunities staff had been given.
- Whether staff had read literature

or researched in the area of dyslexia.

♦ How busy staff were.

The staff sample consisted of 91 respondents taken from three Schools at the CSU: A (mainly Arts), B (Arts and Sciences) and C (Sciences). Academic Registry was approached to contact the Head of each school and ask whether the questionnaire could be sent to all of their academic teaching staff.

The Staff Questionnaire

To explore how staff viewed dyslexic students a list of questions was compiled and a basic questionnaire was devised (see Appendix 1). Care was taken to ensure that questions were phrased in a way that did not lead the respondent to consider a particular answer correct.

The Pilot Study

The questionnaire was piloted by several lecturers in the Education Department of the Case Study University (CSU) to see whether the questions could be readily understood and answered with ease.

Modifications were made and a revised version sent out to 7 lecturers in 5 different universities in the UK and Ireland excluding the CSU. All suggested modifications were considered and discussed with the academics concerned and some of the questions were modified accordingly. However, some advice was contradictory and in such cases the most appropriate word form, as judged by the researcher, was used. Thus, the data presented here were collected from three schools of the CSU.

The Questionnaire

The questionnaire is in two parts. In Part 1 questions 1-10 asked staff about the dyslexic students they worked with, including age and gender; questions 11-14 asked staff about dyslexic students' study skills and attitudes, and question 15 concerned the teaching style of staff. In Part 2 questions 16-24 required information from the respondent, for example, age, gender, and how much was known about dyslexia, including formal training. Questions 11-13 and 15 were set out as Lickert Scales but question 14, an attitude scale, was designed so that 'positive traits alternated on the right-hand and left-hand sides of the page so that staff would have to think carefully about their response.

Three Schools were selected from the Case Study University: one arts (A), one science (B) and a mixture of arts and sciences (C). Once permission was given to proceed, each of the Heads of Schools was approached and permission sought to send the staff the questionnaire together with a cover letter. A list of teaching staff, lecturers and tutors was compiled from staff lists: School A, N = 112; School B, N = 66; School C, N = 63.

The questionnaire was printed out in three different colours so that the responses from each school could be identified. Letters and questionnaires were sent out via the internal mail and responses were directed to the Disability Office, thus no postage was involved in returning the questionnaire. By the return date only 52 responses had been returned, so all staff were again canvassed to see whether the number of responses could be increased.

By the end of the study the number of responses totalled 91 from 241. Data from the staff questionnaire were transferred to an Excel spreadsheet and then into SPSS. The data for question 14, an attitude scale, were re-scored so that all positive traits were given the value of 1 and the opposite trait the value of 9. Written comments from respondents were transferred to a Word table and then grouped together into themes and reported for each question.

Results for Staff

In order to gain insight into how staff viewed the study skills of dyslexic students, staff were asked to rank the difficulties which they perceived dyslexics students had with grammar, spelling, punctuation, course content, assignment structure, arithmetic and mathematics on a scale from 1 (mild difficulty) to 5 (extreme difficulty) with a mid-rank of 3. The range of the means (N = 24 - 62) was 2 – 3.71 with a standard deviation range of 0.78 – 1.25. Not all staff use mathematics and arithmetic in their courses therefore some respondents did not answer these components of the question. If the mathematics and arithmetic variables are excluded (N = 51 - 62) means range from 2.37 – 3.71 with a standard deviation ranging from 0.87 – 1.25.

In asking staff to assess dyslexic students' difficulties on a scale of 1 (mild difficulty) to 5 (extreme difficulty), many staff opted for the mid-value. It was decided to explore when student difficulties, viewed by staff, were different to the average. Dancey and Reidy (2004, p216) state that a One Sample t-test, although a parametric test, has been used in recent years by psychologists in the analysis of Lickert –type ranked scales. The results of a One-Sample t-test with a test value mean of 3 (middle rank) for the variables, gives the following significant t statistic values: difficulties with spelling t(61) = 6.4, p<0.001; course content t(50) = -4.4 p<0.001, and arithmetic t(23) = -4.1, p<0.001. These results suggest that the staff who answered this question consider dyslexic students to have difficulty with spelling but not with course content or arithmetic. This corroborates the results of the previous paper on difficulties experienced by dyslexic students (Meehan, 2016).

A Spearman's Rho correlation coefficient was used to gauge how staff views of dyslexic student study skills related to each other. The matrix indicated that staff (N = 17) considered that difficulties in course content of assignments is strongly correlated with difficulties with punctuation rs = 0.63, p = 0.007, with assignment structure rs = 0.73, p < 0.001 and with mathematics rs = 0.66, p = 0.004. Difficulties with mathematics are strongly correlated with difficulties in arithmetic rs = 0.88, p = 0.001. If the variables concerned with mathematics and arithmetic are excluded from the correlation matrix, for N = 43, the variables are only moderately or weakly correlated.

When the frequencies for each of the study skill variables in each school were compared, the same pattern as for the total frequencies was borne out with the exception of School C which suggested that difficulties with assignment structure were not particularly significant

(combined frequency of 1 and 2 was 55.6%). The values of the Pearson $X2$ for each of the variables grammar, spelling, punctuation, course content, assignment structure, arithmetic and mathematics are not significant, with the exception of assignment structure which has a value of $X2 = 15.6$, df = 8, p = 0.048.

32 staff provided written comments on the study skills of dyslexic students. More than half (N=18) considered that such a question was "impossible to answer" as dyslexic students performed no differently from non-dyslexic students. 6 staff stated that dyslexic students' main difficulty is writing and two noted that this was noticeable in examination scripts. It is interesting to note that in a study of dyslexic students in HE in a study by Cameron and Billington (2015) found that students felt there was a tension between acknowledging that they had a difficulty in writing and striving to achieve a high standard of literacy in their academic assignments. 6 staff were concerned about language learning and dyslexic students' language skills. Three staff noted that diagnosis was important, see below.

Staff's view of dyslexic students' behaviour in lectures, tutorials and seminars

Staff were asked to rank the behaviour of students in tutorials, with respect to participation in discussions, speed of practical work, need for reassurance, need for words to be spelled, need for explanations, need for extensions and any impact this may have on the class, where 1 = none, 2 = few, 3 = many, 4 =

most and 5 = all. This question was asked to explore whether staff considered dyslexic students exhibited different behaviour to non-dyslexic students, for example, a lack of confidence. The range of the mean for the seven variables concerned with dyslexic students' behaviour in seminars, lectures and tutorials is 1.86 – 3.31.

Table 1. Table of One-Sample t-test for staff' views of dyslexic students' interaction in lectures and seminars.

Tutorial discussions	t= 1.83	NS
Practical work speed	t= 1.82	NS
Need for Reassurance	t= -5.25	.000
Need for spellings	t= -7.27	.000
Need for explanations	t= -5.22	.000
Need for extensions	t= -1.4	NS
Impact in class	t= -8.83	.000

Frequency tables of the interaction of students in lectures and tutorials indicate that the majority of dyslexic students took part in discussions in tutorials (72%), they did not need more reassurance (65.5%), they did not need words to be spelled (82.2%), they did not need explanations (73.2%), and they did not impact on the concentration of other students in the lecture (82.0%). This pattern is also reflected in the results for each of the Schools.

A correlation matrix of these variables

shows that there is a strong correlation between dyslexic students' need for reassurance and their impact on other students in lectures and practical's (rs = 0.68, p = 0.002); and between their need for explanation (rs = 0.46, p < 0.001) and their need for more time for practical work (rs = 0.38, p = 0.007). There was also a correlation between students' need for explanation and their need for words to be spelled (rs = 0.59, p <0.001). In other words staff considered that if students needed something explained they may also need the spelling of words. There is an obvious difference between spelling a word and understanding a concept or the meaning of a word and dyslexic students generally have difficulty with the former and not necessarily with the latter. This could indicate that staff did not understand how dyslexia impacts on individuals.

The results of a One Sample t-test for a test value of 3 indicates that the mean for dyslexic students needing words to be spelled, topics explained, reassurance and impact on the class are significantly below the test mean which implies that staff considered that these students had little difficulty in these areas.

The Pearson Chi-Squared values for variables are significant for students needing reassurance $X2 = 16.96$, df = 8, p = 0.03) and the impact of dyslexic students on other students ($X2 = 17.24$, df = 8, p = 0.028). Thus, these results support some aspects of the correlation tables: the variables for dyslexic students needing more reassurance in lectures and tutorials and the affect of dyslexic students on the concentration of other students in lectures and tutorials are

dependent but staff did not consider that these behaviours were more than usually expressed by dyslexic students.

Staff reported that students were very different and behaviour depended on the student's personality, country of origin and the type of teaching session. One staff member thought that concentration in study skills was pivotal, another that dyslexia seemed to sap energy but not motivation. Another member of staff suggested that dyslexic students did not ask for extensions, whilst another that dyslexic students did ask for extensions; and three staff stated that students needed or were given extra time in examinations. 5 staff stated that they were unable to assess dyslexic students and another wrote that if staff were aware of dyslexia this assured the student and reduced the student's anxieties.

Staff' view of dyslexic students' attitudes

To assess staff' views of dyslexic students' attitudes a ranked Attitude Scale was used. The values ranged from 1 to 9 with a middle value of 5 equating to staff neither agreeing nor disagreeing with either of the attitudes presented. 60 staff answered all nine parts of question 14 and the range of the mean for all 9 variables (confidence, problem solving ability, aggression, creativity, type of thinking, intelligence, effort on written work, punctuality and organisation) was 4.72 – 5.62. This indicated that many staff had simply selected the mid value of 5 which may have been a considered choice although some staff may have been simply 'sitting on the fence' because the mid-value may be seen as the 'neutral' choice.

A correlation matrix for the variables indicates that: intelligence is moderately correlated with organisation (r = 0.36, p = 0.01); and thinking outside the box is also moderately correlated with problem solving (r = 0.35, p = 0.01).

A one sample t-test (test value = 5) shows that the means for the variables confidence, hard work and organisation are significantly above the test mean which indicates that staff viewed dyslexic students as being confident, hardworking and organised.

16 staff reported that it was hard to generalise about students, as in the case of students' study skills, which indicates that these staff viewed their students as individuals (Smith, 2007) and there is a great deal of variation in how staff reported that dyslexic students perform and behave. 4 staff stated that they had no preconceptions about the behaviour of dyslexic students and thus were not judgemental. Some staff had positive comments: "All the dyslexic students I've known have been very motivated and hard-working, but this is, I think, as a response to the dyslexia, rather than an in-built 'trait'." And, "In my experience the dyslexic students were perhaps slightly less confident but sometimes too more creative and innovative in their ideas." One staff member highlighted the difference between dyslexic students who had been diagnosed before coming to university and those who were diagnosed during their course: "With students who have been diagnosed part way through a degree I have observed a change in behaviour or performance (2 students) but I have not observed a difference in linguistic or communicative ability

between diagnosed and non-diagnosed students taken as a cohort." Another member of staff had a negative comment: "Some will try to hide laziness behind the 'poor time management' symptom."

Staff use of multisensory teaching techniques

To assess staff use of aspects of multisensory teaching (question 15) a ranked scale 1 – 4 was used where 1 = always, 2 = sometimes, 3 = only if asked and 4 = never. The mean value for multisensory teaching ranges from 1.34 – 3.21. Thus, staff almost always provided handouts for students (m = 1.34) and gave reading lists in advance (m = 1.56) but staff rarely provided coloured paper (m = 3.21).

A correlation matrix for staff' teaching methods indicates that there is a moderate correlation between the use of the virtual learning environment and the use of PowerPoint (rs = 0.53, p< 0.001) and the use of bullet points (rs = 0.32, p = 0.003). There is a moderate correlation between the use of coloured paper and the use of visual aids (rs = 0.28, p = 0.009), between the use of PowerPoint and the use of demonstrations (rs = 0.33, p = 0.003), between the use of PowerPoint and the use of bullet points (rs = 0.43, p<0.00). The use of demonstrations is correlated with the use of visual aids (rs = 0.46, p<0.001) which is correlated with the use of bullet points (rs = 0.40, p<0.001).

Frequency tables indicated that 70% (64/90) of staff always used handouts; 62.8% (57/90) staff always gave out reading lists in advance; 63.5% (54/85) of staff always allowed a student to record a

lecture; 50.6% (43/85) of staff always put technical words on the board; 46% of staff always used bullet points; 46.0% (40/87) of staff always used visual aids; 37.5% (33/88) of staff always used PowerPoint; 28.2% (24/85) of staff always gave small group sessions; 28.4 % (25/88) of staff always used a virtual learning environment; 16.7% (13/78) of staff always gave demonstrations; 12.4% (11/89) of staff always used coloured paper.

Lecturers, who tended to have research responsibilities as well as lecturing, and tutors, who were not obliged to conduct research, showed broadly the same pattern of responses for the variables of using demonstrations, putting technical words on the board, giving out reading lists and using small group sessions.

Moreover, an independent sample t-test shows that there is no statistical difference between tutors and lecturers use of multisensory techniques.

Three staff reported that they used the Virtual Learning Environment (VLE) a teaching tool, such as BlackBoard or Moodle, used on the university student intranet. One staff member made handouts available at the end of the course and another said that all important documents were available but not lecture summaries which indicates that staff were not aware of the reasons why dyslexic students benefit from having handouts available before a lecture generally in order that they can annotate the notes because of slow handwriting speed and the difficulties of copying from a board. Handouts were provided in advance by the departments of two staff. Another staff member said all 1st year students

had 4 – 6 pages of notes as a hard copy/ paper handout every week, usually on coloured paper. One staff member reported that a textbook was the basis of the course so students would always have this to refer to and another that key points were summarised at the end of lectures. Five staff stated that help was provided if requested by the student at the beginning of the course. Two staff stated that they used a blackboard and everything that was needed by the student would be on the board, and another that all technical words were in bold and underlined on PowerPoint. Four staff worked with small groups with an average of 7 or 12 students. One staff member showed videos as a basis for discussion, another generated slides using latex. Three staff encouraged interactive teaching methods and placed emphasis on students being able to ask questions, and four staff were available (one had an open door policy) for one-to-one consultations. One member of staff reported that using coloured paper was not a problem but it is more expensive and therefore has an impact on the departmental budget.

A correlation table of staff's view of students' difficulties against staff's view of students' attitudes, suggests that staff's view of students' problem solving ability was negatively correlated with staff's view of students' course content difficulties rs = -0.39, p = 0.01 indicating that an increase in problem solving ability would be accompanied by a decrease in course content difficulties. Staff's view of students' effort on written work was positively correlated with assignment structure rs = 0.43, p = 0.002. Thus, staff (N = 48) may consider that if a student put more effort into an assignment then the

structure would improve.

A correlation table of the relationship between staff's view of student difficulties and staff's view of students' behaviour in lectures and seminars was produced. A moderate correlation between respondents' view of students' spelling difficulties with students' view of reassurance $r_s = 0.36$, $p = 0.01$; and the need for words to be spelled $r_s = 0.37$, $p = 0.006$; and students' need for explanations $r_s = 0.50$, $p<0.001$. There was also a correlation between staff who considered that dyslexic students had difficulty with spelling and also considered that dyslexic students were more likely to ask for technical words to be spelled in class. Staff considered that dyslexic students' difficulties with assignments was moderately correlated with a need for explanations $r_s = 0.45$, $p = 0.002$. Thus students whose assignment structure was not good would need more explanations in class. Students' difficulty with assignment structure was also weakly correlated with students' need to be reassured $r_s = 0.34$, $p = 0.02$; students' impact on the rest of the class $r_s = 0.37$, $p = 0.02$; and negatively correlated with students' contribution to tutorial or seminar discussions $r_s = -0.32$, $p = 0.03$.

To examine whether the age of staff influenced their use of multisensory techniques, the responses for each staff member who had completed all parts of question 15 were weighted so that the response of 'always' was given the value 1 with a possible total maximum score of 11 for each staff member. A linear regression table with the multisensory score as the dependent variable against staff' age gave R = 0.08 which indicates that a linear relationship between staff' age and multisensory teaching techniques accounts for 8% of the variance in multisensory teaching techniques and the adjusted $R2 = -0.009$ is very small indicating that the age of staff does not indicate the type of teaching that staff use. The Analysis of Variance (ANOVA) indicates that the result is not significant.

To investigate whether multisensory teaching might be implemented by staff who had had formal training, read literature on dyslexia or who knew others (not students) with dyslexia, three independent sample t-tests were conducted which indicated that if staff had formal training or read literature on dyslexia, this was not apparent in their use of multisensory teaching techniques.

However, the result for staff who knew friends or relations other than students with dyslexia was significant ($t (57) = 2.1$, $p = 0.04$). These staff would probably be aware of the type of teaching which is effective for dyslexic students.

Not all responses from staff on dyslexia were entirely positive, and there was clearly a level of scepticism in some of the respondents. Seven staff suggested that focusing on students with dyslexia meant that no consideration was given to the "whole continuum of difficulties that many students have". One staff member was concerned and "astonished" that in one or two cases students were not assessed until they came to university. Another member of staff thought the assessing psychologists often made unrealistic recommendations that raised the expectations of students, but what these expectations were was not

described. Yet another staff member wondered how many students who were assessed with dyslexia really experienced the disability and another that the students who had been assessed had "linguistic and communicative abilities distributed across the full range of the larger student cohort". Two staff who had worked overseas were of the opinion that dyslexia is "overpathologized" in the UK as dyslexia was not known in other countries. However, more research indicates that dyslexia is present in other languages (Elbeheri and Everatt, 2007) and English is a language that highlights the difficulties of dyslexia more readily. One staff member thought that it was "dangerous" to suggest that students coming from overseas may have dyslexia and another that it is difficult to assess students from overseas as their own countries have no provision for this. Two staff noted that in teaching languages dyslexic students had to meet the same accuracy in the target language as non-dyslexic students and presumably take this on board when they apply to study at the university. Another staff member stated that there was a great need to teach dyslexic students in small groups but dyslexic students need to become independent. Another staff member considered that all students were different. In terms of disability training one staff member thought that the whole university should have equal opportunities training and another asked for guidance on marking dyslexic students' work.

One member of staff was grateful for the work carried out by the University Disability Office in supporting dyslexic students but another staff member suggested that "support for dyslexic students' needs to be speeded up at the beginning of the year" which would certainly help students to put study skills strategies in place but it also indicates that staff do not understand that the government process takes a long time and it can take 3 – 6 months before all support is put in place. Yet another member of staff was pleased that the questionnaire was being carried out and another that it was very difficult to answer.

Discussion

The results from this study are revealing, in identifying how staff perceive the skills and performance of dyslexic students. Taken in conjunction with the previous article (Meehan, 2016), this paper shows that, despite the literature on deficits in dyslexic students, staff are unaware of the extent of the difficulties that these students experience, and see little difference between their performance and that of non-dyslexic students. It is also interesting to note that staff do not see these dyslexic students as showing problems with planning, as proposed by Smith-Spark et al., (2016). This may, however, reflect good strategy use by dyslexic students, who recognise their potential for time management difficulties and have developed a system to deal with this success. It also pays tribute to the work Student Services does to support these students in their studies. The majority of staff in this study are aware of some of the needs of dyslexic students and have made provision for dyslexia friendly practices, for example, multisensory teaching, but in the current climate multisensory teaching is one of the inclusion strategies considered by most universities. Of course, this does not

mean that dyslexic students do not continue to experience problems. It can be seen clearly from previous work by the author (Meehan, 2016) that the students themselves identify issues in all those areas identified in the literature. Nevertheless, it does suggest that the presence of dyslexic students in a cohort does not impact on staff or fellow students. Again, this may be due to the provision from Student Services that these dyslexic students have received which has allowed them to complete their courses and realise their potential. It may well be very different in countries where this support is not available, or following the modification to current regulations in the UK. It is encouraging, however, to see that it is possible for dyslexic students to be accommodated in higher education without disrupting the system unduly.

When the frequencies of respondents who selected numbers above and below 5 for the attitude scale were examined, approximately a third to a half (30 – 43%) staff considered that dyslexic students had more than average confidence, put more effort into written work and were more organised than non-dyslexic students. This pattern is also reflected in the scores for each of the CSU Schools. This view is not corroborated by Smith-Spark et al., (2016) who found that executive function difficulties which include planning and organisation have a lasting impact on dyslexic individuals.

However, the results from the Likert style questionnaire indicated that staff thought that dyslexic students had difficulty with spelling and most individuals with dyslexia have a difficulty in this area as dyslexia affects the development of

language and literacy. However, dyslexia is not just a difficulty in spelling as the BDA definition specifies. Staff also thought that dyslexic students had little difficulty in course content and arithmetic. As dyslexia is not dependent on IQ, difficulty in course content would not be expected. However, as students may take more time to read and compose their written coursework, unless they have good organisational skills they may not be able to complete assignments within the same time frame as their non-dyslexic peers.

It is possible that students who experience difficulties with punctuation and assignment structure have a poor understanding of course content in assignments. Students who have difficulties with course content may also have difficulties structuring their essays or laboratory reports and use punctuation incorrectly although the latter does not necessarily follow. Difficulties with mathematics were strongly correlated with difficulties in arithmetic and a dyslexic student with difficulties in mathematics might also have difficulties with arithmetic but not necessarily so. There is a clear distinction between mathematics which deals with concepts and arithmetic which is the skill of correctly manipulating numbers

One third of staff considered that dyslexic students performed no differently from non-dyslexic students. Each individual experiences dyslexia in a different way although there are common factors. It is important to realise that dyslexia is a disability and assumptions should not be made about why dyslexic students appear to have study skills difficulties or not. The Disability Office staff at the CSU stated

that sometimes students are referred to them for diagnostic assessment after the exam period because of their handwritten scripts which show a difficulty with written expression and this agrees with staff' comments. As most students are not allowed to use assistive technology in exams, this is understandable. Staff were also concerned about language learning and dyslexic students' language skills and as this is the main area of difficulty for most dyslexic students, this would be expected. Diagnosis was important, one respondent commenting that, "It is of course a significant advantage to students to be diagnosed as "dyslexic" – extra time in exams, help, computer equipment..." Whilst it is true that some students may put themselves forward for an assessment of dyslexia in order to gain these advantages, it must be realised that students are screened before they have an assessment; they have to pay a relatively large sum of money to be assessed by an Educational Psychologist or approved teacher and not every student is found to experience dyslexia. It is important to understand that a diagnosis of dyslexia at university can lead to a change in behaviour as it can challenge an individual's perception of their identity.

Staff' view of dyslexic students' behaviour in lectures

Staff considered that dyslexic students' interaction in lectures and tutorials indicated that dyslexic students interacted well and did not impinge on other students. It is possible that if a dyslexic student needs reassurance during lectures and practicals that this could disturb or affect the concentration of the other

students in the group. If dyslexic students need words to be spelled during lectures, they may have a difficulty in reading and read experimental protocols more slowly. These students may spend more time double checking experimental methods and their own calculations and recording experimental data which increases the time needed to complete an experiment. However, although these traits may be correlated, they are not significant.

Staff reported that students were very different and behaviour depended on the student's personality, country of origin and the type of teaching session which agrees with Riddell et al., (2002) that disabled students should be seen as individuals and not as "an homogenous group". One member of staff thought that dyslexia seemed to sap energy but not motivation and this is consistent with the fact that most dyslexic students need to work harder than their non-dyslexic peers – this is not to trivialise the hard work of non-dyslexic students. Not all dyslexic students need or take up the possibility of an extension for written work and this could be because they are very organised or because, for example, they feel they cannot ask for an extension.

Staff view of dyslexic students' attitudes

A correlation matrix for the 9 variables indicates that intelligence is moderately correlated with organisation and thinking outside the box is also moderately correlated with problem solving. Whilst it is easy to understand that thinking outside the box would help a student to solve problems, it is not possible to see how intelligence could be related to organisation, the quintessential absent-

minded professor is well recognised in such an archetypal image. As the nature of statistical correlation is not causal, this correlation is disregarded.

As might be expected there was a great deal of variation in how staff reported that dyslexic students perform and behave. Approximately one third of staff viewed dyslexic students as being confident, hardworking and organised. Students with dyslexia have to work much harder than their non-dyslexic peers particularly with regard to written work (Fawcett, 2004). It therefore seems harsh that a staff member should consider such students lazy especially as this is an epithet which commonly used against such students.

Staff use of multisensory teaching techniques

Research into teaching and learning together with improved technology and the drive for inclusion ensures that staff almost always provided handouts for students and gave reading lists in advance. Providing coloured paper for all students has a cost implication for departments but providing coloured paper for individual students who are recommended such a reasonable adjustment via an Assessment of Need would not be so costly.

Staff who use PowerPoint as a teaching tool may use bullet points because this is a feature of the programme and once a PowerPoint presentation has been written it is easy to transfer it to the virtual learning environment. The moderate negative correlation for writing technical words on the blackboard is

understandable because if a lecturer is giving a PowerPoint presentation, possibly with dimmed lighting, it might be difficult and time consuming to increase the lighting to write on the board. There was a general correlation between the use of different visual teaching methods indicating that staff tended to use the full range of visual teaching skills.

Handouts were more often provided although not necessarily ahead of the lectures. It appears that not all staff were aware of the reasons why dyslexic students benefit from having handouts available before a lecture - so that they can annotate the notes because of slow handwriting speed and the difficulties of copying from a board. Some staff encouraged interactive teaching methods and placed emphasis on students being able to ask questions, some that help was provided if requested by the student at the beginning of the course, some showed videos as a basis for discussion and one had an open door policy. Although it is costly, lecture capture is now increasingly used to aid all students in their learning.

Despite the fact that new lecturers in the CSU are obliged to attend a course on teaching in HE and tutors are not, lecturers and tutors showed broadly the same pattern of responses for the variables of using demonstrations, putting technical words on the board, giving out reading lists and using small group sessions.

An increase in problem solving ability was perceived to be accompanied by a decrease in course content difficulties. This might be expected as a student who had good problem solving ability would

be expected to be able to work through any difficult parts of a course. Staff (N = 48) considered that if a student put more effort into an assignment then the structure would improve. However, a dyslexic student has to put in an inordinate amount of time to achieve the same standard of written work as a non-dyslexic student.

Du Pre et al., (2008) report that dyslexic students who are self-conscious about their spelling tend to have a poor self-image and do need reassurance. There was also a correlation between staff who considered that dyslexic students had difficulty with spelling and those who considered that dyslexic students were more likely to ask for technical words to be spelled in class. However, this may not be the case generally as some dyslexic students who are anxious about spelling may not want to draw attention to their spelling difficulties. If students need a word spelled this does not imply that they will also need course content explained because it is perfectly possible to understand a concept but not spell certain technical words that are vital to that discipline. Staff considered that dyslexic students' difficulties with assignments were moderately correlated with a need for explanations. Thus, students whose assignment structure was not good would need more explanations in class. However, this might not necessarily be the case as a student may understand a topic and discuss it with ease but find it almost impossible to structure a written assignment. It may be the case that students who submit written work that is criticised for bad structure do need reassurance. The correlation between poor assignment structure and

impact on the rest of the class is less easy to understand although it is possible to see that if students' assignment structure is good they may not need to contribute much in class.

The age of staff did not influence their use of multisensory techniques but it was important for the staff who knew friends or relations other than students with dyslexia rather than staff who had formal training or read literature on dyslexia. These staff would probably be aware of the type of teaching which is effective for dyslexic students.

There seemed to be a lack of understanding on the part of staff about the nature of dyslexia in that some students form their own strategies and may only find they need help once they reach university. There seemed to be a view that Educational Psychologists were unrealistic in making recommendations and made assessments which were unreliable. This is an astonishing remark considering the competency standards and continuing professional development that educational psychologists are required to maintain. A view was expressed that dyslexic students were getting unnecessary help as opposed to the "whole continuum of difficulties that many students have" and that dyslexia is "overpathologized" in the UK. Although dyslexia was unknown in other countries, the provision for dyslexia in the UK is often viewed as a standard to aspire to by other countries as exemplified in a UK TEMPUS project (Ward et al., 2012).

In terms of disability training, one staff member thought that the whole university should have equal opportunities training

and another asked for guidance on marking dyslexic students' work.

Implications for Asian countries

This article has demonstrated that, despite the emphasis on inclusion in the UK, not all staff are fully aware of the needs of dyslexic students, and indeed as voiced by one member of staff, continue to subscribe to the view that dyslexia is an excuse for laziness. However, it has also demonstrated that the majority of staff are aware of the needs of dyslexic students and are largely able to fulfil these needs. Indeed, they feel that dyslexic students do not impact unnecessarily on delivery of the course to the student body as a whole, and see them as largely self-sufficient, although continuing to show problems in spelling, particularly with new vocabulary. Provision of adequate support for dyslexic students does not just relate to the provisions of extra time and computers. Effective teaching for this group is highly dependent on the awareness of staff of the type of difficulties dyslexic students may encounter. There is a strong role for dyslexia organisations, such as the Dyslexia Association of Singapore, to enhance public awareness of dyslexia and ensure that this knowledge impacts on provision within universities and colleges.

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APPENDIX 1

EDUCATIONAL RESEARCH QUESTIONNAIRE

*This questionnaire is in two parts. Part I deals with your professional
experience in education, and Part II asks for some personal details.
Please complete Part I and, if possible, Part II.*

PART 1

1.   **Have you ever referred a student for an assessment of dyslexia?**

☐   Yes   ☐   No

2.   **Has your professional experience over the past 5 years brought you into
contact with students who, to the best of your knowledge, have dyslexia?**

☐ Yes   *(Please go to question 3)*
☐ No   *(Please go to question 15, page 6)*
☐ Don't know   *(Please go to question 15, page 6)*

3.   **Has this been in your current institution?**

☐   Yes   ☐   No

If No, please give details:

....

....

4.   **Were any of your students with dyslexia straight from any of the following.**
Please place a cross in one or more of the boxes:

School (and/or after temporary summer work)   ☐
'Gap year' after A levels   ☐
Employment   ☐
Other e.g. access course,   ☐
Unemployment,   ☐
Training,   ☐
Don't know,   ☐
Higher Education   ☐

5. Were the majority of students with dyslexia you worked/are working with aged.

☐ 17-31 yrs ☐ Over 31 yrs

6. Please indicate the number of students in each category and give any comments?

....

....

7. Were the students with dyslexia you worked/are working with from:
(Please place a cross in one or more boxes)

☐ UK ☐ EU ☐ Overseas

8. Were the students with dyslexia you worked/are working with:
(Please place a cross in one or more boxes)

☐ Undergraduates ☐ Taught postgraduates ☐ PhDs ☐ Other

9. How were you informed (or became aware) that a student had dyslexia?
(Please place a cross in one or more boxes)

a. Notified by your department/school ☐ Yes ☐ No
b. Notified by the Disability Office or equivalent ☐ Yes ☐ No
c. Notified by the student ☐ Yes ☐ No
d. Asked the student ☐ Yes ☐ No

10. Roughly how many students with dyslexia have you worked with over the past 5 years?

☐ 1- 5 yrs ☐ 6-10 yrs ☐ 10 to20 yrs ☐ above 21 yrs

11. What was the gender balance of the students with dyslexia that you have worked with/working with?

a. More male ☐
b. More female ☐
c. An equal mixture ☐
d. Don't know ☐

11.   **Students with dyslexia do not necessarily have difficulties in the same areas. On a scale of 1 – 5, (1 = mild difficulty, 5 = extreme difficulty) which of the following difficulties do the students with dyslexia that you have worked with typically experience?**   *Please place a cross in one box for each section a – g.*

	Mild Difficulty				Extreme Difficulty	
	1	2	3	4	5	Don't know
a. grammar	☐	☐	☐	☐	☐	☐
b. spelling	☐	☐	☐	☐	☐	☐
c. punctuation	☐	☐	☐	☐	☐	☐
d. content	☐	☐	☐	☐	☐	☐
e. structure of written work	☐	☐	☐	☐	☐	☐
f. arithmetic	☐	☐	☐	☐	☐	☐
g. mathematics	☐	☐	☐	☐	☐	☐

Any comments?

....

....

12.   **Here are some comments about students with dyslexia. Have you observed these in any of the students with dyslexia you have worked with:**

	None	Few	Most	Many	All
a. Take part in discussions/tutorials?	☐	☐	☐	☐	☐
b. Take more time to carry out practical work?	☐	☐	☐	☐	☐
c. Seem to need constant re-assurance?	☐	☐	☐	☐	☐
d. Ask for spellings of words?	☐	☐	☐	☐	☐
e. Ask you to repeat or explain more	☐	☐	☐	☐	☐
f. Ask for extensions on coursework	☐	☐	☐	☐	☐
g. Impact on the concentration or engagement	☐	☐	☐	☐	☐

Any comments?

....

....

13. **Some departments have systems whereby students may identify their work as that carried out by a student with dyslexia. If students in your department have dyslexia may they:**

a. Put stickers on?

Essays/reports/practicals	☐ Yes ☐ No ☐ Don't Know ☐ N/A	
Examination scripts	☐ Yes ☐ No ☐ Don't Know ☐ N/A	

b. Write or type the fact that he/she has dyslexia on?

Essays/reports/practicals	☐ Yes ☐ No ☐ Don't Know ☐ N/A	
Examination scripts.	☐ Yes ☐ No ☐ Don't Know ☐ N/A	

Any comments?

....

....

14. **If you were told that one of your students has dyslexia would you expect them to be:** *Please mark an x on the scale below for each section a—i.*

a	Less confident than other students	__ : __ : __ : __ : __ : __ : __ : __ : __	More confident than other students
b	Good problem solvers	__ : __ : __ : __ : __ : __ : __ : __ : __	Bad problem solvers
c	More aggressive	__ : __ : __ : __ : __ : __ : __ : __ : __	Less aggressive
d	Less creative	__ : __ : __ : __ : __ : __ : __ : __ : __	More creative
e	Think 'outside the box'	__ : __ : __ : __ : __ : __ : __ : __ : __	Think in 'straight lines'
f	More intelligent	__ : __ : __ : __ : __ : __ : __ : __ : __	Less intelligent
g	Less hardworking	__ : __ : __ : __ : __ : __ : __ : __ : __	More hardworking
h	Punctual	__ : __ : __ : __ : __ : __ : __ : __ : __	Unpunctual
i	Disorganised	__ : __ : __ : __ : __ : __ : __ : __ : __	Organised

Any comments?

....

....

....

15. **As dyslexia is a syndrome, each student with dyslexia may have difficulties in different areas of study. In addition teaching methods vary according to the subject taught.**

Please answer the following question by ticking one box for each section a - l where 1 = always, 2 = sometimes, 3 = only if asked and 4 = never.

When you teach do you normally:

		1	2	3	4
a.	Supply handouts?	☐	☐	☐	☐
b.	Put lecture notes on the BlackBoard Learning Environment?	☐	☐	☐	☐
c.	Use coloured paper for handouts?	☐	☐	☐	☐
d.	Use PowerPoint?	☐	☐	☐	☐
e.	Give demonstrations in lectures ?	☐	☐	☐	☐
f.	Allow recording of lectures?	☐	☐	☐	☐
g.	Put technical words on the board?	☐	☐	☐	☐
h.	Use visual aids?	☐	☐	☐	☐
j.	Make use of bullet points.	☐	☐	☐	☐
k.	Give reading lists well in advance?	☐	☐	☐	☐
l.	Use small group sessions?	☐	☐	☐	☐

Any other techniques used/comments?

....

....

....

PART II

Please could you fill in some details about yourself.

16.   Age: ☐ 20-30   ☐ 31-40   ☐ 41-50   ☐ 51-60   ☐ 61-70

17.   Gender: ☐   Male   ☐   Female

18.   Which department are you from?

☐   Arts   ☐   Business and Economics   ☐   Engineering
☐   Environment and Society   ☐   Health Science   ☐   Humanities
☐   Human Sciences   ☐   Law   ☐   Medicine
☐   Physical Sciences   ☐   Other? ....

19.   What is your current post?   ....

20.   Have you received any formal training about dyslexia?   ☐ Yes   ☐ No
(If yes, please provide details below)

....

21.   Have you read any literature about dyslexia?   ☐ Yes   ☐ No
(If yes, please provide details below)

....

22.   Do you have dyslexia?   ☐ Yes   ☐ No

**23.   Do you know anyone, other than your students,
who has dyslexia?** *(If yes, please provide details below)*   ☐ Yes   ☐ No

....

24.   Is there anything else you would like to contribute?

....

Thank you for taking the time to complete this questionnaire.

Please return to: Dr. Margaret Meehan

*This questionnaire is available in alternative formats;
please contact the M. Meehan with your requirements.*