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Exploring perceptions of and supporting dyslexia in teachers in higher education in STEM

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Abstract

There is much literature focused on supporting students diagnosed with learning difficulties within higher education, in particular those with dyslexia. However, there is relatively little that discusses perceptions of and support for academics who have been diagnosed with the same learning difficulties. Although statistics from the Higher Education Statistics Authority suggest that percentages of staff declaring that they have dyslexia are much lower than those of undergraduate or postgraduate students, anecdotally media and social media suggest there is a sizable population of academics who have this neurodiversity. In this paper we explore perceptions of dyslexia, and suggest practical ways in which to support new academics with or without a diagnosis.

Dyslexia

Dyslexia is described as a specific learning difficulty, and, depending on its severity may be accepted as a disability under the UK 2010 Equality Act (UK GOV, 2010). It presents differently, with no individual exhibiting the same combination of strengths and weaknesses. Many exhibit strong visual, creative and problem-solving skills, that may be an asset within higher education (HE) (Griffiths, 2012), but often causes problems relating to the processing and remembering of information (Riddick, 1995; The Dyslexia Association, 2016). Although there is substantial literature relating to enabling HE students with dyslexia (Borland & James, 1999, Heiman & Precel, 2003; Farmer et al., 2004; Reid, 2004; Riddick, 1995; Roll-Petersson, 2008; Vogel et al., 2010; Rodger et al., 2015) there is comparably little aimed at supporting teachers with dyslexia. Limited examples include work by Boxal et al. (2010) who highlight the active exclusion of teachers with learning difficulties within HE. Waterfield et al. (2018) explored the experiences of five academics in Canada. They suggest universities 'pose disabling contexts for academics' (p. 327) and state 'disability is cast as individual responsibility, leaving disabled academics navigating accommodations without institutional support' (ibid.). They conclude 'although higher education environments are increasingly diverse, disabled academics are still having to prove their right to exist in academia, hindering their abilities to participate fully' (ibid.). These sentiments are echoed by Brown and Leigh (2018), who added a view of the modern academic situation, which is becoming ever more highly pressured, competitive and results centred.

If we look beyond HE some work describes the development of coping mechanisms. Griffiths (2012) highlighted challenges despite the implementation of proactive management

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strategies. Riddick (2003) reported personal experiences of teachers and trainees with dyslexia within an educational setting. The participants adopted individual, effective coping strategies and felt the advantages associated with being dyslexic outweighed the associated difficulties. Unfortunately, they were also concerned about being 'found-out' and exhibited low self-confidence, reinforcing the idea that many with dyslexia choose not to disclose. Most stated that mentorship from a senior member of staff with dyslexia would be useful, but would require an open attitude.

The most relevant literature reports results from a range of teaching and non-teaching staff in academia (Burns & Bell, 2010; 2011; Burns et al., 2013). In 2010 Burns & Bell studied six individuals, in England and Finland. Interview results showed the participants had accepted the inherent difficulties associated with their posts and had produced their own coping mechanisms (principally environment manipulations) to promote success and broaden the inclusion. A second study (Burns & Bell, 2011) showed teachers within HE used dyslexia as a tool, thriving in their environment with any associated obstacles becoming part of their identity in positive way. The authors also discussed resilience strategies (Burns et al., 2013). These included using social support, task-related coping methods, and personalising work environments while nurturing self-esteem and self-efficacy. However, the small scale of these studies is a limitation. These data suggest the implementation of effective coping strategies results in confident teaching staff using their dyslexia as a tool, effectively overcoming obstacles, developing their identity and broadening the capacity of inclusion within their local institutions.

Work place coping strategies may be developed by individuals, or taught as part of generic educational development courses for new lecturers. These may utilise materials from reports such as those produced by the University of Southampton (2017), who outline four support tools:

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(1) Setting aside extra time to check material.

(2) Getting a colleague to check your work.

(3) Writing down and preparing as much as possible.

(4) Telling the students about your dyslexia and asking for their help.

The first is standard practice to anyone working at this level with dyslexia, although there is an implication for workload and additional labour. The third helps the lecturer with dyslexia memorise material, keep on task, and provides a valuable student resource, and is a standard recommendation for all new teachers. For example, pre-recording material can be an effective way to revise and prepare and can be provided to students or used as the basis for flipped classrooms. The second and fourth tools require the academic with dyslexia to be open about their condition, which they may be wary of if they believe that their colleagues' and students' perceptions of dyslexia are negative, in addition to extra labour from that colleague.

Method

This paper reports on two connected experiments that explored perceptions that might exist about dyslexia within the context Jennifer H works. Both had ethical approval. The first tested the impact of a colleague checking work, and disclosing dyslexia to students. It captured student perceptions using two questionnaires. The second investigated opinions of staff towards colleagues with dyslexia with a survey. As Jennifer H is a lecturer in Chemistry, we appreciate this may mean our results are skewed towards teachers of STEM, however we believe there are enough similarities between disciplines that the findings will be of use to those who either have dyslexia within academia or are supporting those who do.

Disclosing to colleagues and students

In order to measure the impact of asking a colleague to check work and disclosing to students, we sampled a first-year module taught within the School of Physical Sciences at the University of Kent (UK), which contained both forensic science and chemistry students (cohort size >170). Jennifer H was responsible for delivering 50% of the overall course, including 11 lectures, and initially none of these students were aware she has dyslexia.

To test whether having a colleague check work was helpful, or improved student experience, Jennifer H delivered her first three lectures with material that had been checked by a colleagues. All students were encouraged to give feedback to Jennifer H at any time throughout the course to identify any issues with the material.

To test the effect of disclosing dyslexia to students, Jennifer H delivered the first five lectures without the student cohort knowing she was dyslexic; she then disclosed and explained how this might affect her lecturing style. The students were presented with voluntary anonymous surveys at the end of lecture five (before knowing she was dyslexic) and at the end of the eleventh lecture. Both surveys included a series of statements which were rated on a 5-point Likert scale, and invited open responses. A full list of survey statements/questions are given in Appendices A and B. No responses were processed until all lectures had been delivered to prevent the results affecting the delivery of any remaining lectures.

Survey one (n=33, 19% of the cohort) was designed to ascertain the students' views of Jennifer H's lecture delivery and associated materials when compared to their expectations and experiences of other modules and lecturers. Survey two (n=50, 29% of the cohort) was designed to ascertain how the students viewed their dyslexic lecturer and her abilities to perform her duties after disclosure.

Staff perceptions of dyslexia in colleagues

Teachers with dyslexia may be nervous about how their students and colleagues will perceive any disabilities (Riddick, 2003). There is evidence that academics with learning difficulties are viewed negatively (Boxall, 2010), and academics are less likely to disclose than workers in the general population (Brown & Leigh, 2018). We wanted to establish whether this negativity about academics with dyslexia might still exist.

We distributed survey within the Ingram Building at the University of Kent (n=32) (Appendix C). This location contained biologists, forensic scientists, physicists and chemists, and represented a cross section of staff working within STEM, and Jennifer H's peer group. Any individual found in an office within core working hours on a single working day was asked to complete the survey, and allowed to opt-out or ask questions at any time. Participants were given a time limit of 5 minutes to ensure their immediate responses were recorded. Table 1 shows the spread of individuals that took part in this survey (n=32, 15 women 17 men) and their roles within the University. It is interesting that even this small sample contained a fairly equal distribution of gender and roles. Categories of staff roles have not been collapsed because Ingram building houses more than 200 staff, and it is not possible to identify individuals from these data. Whilst the views shared may not be representative of those found across all disciplines, they give an indication of the relevance of perceptions of dyslexia working at this level in HE.

Insert table 1 about here

Results

Asking colleagues to check work

For the first three lectures Jennifer H presented material that had been checked by a colleague. For the remaining eight lectures the material that had not been checked in this way. Students were invited to point out mistakes, spelling errors and the like throughout the lectures, and were asked to evaluate the content in the surveys. They found no difference in the quality of work, as the checking did not catch any errors she had not spotted herself. However, the impact of asking colleagues to check her work placed Jennifer H in a challenging position. Firstly, she had to disclose her dyslexia to her colleagues, and then ask for help, which she felt placed her within a vulnerable situation giving colleagues power to judge her work, and find fault with it, seeing her as less of a peer. In addition, the burden of checking her work added to their workloads, and was not allocated time in the work-load-allocation model within the school.

Disclosing dyslexia to students

The results from surveys one and two are detailed in Table 2. The undergraduate student responses showed a single distribution, meaning that they were all broadly in agreement.

Insert table 2 about here

Statements 1 and 2 (Table 2a) were standard evaluation questions designed to check the course was pitched at the correct level; the responses suggested this was the case and the students

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enjoyed the course. This was important to establish, as a negative view of the course could impact on the remaining responses. The remaining statements were designed to establish how the students viewed Jennifer H's lecture material and abilities as a lecturer. It can be seen in Table 2a the student cohort appear to have confidence in her as a lecturer; they understood the verbal explanations of the material; liked the lecture notes/slides and did not think the slides were too wordy. They appreciated the pre-recorded material, providing evidence that dyslexia coping strategies can be beneficial to both lecturer and student. They also found the lecture material met their expectations. Overall, survey one showed the students were happy with the 'product' they were receiving.

Survey two (table 2b) was designed to establish if the student cohort was aware of Jennifer H's dyslexia before she revealed it, and their response to this information. It appeared the student cohort was unaware of her dyslexia, and the fact that she has dyslexia did not bother them. They did not necessarily find the disclosure helpful, but appreciated the transparency and would encourage more lecturers to be transparent.

Staff perceptions of dyslexia

Survey three was designed to establish how dyslexia is viewed by university members of staff across the sciences. Participants were asked to give immediate responses to the word **DYSLEXIA** (capitalised and bolded to draw attention and focus responses). These were grouped into one or more of four categories created to represent the calmative data set: neutral (7 responses), definitions of dyslexia (14), miscellaneous (10) and factually incorrect (2).

The individuals within neutral either gave no response**,** asked how it was spelled, or questioned why it had been put in bold and capitals. Those defining the word said that it indicated problems with writing and/or reading and/or spelling, or was a learning disability.

This shows they had some information about dyslexia, which is defined as a specific learning difficulty but has a wider impact than just on writing, reading and spelling (Riddick, 1995; Dyslexia Association, 2016). The responses in neutral and definitions categories show these participants expressed little direct or emotive feelings towards the word **DYSLEXIA**. This could suggest they are completely accepting of dyslexia. However, it is worth noting that these responses were obtained principally from non-academic staff members.

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The more detailed responses made within the miscellaneous category do not necessarily suggest negativity. They include comments such as "It can affect people who have it as it can be frustrating but people who suffer learn to live with it. If they have succeeded in education/academia then obviously it is not an issue that they can't deal with" from a post-graduate student. Such an attitude might make it challenging to ask such an individual for support or help, as the converse might be held to be true in that if they need help, then they should not be in education or academia. Similarly, another post-graduate commented that dyslexia could be "overcome with positive attitude", which is concerning. Some miscellaneous comments were negative, such as "needs help" and "challenging for the individual".

Three of the lecturers/senior lecturers identified dyslexia as something that affected students:

"Significant issues for students";

"Not an issue for my teaching! Well handled by students and support groups";

"Understanding the level, coping mechanism and any adjustments I can make".

These perhaps underlined the lack of knowledge around numbers of staff in HE with dyslexia, and an assumption it only affects students. There were more positive comments, including a senior academic who commented "with support the individual should be able to achieve their full potential".

There also appeared to be an element of misinformation as to what dyslexia is. These comments have been noted as 'factually incorrect', for example identifying it as a medical condition or illness.

Participants were then asked how they viewed dyslexia in an academic member of staff. A few of the post-graduate students actively viewed dyslexia as a positive trait. No individual expressed a view of dyslexia as a negative trait. The majority stated that whether dyslexia was positive or negative was dependent on the individual. Interestingly 50% of lecturers, senior lecturers and readers voluntarily created a fourth response. Upon being faced with the options that dyslexia was positive, negative or depended on the individual, they stated they were all irrelevant, as an individual should be judged purely on their ability to perform their job and therefore whether a colleague had dyslexia or not did not matter. This unprompted response might provide some evidence that academics with dyslexia are accepted by their colleagues with none of the historic prejudices reported by Boxall et al (2010). However, recent reports suggest disclosing dyslexia is still 'a big deal' for academics (Academics Anonymous, 2016), and it is unclear whether reasonable adjustments or support would be included before making a judgement on whether a colleague was able to or not. For example, whether expectations should be lower for those with dyslexia, or whether they would be expected to work longer hours to achieve the same level for the same pay when given tasks take longer.

Discussion

As already discussed, the amount of support available to students in HE is generally higher than that given to staff, and is aimed at enabling them to perform academically and meet their potential. Common support and reasonable adjustments include extra time in exams or for coursework, access to academic writing proof readers, and use of technological tools such as

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screen readers, voice-to-text transcription and grammar/spelling checkers. There may be support for other aspects of dyslexia, such as organisation, timekeeping and the like. For staff, such support is not always available due to differences in funding and access to support.

In this section we wanted to discuss the findings from the two experiments, and discuss strategies that may be useful to teachers with dyslexia and to educational developers who work with all new academics. If we take the model of Universal Design for Learning (Bracken & Novak, 2019) we ensure as much as we can that all the strategies we introduce to new teachers and new academics are suitable for supporting those with dyslexia, to build in accessibility and counteract some of the structural and inbuilt ableism that exists in academia (Brown & Leigh 2018). These include the use of specific dyslexia fonts (Dyslexie Font, 2018); and active teaching approaches such as the flipped classroom. If educational developers were to suggest the following strategies to all new lecturers, it would ensure that support and practical solutions are available to all who genuinely need them.

Disclosing dyslexia

The responses collected here support the hypothesis that negative views held about dyslexia may be shifting. The students were all positive about the disclosure, and it did not impact on their perceptions of Jennifer H's ability as a lecturer. Similarly, the majority of responses from staff were neutral or positive. This implies that when academics with dyslexia are deciding whether to disclose their condition or not, there may be less risk than once perceived. If they choose to disclose then they may be able access reasonable adjustments and support at work that will make their workload easier such as technological tools and the like. However, disclosing dyslexia to colleagues for the sole purpose of asking them to check work was not found to be helpful, as it reduced self-efficacy and self-esteem, two factors that are key in

achieving academic potential (Burns et al, 2013).

Dyslexia friendly material

One of the 'easiest' adaptions for lecturers to make for students with dyslexia is to ensure that slides are on off-white backgrounds, in an easy to read font. The use of coloured films, glasses, paper and computer screens are commonly encouraged to increase the ability to read text, and this is an adaption that can be used for teachers with dyslexia. The idea that coloured overlays applied to text increases reading fluency and/or speed however is controversial. Although historical studies provided evidence this was the case, more recent literature would seem to suggest otherwise (Uccula et al, 2014). However, the effect of black and white contrast is well known, and reducing contrast is of benefit to increasing visual comfort for many individuals (Irlen Centre, 2019). By building in accessibility to our classrooms, we can also build in accessibility for teachers who have dyslexia.

Writing down as much as possible and preparing material

This is a strategy to support new teachers that not only helps the lecturer with but also provides a valuable resource for students. To prevent issues associated with memory difficulties I (Jennifer H) added a lot of text and notes to my power point slides. Although this was initially for my own benefit, it appeared the students also appreciated these efforts. This is further evidence that implementing dyslexia coping methods not only supports the dyslexic teacher's ability to give the best possible teaching quality, but also supports students' independent leaning, and as such is a strategy that educational developers could advise for an HE teacher

from any discipline. Applications that offer voice to text dictation can alleviate concerns over the 'writing' aspect, however, they often struggle with subject specific terminology.

Flipping the classroom

Educational developers generally attempt to extol the virtues of active learning to all new lecturers in HE. However, some of these approaches have additional benefits to teachers with dyslexia. In Jennifer H's experience the process of delivering lectures can be stressful. Traits such as issues with remembering lecture content, keeping on task, and reading/spelling under pressure are naturally triggered in these situations.

The flipped classroom is the practice in which lecture material or a recorded version of the lecture is reviewed independently by the student in advance. The lecture time is then given over to learning based exercises such as tests, clicker based quizzes or exercises. There are practical and accessible reviews on this approach, together with recommendations for implementation (e.g. Delozier & Rhodes, 2017). There is indirect evidence it leads to improved academic performance and student and staff satisfaction (O'Flaherty & Philips, 2015). However, O'Flaherty & Philips along with Abeysekera and Dawson (2015) identify unanswered questions and research to be undertaken to fully understand the technique and its limitations. 'Flipping' could remove some of those stresses typically felt by the academic with dyslexia, as lectures can be pre-recorded and supplied in advance. It allows contact time to be used to perform activities that are prepared in advance, keeping the material focused and on task. This technique, whilst particularly valuable within STEM (Dodds, 2015), also works well in other disciplines, as it focuses the students' time on what they can learn actively with the lecturer, rather than passively receiving information.

Conclusion

This small study suggests that contrary to what an individual teacher in HE might think, the student population are unlikely to guess that they have dyslexia, and that it does not impede lecturing capabilities if adequately supported. Colleagues are unlikely to perceive dyslexia negatively, and this should not be a barrier to disclosing and receiving support. Finally, and arguably the most important finding, is that students value the disclosure of lecturer disabilities, and it does not affect their view of an individual as a teacher if they are effective within their job.

Disclosure statement

Notes on contributors

Jennifer Hiscock obtained her PhD from University of Southampton (UK) in 2010. She moved to the University of Kent (UK) as the Caldin research fellow, and was awarded a permanent lectureship position in 2016. She has since been promoted to Reader in Supramolecular Chemistry and Director of Innovation and Enterprise for the School of Physical Sciences. Her current research focuses on applying supramolecular chemistry to solve real-world problems. This includes the development of 'frustrated' supramolecular self-associated systems as weapons in the fight against antimicrobial resistance.

Jennifer Leigh's research weaves together threads of embodiment, marginalisation, and creative research methods. As Senior Lecturer in Higher Education and Academic Practice at the University of

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Kent, Jennifer works closely with the Graduate School supporting GTAs, instigated a competition to enhance the post-doctoral research environment and opportunities for independent research and undergraduate opportunities, and liaises with the Science Faculty in addition to teaching and leading core MA and PGCHE modules in the Centre for the Study of Higher Education.

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research. *Higher Education Research & Development*, *34*(1), 1-14.

Academics Anonymous. (2016). *I've finally admitted that I'm a dyslexic and I'm terrified.* The Guardian: https://www.theguardian.com/higher-education-network/2016/feb/19/ive-finally-admitted-that-im-a-dyslexic-academic-and-im-terrified.

Borland, J., & James, S. (1999). The learning experience of students with disabilities in higher education. A case study of a UK university. *Disability & Society*, *14*(1), 85-101.

Boxall, K., Carson, I., & Docherty, D. (2010). Room at the academy? People with learning difficulties and higher education. *Disability & Society*, *19*(2), 99-112.

Bracken, S., & Novak, K. (Eds.). (2019). *Transforming higher education through universal design for learning: An international perspective.* Abingdon: Routledge.

Brown, N., & Leigh, J. (2018). Ableism in academia: where are the disabled and ill academics? *Disability & Society*, *33*(6), 985-989.

Burns, E., & Bell, S. (2011). Narrative construction of professional teacher identity of teachers with dyslexia. *Teaching and Teacher Education*, *27*(5), 952-960.

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Commented [NT5]: Is there an issue number?

Commented [jl6R5]: amended

Burns, E., Poikkeus, & A., Aro, M. (2013). Resilience strategies employed by teachers with dyslexia working at tertiary education. *Teaching and Teacher Education*, *34*, 77-85.

DeLozier, S., & Rhodes, M. (2017). Flipped classrooms: a review of key ideas and recommendations for practice. *Educational Psychology Review*, *29*(1), 141-151.

Dodds, M. (2015). *Evidence for the flipped classroom in STEM*. York University PGCHE Resources: https://www-users.cs.york.ac.uk/~miked/publications/flipped_classroom.dodds.pdf.

Dyslexie Font (2018). https://www.dyslexiefont.com/

Farmer, M. & Riddick, B., & (2004). Dyslexia and inclusion: Assessment and support in higher education. Hoboken, NJ: John Wiley & Sons.

Griffiths, S. (2012). 'Being dyslexic doesn't make me less of a teacher'. School placement experiences of student teachers with dyslexia: strengths, challenges and a model for support. *Journal of Research in Special Education Needs*, *12*(2), 54-65.

Heiman, T., Precel, K, & Sterling, C. (2003). Students with learning disabilities in higher education: academic strategies profile.

Irlen Centre. (2019). *The Irlen method*. Irlen Centre. http://www.irlendyslexiaconsultancy.co.uk/irlenmethod.html

O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *Internet and Higher Education*, *25*, 85-95.

Reid, G. (2004). Dyslexia and inclusion: Assessment and support in higher education. *Contemporary Psychology-Apa Review of Books*, *49*(5), 621-622.

Riddick, B. (1995). Dyslexia: dispelling the myths. *Disability & Society*, *10*(4), 457-473.

Riddick, B. (2003). Experiences of teachers and trainee teachers who are dyslexic. *International Journal of Inclusive Education*, *7*(4), 389-402.

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Commented [jl10R9]: No issue number

Rodger, J., Wilson, P., Roberts, H., Roulstone, A., & Campbell, T. (2015). Support for Higher Education Students with Specific Learning Difficulties - Report to HEFCE by York Consulting and University of Leeds, https://dera.ioe.ac.uk/23654/1/HEFCE2015_spld.pdf

Roll-Pettersson, L. (2008). Teacher's perceived efficacy and the inclusion of a pupil with dyslexia or mild mental retardation: findings from Sweden. *Education and Training in Developmental Disabilities*, *43*(2), 174-185.

The Dyslexia Association, (2016). What is dyslexia?, http://www.dyslexia.uk.net/what-is-dyslexia/.

Uccula, A., Enna, M., & Mulatti, C. (2014). Colors, colored overlays, and reading skills. *Frontiers in Psychology*, 5, 833.

University of Southampton, (2010). Supporting dyslexic trainees and teachers, http://adshe.org.uk/wp-content/uploads/Supporting-Dyslexia-Brochure.pdf.

UK GOV. (2010). *UK Government Legislation.* 2010 Equality Act: http://www.legislation.gov.uk/ukpga/2010/15/contents.

Vogel, S., Leyser, Y., Wyland S., & Brulle, A. (2010). Students with learning disabilities in higher education: Faculty attitude and practices. *Learning Disabilities Research & Practice*, *2010*(14), 173-186.

Waterfield, B., Beagan, B., & Weinberg, M. (2018). Disabled academics: a case study in Canadian universities. *Disability & Society*, *33*(3), 327-348.

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