

The Dyslexic Engineer – issues for mathematics education

In the academic year commencing October 2003, 56 of 3388 students on Engineering based undergraduate or postgraduate courses at an English university had registered on application that they were dyslexic. A further 32 Engineering students were diagnosed as dyslexic after their arrival at University; 7 in 2001–2002, 11 in 2002–2003 and 14 to-date in the current academic year. At the present time there is a widening participation agenda in the UK, the government target is that 50% of young people between the ages of 18 and 30 will be entering higher education by 2010. It is expected that institutions will see a significant increase in the number of dyslexic students registered on their courses. Current legislation in the UK makes it unlawful for a university to discriminate against a disabled person and universities must make reasonable adjustments to ensure that disabled students are not placed at a substantial disadvantage compared to non-disabled students.

An investigation has been carried out to determine the problems encountered by dyslexic students reading for an engineering degree and to explore the ways in which dyslexia affected their learning of mathematics. The problems encountered in mathematics modules were investigated, as were the mechanisms that students or staff might put in place to alleviate them.

From conducting interviews with engineering students who were diagnosed as dyslexic after commencement of their undergraduate programme several case studies have been produced. From these case studies a common list of problems has emerged. The students all had problems with note taking in lectures, especially when the presentation of material involved more than one medium. They all had a tendency to ‘get lost’ part way through a multi-stage calculation and had difficulty in transferring their subject knowledge into written work. It also transpired that some students were re-working their lecture notes into colour coded mind maps which enabled them to see the whole picture and assisted with multi-stage mathematical operations.

This paper will give details of findings arising from the case studies, which provide a fascinating insight into the reactions of engineering students who discovered that they were dyslexic after commencement of their undergraduate study. The nature of their particular difficulties with mathematics as perceived by them, and by others will be described. Once diagnosed as dyslexic, students have access to a range of general and mathematics-specific support. Details will be given of the support available in its various forms and an attempt will be made to evaluate the efficacy of its different components. The paper will also distil emerging elements of good practice arising from the case studies. If adopted, in some cases by the student and in other cases by teaching and support staff these will improve the chances of retention and progression and increase the level of achievement. Suggestions for future lines of inquiry will be made.