

Increasing confidence in mathematical ability through online guidance and activities.



Commenced: 2006

What is it?

It has long been evident that one of the topics that students find most challenging during their degree is research methods/statistics. There is a growing literature in this area which specifically relates to students' 'statistics anxiety' (see Onwegbuzie & Wilson, 2003 for a review). Research has shown that good predictors of statistics anxiety are prior maths experience and maths self-confidence (e.g. Zeidner, 1991). My own experience of teaching students for the last ten years suggests that maths self-confidence is a key factor in this. It is clear from the entry qualifications of students that the vast majority of students should have the mathematical skills necessary to successfully complete research methods & statistics modules. Yet a sizeable proportion of students lack confidence in their own mathematics ability and this acts as a significant barrier to their learning.

The project, therefore, aims to develop and make available online resources to help improve maths self-confidence and mathematical thinking skills.

What is involved?

In this project I am to complete the development of a series of online study guides which will be provided for Level 4 and Level 5 psychology students. The study guides will be delivered via Blackboard. There will also be a number of online self-tests where students can assess their own understanding of the mathematical concepts covered in the study guides. The aim of the study guides is not to teach the student anything new about mathematical concepts but rather to refresh their memory for these and to give them practice in thinking mathematically.

Students will undertake a mathematics thinking skills test before the resources are made available to them. Measures will also be taken of maths self-confidence and statistics anxiety. After students have used the resources, measures of these constructs will again be taken to assess any changes that may be the result of the study guides and associated self-tests.

It is important for this project to gather appropriate feedback from the students. There will therefore, be a Blackboard discussion board with anonymous postings enabled where students can post their comments and there will also be the

opportunity for them to communicate their views in face to face meetings with me.

Why is the project important to the CETL and the University?

The project is important to the CETL because it is aimed at getting students to reflect upon their own skills, learning styles and self-confidence in order to make decisions about how best to manage their learning. All of these could be considered characteristics of autonomous learners. The crucial aspect of the current project is that it aims to invite students to undertake such reflections very early in their academic careers and then reinforces this in later years.

In terms of the wider university context, there are many projects in various parts of the University aimed at improving students' basic mathematical skills. This project should be able to complement the existing work in this area. The emphasis on improving maths self-confidence rather than trying to teach students new &/or advanced mathematical concepts may offer insights which are not evident in other forms of mathematics support for students.

What do you hope the project will achieve?

It is hoped that there will be a number of benefits to students including:

- Improved maths self-confidence
- Greater enjoyment of research methods and statistics modules
- Perhaps improved grades for those on such modules
- Awareness of the benefits of reflecting on the skills that they have
- Greater sense of control over their studies
- Perhaps enhanced self-esteem as a result of increased self-confidence in mathematics



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In addition, it is hoped that the resources developed may be utilised by teaching teams outside of psychology to support their students. The study guides are deliberately subject neutral for this very purpose.

Links

Onwegbuzie, A.J. & Wilson, J.A. (2003). Statistics Anxiety: nature, etiology, antecedents, effect, and treatments – a comprehensive review of the literature. *Teaching in Higher Education*, 8, 195-209.

Zeidner, M. (1991). Statistics and mathematics anxiety in social science students- some interesting parallels. *British Journal of Educational Psychology*, 61, 319-328.

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