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Teaching intelligence

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ABSTRACT

This article encourages psychologists to teach intelligence at different levels of the undergraduate curriculum and at postgraduate level. In addition, intelligence should be 'taught' to psychologists more broadly, to relevant professionals, and to the public. I give examples of attempts to teach to all these audiences, and the materials I prepared to do so. Some problems with, and tips for teaching intelligence are given.

1. Introduction

It was being taught the psychology of intelligence differences that attracted me to psychology in the first place. In the late 1970s, early on in my medical undergraduate curriculum at the University of Edinburgh, the clinical psychologist Ralph McGuire was given the unenviable job of teaching medical students part of their social sciences course. Amongst these lectures were some lectures on psychology, most of which I have forgotten. However, for me, the lecture room lit up when I started hearing about the scientific study of individual differences. This included both intelligence and personality differences, and this combining of the two is much more common amongst psychologists in the United Kingdom than it is in the USA, probably as encouraged by H.J. Eysenck. The interest in intelligence differences that I picked up so early in my undergraduate degree course was able to be followed up. The University of Edinburgh offered medical students the opportunity to leave the medical course for a year and obtain an honours degree in one of a number of subjects. For the first time in 1979 they offered Psychology as an option. I took it. My psychology undergraduate education, therefore, amounts to all of about eight months, not counting the few lectures in the medical undergraduate curriculum. Moreover, in the academic year in which I studied for my psychology degree I took no classes in intelligence. However, my undergraduate dissertation supervisor was Chris Brand, and the many, many hours I spent with him whilst discussing that dissertation was an extensive education in intelligence differences. Moreover, my undergraduate dissertation with Chris led to our jointly publishing it and a wider review in Eysenck's *A Model for Intelligence* (Brand & Deary, 1982). Following that introduction I returned to medical school and medical practice. However, within two years of completing my medical degree I was back in the Psychology Department and at the University of Edinburgh as a lecturer in Psychology. My chosen topic for research was human intelligence differences, and I am still doing that. Also, amongst the many things I have taught since then are human intelligence differences.

As I shall describe below, I have taught intelligence at all levels from public outreach to postgraduate level. Each time I have decided to teach a particular audience, I have found that I was dissatisfied with the materials that were to hand for teaching. This is also the case in personality differences, where I also decided that the book had to be written because there was no appropriate book available (Matthews, Deary, & Whiteman, 2009). Indeed, that book grew out of an overview article in which Gerry Matthews and I were trying to tell psychologists that traits were the scientific approach to personality (Deary & Matthews, 1993). The aim of the current article is to encourage others to teach intelligence through all levels of psychology and more broadly. Also, it gives a guide to the topics that I think are important within intelligence, and also those that attract and

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retain students; this retaining is important, because they usually have a choice about which courses they opt for, other than at the most introductory levels.

2. Courses taught

I currently teach intelligence in the first of four undergraduate years of the Psychology degree at the University of Edinburgh in Scotland. Until recently, I also taught intelligence at the fourth year level which, in Scotland, is the most senior undergraduate level. I also currently teach aspects of intelligence to MSc students. These latter students are taking a one year course following their undergraduate degree, and a proportion of them go on to study for a PhD. I give regular public lectures on intelligence, some to wider groups of academics, some to other professionals, some to older-age groups, some to schoolchildren, and some to the general public.

2.1. Psychology 1: the first undergraduate year

My current teaching involves introducing over 300 first-year undergraduates to intelligence differences. This occurs in a first-year course that covers the broad range of psychological topics that is to be found in most introductory psychology textbooks. The book currently used at the University of Edinburgh is that by Schacter, Gilbert, and Wegner (2012). The students come from a number of backgrounds, many of whom will have little or weak scientific backgrounds. Therefore, attracting interest and retaining it—and not alienating people who have little by way of statistical skills or biological knowledge—is most important. My lecture series includes both personality and intelligence, and I place the intelligence lectures at the end of that series. My lectures are the first that they receive in the introductory psychology course, making them the students' first lectures in their university career.

The materials I use for this course are the chapter in the Schacter et al. (2012) book and my own *Intelligence: a very short introduction* (Deary, 2001a). I originally drafted the chapter for the Schacter et al. book, though it has changed a bit now. There are many introductory psychology textbooks, and most of them have a chapter on intelligence. I think the one in Schacter et al. is one of the better ones. The topics I cover in the first-year lectures are: the history of intelligence testing (Galton, Binet, Spearman); the spread of IQ testing internationally; models of human intelligence differences (Spearman, Thurstone, Guildford, Cattell, Carroll, Gardner); tests of intelligence (especially the Stanford–Binet and the Wechsler Adult Intelligence Scales); applications of intelligence in medicine, education, and occupation; genes, environment and neurobiology and intelligence; and sex differences.

The course is assessed amongst other topics with a multiple choice examination. This introduction is intended to be interesting and attractive, so that it retains students' interests in the topic when they progress to more senior years and have a choice about which courses they will take. All my Powerpoint slides for the lectures are provided as a pdf handout online for the students in advance of the lectures. Despite the size of the class I ask them questions, and I encourage them to ask me questions, which they frequently do. Before the lectures start, they take a personality test. Before the intelligence lectures they do an in-class exercise in which they rate their intelligence scores (having been shown the population distribution) and those of their mother and father. I analyse these and present these in the next lecture. My lectures on individual differences have been typically rated at or about the top in the first year. Edinburgh typically has a reasonably large number of students who do thereafter develop an advanced interest in individual differences, which is helped by the relatively large number of staff who work in this area.

2.2. Psychology 4: the most senior undergraduate year

At the most senior undergraduate level there is time to teach in more detail. Most of the teaching is done using material from recent research papers, and students are expected to be able to read these and critically evaluate them. The course I taught on intelligence until recently was ten hours in length; five 2-hour sessions. The topics I chose to form this course were: how many types of intelligence are there?; the ageing of intelligence; speed of information processing in intelligence; biological approaches to intelligence differences; and a discussion topic. The discussion topic varied from year to year, and included cognitive epidemiology (intelligence, health and death) and the Flynn Effect. The first four sessions were taught as lectures, with regular, within-lecture discussion. The discussion topic was presented by the students (from chosen papers) and then debated by them. The assessment of the course was by a written examination at the end of the year.

I had realised that there was no book that covered this level of intelligence discussion and it was this that led to my writing *Looking Down on Human Intelligence* (Deary, 2000), which was in fact an expansion of the course. However, as that book developed, it became more appropriate for postgraduates than for undergraduates. The fourth year course clearly has general topics, and also reflects my own research interests. The ethos of these senior undergraduate courses at the University of Edinburgh is such that they should be relatively close to the researchers' interests. The fourth year class was typically one of the larger ones in the department, with around 40–50 students, meaning that many students signed up and it was popular. This was despite its having techniques such as structural equation modelling used in the lectures and also epidemiological techniques. Therefore, there can be a 'popular' advanced intelligence course at the undergraduate level. *Looking down…* won the British Psychological Society's Book Award and the lecture that I gave at the award gave me the chance to teach psychologists more generally about intelligence differences (Deary, 2003).

2.3. Postgraduate MSc course

As Director of the Medical Research Council-administered Centre for Cognitive Ageing and Cognitive Epidemiology at the University of Edinburgh I run a ten-week course of that name, each of which has a two-hour lecture session. I open this by teaching the MSc students about cognition and its ageing. This is especially challenging, because the entrants to our course, whereas they do involve some people with an