

# Teaching Research Methods to encourage the transition from 'reluctant scientist' to psychologist: A longitudinal study

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*The challenge of teaching Research Methods to frequently unwilling undergraduate psychologists has long been recognised. Whilst a number of studies have sought to investigate and address the barriers to its effective teaching, few have taken a quantitative approach and fewer still a longitudinal design in order to examine the efficacy of specified interventions. This study employed such a design, the sample consisting of three cohorts of first-year psychology students (N=286) over three consecutive years who were undertaking Research Methods as a compulsory module. Changes were implemented in both the delivery and assessment regime to facilitate a more engaging delivery of the material and greater consolidation of basic principles through iterative classroom techniques and the use of formative and summative assessments. A significant improvement in student marks, despite an increase in the difficulty of the assessments, was found with overall marks increasing by a whole grade band. Further analysis of the different assessed elements of the year-long module also demonstrated improved performance in each of the constituent parts. This study, therefore, extends the growing body of evidence-based literature on the use of effective teaching techniques and assessment regimes in a challenging area.*

**Keywords:** research methods; assessment; teaching, pedagogy.

## 1. Introduction

**T**O ANY INTREPID INSTRUCTOR who has chosen to teach Research Methods, or, indeed, to those others who have had the teaching of research methods thrust upon them, the title of this paper may have invoked a wry smile. We will all, after all, be accustomed to the familiar groans and protests of those who come to this module nervous and sceptical about the value of research methods to their new career, and reluctant to take on the challenges they see ahead of them. Nevertheless, in order to truly understand one's discipline the learner must embrace the fundamental concepts involved, and psychology is no different. For the learner psychologist, therefore, there is no getting away from the fact that psychology is a science. Hence it is imperative that the essential elements of scientific study are understood. So what can we do to meet the resistance and break it down, allowing students to progress in their field confident in the rudiments of research methodology

and analysis? These were the questions that we asked as we took ownership of this module. We hope that by sharing some of our thoughts and experiences our enthusiasm for teaching this module may provide some inspiration and ideas for novice (or, perhaps, jaded) lecturers in this challenging area.

So why, first, does the undergraduate psychologist show such consistent resistance to studying Research Methods? It may be that whilst the study of psychology is appropriately defined as the scientific study of the human mind and behaviour, yet, for the undergraduate psychologist, the overriding interest is in people – why people behave the way they do, what motivates them, excites them, angers them, and why those emotions may be translated into different behaviours by different people. It appears that despite the fact that psychology is a scientific study, many undergraduates come to the discipline perplexed about the emphasis on scientific

rigour and the need for empirical research, regarding it instead as an unwelcome diversion from 'the real thing'. This fundamental paradox has important practical implications, requiring us to ask, as tutors, what can be done to put the 'science' back into the scientific study of mind and behaviour. How can the study of Research Methods in psychology make the transition from, as Ramsden puts it, an imitation subject, in which 'academic knowledge [is kept] separate from experience' (1992, p.39), to a real one in which knowledge is integrated, flexible and applicable to everyday reality? How, indeed, do we, as tutors, encourage the student psychologist to make the transition from reluctant scientist to psychologist? Our applied assessment of this question begins by considering the module as inherited, both in terms of teaching and assessment, before moving on to the changes introduced and the resultant impact on learning and understanding over two years.

### ***1.1 Changing the timetabling***

Teaching Research Methods (a module incorporating both research methodology and statistics) at Level 4 originally took the traditional format, that being the hour-long lecture followed by a generally poorly attended seminar. This, of course, was consistent with a more traditional style of teaching psychology at HE level, with lecturer as authority figure and the arguably inherent hierarchical dynamic this entails (Boaler, 2000).

In view of the fact that a deep learning style may best be facilitated through an active (and interactive) approach where the student takes responsibility for their own learning (Barry, 2012; Claxton, 2007; DiPiro, 2009; Gleason et al., 2011) it was felt that there must be a fundamental issue with teaching a subject in this traditional lecture-seminar format, where the seminar was quite clearly assigned 'second place'.

In order that ideas could be generated and developed, and connections made between modules and synthesis of existing

and new knowledge could take place, the first important decision in the teaching of Research Methods was therefore made, to dispense with traditional teaching timetables and to introduce a three-hour long session, to be split as deemed appropriate to the content of the day and to the mood of the moment – flexibility and responsiveness to student understanding and attentiveness being key. Thus we favoured a more student-centred approach to teaching and learning in which the focus was of group interaction both within peers and between lecturer and students.

### ***1.2 Changing the 'how' we teach as well as the 'what'.***

Key content changes reflected the need to provide a breadth of learning in the first instance, with sufficient understanding to allow its development to the more complex statistical analyses required for the final-year dissertation and post-graduate studies. Building on the collegiality established, a broad range of materials and techniques were therefore introduced to provide a diverse and engaging mixture of teaching techniques. Essential elements are detailed in Table 1.

However, at least as important to engagement as the teaching techniques used, it was also felt imperative to dispel the notion of Research Methods as a 'dry' and 'starchy' subject, and to encourage a relaxed and, where possible, entertaining learning environment. Thus, not only what was to be taught, but how it was to be taught became a key consideration. For example, building on work conducted by Kolb (1984, 1985), Kumar et al. (2013), and Rasul, Bukhsh and Batool (2011) which showed the importance of visual in addition to audio information to student engagement with their material, increased emphasis was placed on the visual attractiveness of teaching materials, including powerpoint (PPT) slides and experimental materials, and the design of hand-outs and support material. For example, when providing participant instructions on the way

Table 1: Key content changes.

Interactive elements in all sessions, including:
Experiments
Observations
Interviews
Student presentations
SPSS practicals – own and other data
Worksheets
Quizzes
Discussion sessions
Revision material, including:
Revision of previous week's content at start of each new seminar session
Re-iteration of material from previous experiments to develop new ideas
Use of SPSS:
Introduction within weeks of start of the module
Weekly use thereafter to produce graphical representations of data, analyse own data, etc.

to engage in an image-linking task, we provide an image of a cat watching a television to reinforce the link between the two words 'cat' and 'television'. When describing the generation of research questions from experiential data and contrasting it with the development of a research hypothesis from pre-existing theoretical and empirical literature, we use custom animation to demonstrate the flow of information. In all PPTs attempts are made to provide this visual support, thereby utilising the sense of sight in addition to hearing, in order to assess the resultant impact, if any, on later assessments. Additionally, and recognising the literature advocating a multisensory approach (Willis, 2010), many of the experiments conducted incorporated tactile elements, including the building of marshmallow towers (to promote a discussion on the design of experiments), and measurements of height, foot size and arm span (for data on correlations), as well as taste through the blind tasting of Coca Cola derivatives (as data for Wilcoxon's analysis). In all cases and at the same time, thought was given to the interactive nature of the tasks (Taylor & Parsons, 2011), and to the potential for humour and enjoyment in the tasks given (Barry, 2012).

Relevance was also considered to be key to improving engagement and to promote learning. Accordingly, research questions, examples, and so on reflected areas of interest outside of the learning environment (Willms, Friesen & Milton, 2009, cited in Taylor & Parsons, 2011) and were made relevant to the programmes of study in which the students were engaged (and were, therefore, also relevant to their interests and long-term goals; Claxton, 2007). For example, we might ask our Sports Psychologists whether athletes would experience improvements in stamina as a result of a dietary intervention and use that question to direct the design of possible studies incorporating both independent and dependent designs, whilst considering their respective advantages and disadvantages. Similarly, we might ask our Criminological Psychologists how they might design a study to help understand the possible impact of a rehabilitation programme on the recidivism of perpetrators of domestic abuse.

Additionally, relevance was considered with respect to the modular structure of the psychology programmes in which Research Methods is taught. By incorporating subject matter from other Level 4 modules (for

example, an identification task based on the ability to smell food products whilst tasting them, thus offering useful synergies with the Introduction to Biopsychology module) there was a deliberate attempt to challenge the modular structure pre-eminent in today's HE institutions: a structure which can only encourage an atomistic approach where aspects of a discipline are learned and 'understood' in isolation (Taylor & Parsons, 2011). Indeed, it is not unusual to find students penalised in assignments or exams for straying into 'other areas', as opposed to being commended for their insight in cross or inter-disciplinary integration. If one is to achieve a deep level of understanding, it is vital to achieve synthesis of subject matter, a holistic approach to a discipline. The teaching of Research Methods, as a discipline which underlies all other sub-disciplines within psychology, is ideally suited to encourage this synthesis and integration.

### ***1.3 Changing the assessment***

The assessment regime, as inherited, focussed primarily on the protocols of writing a research report, with rather less weight given to the remaining material from the module. Specifically, assessment included four pieces of coursework terminating in an end of year exam. All four pieces of coursework were focussed on the writing of a research report. The first three, each weighted at 10 per cent, built progressively on each other by adding another element of the scientific report, culminating in a full report by the third submission, and thus reflecting a genuine attempt to build skills from one assessment to the next. The final piece of coursework was also a full research report (this time weighted at 30 per cent) but based upon a different research problem to coursework three. In all, then, there were four pieces of coursework which totalled 60 per cent of the total module assessment.

Assessment in the final open-book exam was in three sections incorporating a multiple choice element which aimed to assess breadth of learning, a section in which

students were required to provide short definitions (typically a couple of sentences) to statistical concepts or terms given which aimed to assess understanding of key terms, and a final section which consisted of a description of a research study with associated SPSS output. This final section aimed to assess ability to analyse the results of a research study and 'read' the output from statistical tests conducted with SPSS.

#### *1.3.1 Where were the problems with the existing assessment regime?*

First, it was felt that the assessment regime should be more multifunctional. Thus, consistent with the need for Learning Outcomes to be a reflection of what the student will learn, as opposed to what the teacher will teach (Bloom, 2001), evaluation should not just be for accountability, used primarily to communicate standards to stakeholders, whether they be the teacher, the learner, the institution or employers (Brown & Knight, 1994; Ramsden, 1992). Rather, evaluation should be (perhaps primarily) used for feedback and guidance, aimed to help and improve self-regulated learning both for the learner and the teacher (Black & Wiliam, 1998; Bryan & Clegg, 2006). Furthermore, there was a need for the functions of the assessment process to be made explicit, with students being clear as to why they were being assessed, and preferably being convinced of the advantages to them of the results of such evaluations. This required a fairly fundamental change in the way assessments and evaluations were to be presented to students, not as a necessary evil to be tagged on to the end of a course of instruction, but as a valuable aid in their development from novice to professional.

Second, lack of engagement with the assessment process, and hence the implications for learning from feedback as part of a formative process (Sadler, 1989), was a significant problem. This was evidenced by the large number of coursework non-submissions (26 per cent of the 2009/2010 cohort failed to submit at least one piece,

and 13 per cent failed to submit two or more). Student feedback suggested that with pieces of coursework weighted at 10 per cent, there was insufficient motivation to either complete, or complete to the best of their ability, what could be large pieces of work. For example, it was noted that the difference between achieving 60 per cent or 70 per cent for coursework three (a full lab report) was only one per cent in the overall mark.

Last, it was apparent that by the final exam at the end of the first year a substantial number of students were still struggling with basic concepts, including elementary terminology and principles. It was clear that this needed addressing. Whilst there was a reluctance to encourage surface learning of terms and ideas at the expense of a deep approach (as proposed by Marton & Säljö, 1984, as cited in Marton, Hounsell & Entwistle), nevertheless it was recognised that such learning would be required in order to enable the deeper learning to take place.

### *1.3.2 How were the problems with the existing assessment regime addressed?*

In order to improve engagement with the assessment process, and in response to student feedback highlighting their pragmatic approach to submission of assignments carrying a small weighting, the number of assessments was reduced from five to four, with, importantly, the first of these being a formative assessment. In that way the three summative assessments each immediately carried a larger weighting, encouraging a higher submission rate (non-submissions dropping from 26 per cent in Year 1 to six per cent in Year 2 and four per cent in Year 3), whilst also providing a forum to discuss the value of assessment to self-directed learning and development.

More specifically, the new assessment regime introduced was as follows. First, the introductory piece of coursework became a formative piece, establishing assessment as a tool for 'talent development', as opposed to assessment for 'resource and reputation'

(Astin, 1993) or for institutional scrutiny (Taylor & Parsons, 2011). The value of formative assessment was, therefore, discussed at some length in the relevant seminars prior to the assessment, and feedback after the assessment was an interactive session within the usual timetable, deliberately collegial, and a motivational tool through the opportunity to praise the learning efforts of the students involved (Malouff et al., 2010).

In terms of content, the assessment involved the critique of a poorly written research report, it being recognised that the ability to understand and observe the protocols of research report writing is an important one, and one which needs practice. By replacing the first three pieces of coursework with one critique, it was believed that the critical thinking needed to promote effective report writing would be better encouraged. Furthermore, by allowing inspection of the 'good' alternative after the assessment, all students were able to compare 'the good, the bad and the ugly' when writing their own full research report (coursework two, weighted at 30 per cent), allowing greater consistency in the materials students have post-formative assessment.

To help enforce the rudiments of research terminology and principles at an earlier point in the academic year, a summative assessment (MCQ, weighted at 30 per cent) was introduced at the end of the first semester to encourage earlier engagement with core principles. This was designed to facilitate the surface level of understanding consistent with Saljo's (1979) first three hierarchical levels of understanding, involving an acquisition of knowledge and memorisation of facts, to become the foundation from which we were able to encourage a deeper level of understanding as the module progressed towards the last two levels in Saljo's five level hierarchy, in which learning becomes something internal to the learner as opposed to something that happens 'to' him or her.

Assessment in the end of year exam (weighted at 40 per cent) required little adjustment, providing as it did an opportu-

nity to apply understanding of all elements of the module in a variety of ways (see above). However, the exam was converted from an open-book to an unseen exam (in order to address simple transfer of information in the definitions section) and SPSS output booklets were produced for the final section, incorporating output from all analyses covered in the module. Thus in two fairly significant ways the exam became a more robust measure of the students' understanding of the module content. A summary of the assessment changes is provided in Table 2.

**1.4 Applied assessment of the question: How do we encourage the transition of the student from reluctant scientist to psychologist?**

As a piece of Action Research, our applied assessment of the changes made to pedagogy, content and assessment takes the form of a longitudinal study incorporating results from the final year of the existing and the first two years of the new regimes. It aims to assess the efficacy of the changes made through objective measures including analyses of exam and coursework results as well as to understand whether all are equally affected (or unaffected) by such interventions, or whether there are any gender or

age differences in the efficacy of these interventions.

**Method**

**Participants**

The sample consisted of three cohorts of all first-year students (N=286) studying on one of six undergraduate psychology programmes, which exceeded requirements (N=159) following the power analysis ( $d=.5, 1 - \beta=.8, \alpha=.05$ ). All were undertaking Research Methods as a compulsory module in their programme. The cohorts were taken from three consecutive years and represent pre-intervention (year 1) and post-intervention (years 2 and 3) cohorts. Further demographic detail may be found in Table 3.

**Data collection and inclusion criteria**

Data was collated from all summative assessments over the three years which could be meaningfully compared. Thus, end of year exam details were collated for all three cohorts and coursework assessments were taken from year 1 (CW4) and years 2 and 3 (CW2), all representing a full research report. Non-submissions were analysed separately but were deleted from analyses of assessments thereafter.

**Table 2: The assessment regime pre- and post-review of changes required.**

Pre-review	Weighting	Post-review	Weighting
CW1 Partial research report	10%	CW1 Critique of full research report	Formative
CW2 Partial research report	10%		
CW3 Full research report	10%		
		Time Constrained Assessment	30%
CW4 Full research report	30%	CW2 Full research report	30%
End of year open book exam	40%	End of year exam (not open-book)	40%

**Table 3: Demographic detail of the three undergraduate cohorts.**

	Female N	Male N	Total N	Mean age (SD)
Pre-review	61	22	83	22.87 (6.32)
Post - Year 1	64	24	88	21.97 (6.01)
Post - Year 2	84	31	115	22.82 (6.40)



**Results**

To determine the efficacy of the changes made in the delivery and assessment of the research methods module, an initial one-way analysis of variance was conducted on the end of module results. This showed a significant improvement across the three years,  $F(2,275)=5.45$ ,  $p<.01$ , with the average mark increasing by almost 10 per cent from 51 per cent to 60 per cent.

Further analyses conducted on the different assessed elements also indicated a clear and continued improvement for each of the individual assessments. Data from all three years allowed a comparison to be made of both the full report and the end of year exam. For the written report the improvement, although showing an increase across the three years, was not statistically significant. However, for the end of year exam, students' marks showed a significant improvement over the three years,  $F(2,265)=3.35$ ,  $p<.05$ , the assessment moving from the 2:2 classification band pre-review to the 2:1 classification band in year 2 post-review.

In exploring this finding further, a chi-square test was used to look at the breakdown of the classifications for the exam over the three years. While this reduced the level of data, it allowed the findings to be understood in relation to conventional banding used in universities. The findings (see Figure

1) showed significant differences across the years,  $\chi^2=19.14$ ,  $df=8$ ,  $p=.014$ , and despite the increased difficulty of the exam, as outlined previously, a much larger number of students achieved a first class grade in the second year post-review (44.50 per cent) than in previous years (24.00 per cent pre-review, 25.30 per cent in the first year post review). This increase suggests that many more students were able to apply a cumulative knowledge base to their final assessment.

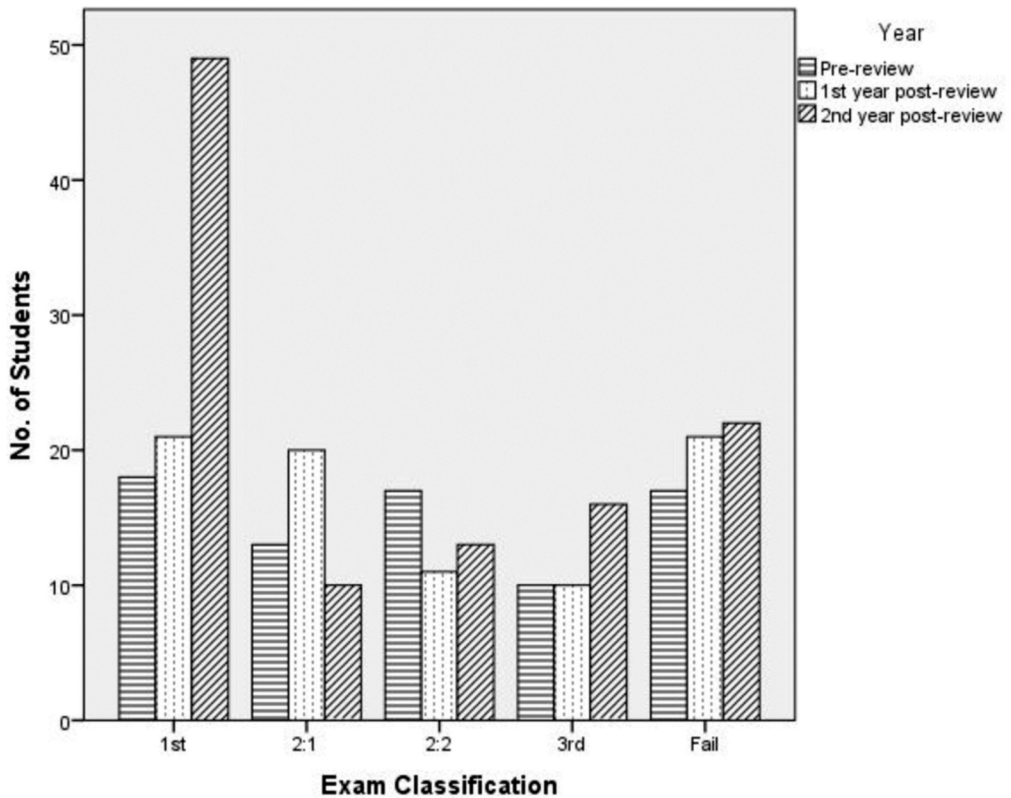
This finding was also reflected in the overall classifications obtained for the module, with 57.40 per cent of students achieving a 2:1 or a 1st, compared to 47.50 per cent in the first year pre-review, and 33.80 per cent when the original format was presented.

For the time constrained exam (TCA) that was introduced post-review, there was again a significant improvement in marks [ $t(196)=2.74$ ,  $p<.01$ ] from the first presentation ( $M=65.78$ ,  $SD=15.89$ ) to the second presentation ( $M=71.53$ ,  $SD=13.57$ ). Once again, this occurred despite an increase in the number of questions that students were required to respond to. Overall these data clearly suggest that student performance was improving, and this was supported by inspection of progression rates for the module across the three years, which improved from 72 per cent initially, to 87 per cent in the third year.

**Table 4: Means (SD) for results across the three years.**

	Pre-review	Post-review: Year 1	Post-review: Year 2
CW1 Part research report (N=77)	52.10 (14.92)	N/A	N/A
CW2 Part research report (N=65)	48.63 (16.88)	N/A	N/A
CW3 Full research report (N=76)	49.18 (16.66)	N/A	N/A
CW Full research report	50.39 (21.16)	51.38 (19.34)	52.50 (18.53)
TCA	N/A	65.03 (17.28)	69.04 (18.74)
End of year exam	54.76 (19.21)	55.24 (21.59)	61.71 (21.37)
<b>Overall Mark</b>	<b>51.10 (16.42)</b>	<b>55.76 (19.14)</b>	<b>60.07 (19.02)</b>

Figure 1: Breakdown of the classifications for the exam over the three years.



In addition, two unexpected findings emerged from the data in relation to gender and age differences, where significant main effects were found.

For the report,  $F(1,272)=4.68$ ,  $p<.05$ , females ( $M=53.17$ ,  $SD=18.82$ ) performed better than males ( $M=47.27$ ,  $SD=20.66$ ) in all three years, a pattern that was replicated in the exam,  $F(1,272)=4.31$ ,  $p<.05$ , females ( $M=57.62$ ,  $SD=22.57$ ), males ( $M=50.44$ ,  $SD=24.58$ ). This effect was also found for the overall mark across the three years,  $F(1,272)=5.86$ ,  $p=.016$ , females ( $M=58.00$ ,  $SD=17.79$ ), males ( $M=51.66$ ,  $SD=20.35$ ). However, these gender differences were not observed for the TCA.

When the data were also considered in terms of the age of the students (young – under 21; mature – 21 and over) there was a

clear and significant interaction effect for the exam in relation to gender,  $F(1,272)=4.81$ ,  $p<.05$ . In general, mature female students achieved the best scores, with scores for mature male students consistently lower than for any other group. Although not significant, this pattern of results was also found for the overall marks, but was not seen for the report or the TCA.

## Discussion

The purpose of this study was to evaluate the outcome of amendments to a Research Methods module over the course of three years, following changes in the delivery and assessment regime. In general, the results found that, despite an increase in the difficulty of the assessments, the amendments brought about a significant improvement in



student marks, indicating that they were now being enabled to achieve their full potential, with the overall mark increasing by a whole grade band.

Further analysis of the different assessed elements of the year-long module demonstrated improved performance in each of the constituent parts, a trend most strongly recorded for the end of year exam, where once again the results were raised to a higher grade band. Additional exploration of these findings indicated that the number of students achieving a first-class grade in the exam in the second year post-review increased by 20 per cent from those pre-review. While these findings appear to suggest that the assessment must have been less demanding, this was not the case; it was no longer open-book, but an unseen exam, and, in addition, multiple SPSS output tables were included for interpretation, thus requiring a deeper knowledge of a wide range of analytic tests. A similar, albeit non-significant, finding occurred for the research report.

With multiple changes in delivery and assessment, it is, of course, difficult to be certain exactly which changes had the most profound impact on the improved overall results. They may, in part, be due to the introduction of a new assessment at the end of the first semester, whereby students were able to secure their knowledge of some of the core principles in a multiple choice exam. It is believed that this assessment may not only allow the lecturers to identify any general areas of weakness in student understanding, but also give students a clear, individual indication of aspects within the module that need further attention. The provision of revision materials then allows a timely intervention to take place before the end of year exams are faced. It may also have given encouragement to students by allowing them to see how well they were doing on the module at this interim stage. This finding shows support for Saljo's (1979) hierarchical learning processes, whereby the initial consolidation of basic principles allows later

internalisation to occur. However, once again, despite increasing the difficulty of this assessment by increasing the number of items in the exam, students' performance also improved in the second year of its presentation.

This outcome appears to indicate that the assessment regime itself, and the supporting materials, were not alone sufficient to explain the escalation of results, and some consideration needs to be given to the delivery of the material. In relation to lectures, Germano (2003, p.1) suggests that 'the teacher is a performer... [and] you need performance skills to get your ideas across', and by transferring this idea to smaller group teaching the current research showed support for this sentiment. The authors have found that very interactive teaching sessions, where students are encouraged to ask questions throughout, supported previous research (e.g. Gleason et al., 2011). The initial (and understandable) reticence of students to speak out is soon overcome in these small group workshops as individuals become more comfortable with, and trusting of, the lecturer and each other, soon recognising that no query is too small, and that no query will be ignored by the lecturer. And while some comments may elicit humour, this too is embraced as an additional cognitive modality by which learning can occur: very few students forget the direction of positive and negative distributions once they are aligned to the concept of happy and sad whales!

With the ever-improving access to modern technology, there is also no reason not to incorporate a more entertaining approach to teaching, particularly when the topic may otherwise be deemed to be difficult and dry by students. Indeed, the perception that lectures may be boring has been shown to lead to a decline in attendance (Mann & Robinson, 2009), so the benefits of engaging and motivating students are clearly manifold. In addition to the more user-friendly, colourful, slides and handouts used as teaching tools as outlined earlier (Kolb,

1984; Kumar et al., 2013), the lecturers also attempt to 'paint' a clear and enjoyable picture of what, in reality, are some fairly abstract ideas. The passion and enthusiasm shown by the lecturers for this subject is so important in making it both accessible and appealing to students.

Improvements in overall marks may also be partly attributed to the iterative techniques employed in the delivery of material over the year of learning. For example, in order to ensure that the essential 'building blocks' of research methods are attained, this topic necessarily builds week on week, a process that can appear relentless and daunting to students; missed sessions can leave gaps in students' understanding that are hard to fill. The adopted strategy of revising the key points from the previous week at the onset of each subsequent session not only gives students the opportunity to consolidate their understanding, but also allows them to identify areas that may require a little extra effort. In addition, the information on the slides acts as an important revision tool at the end of the semester/year as it affords an outline summary for each week's material. Feedback from students indicates the value of this technique, and their appreciation for it. Supplementary revision materials that are posted weekly are also appreciated by students and act as key tools in allowing them to get to grips with some challenging concepts.

The findings regarding age and gender were not as might be expected; regardless of the type of assessment, females performed better than males. At first glance, this may not be surprising. There is considerable evidence supporting the consistency of a gender gap at the end of secondary education, with females outperforming males in terms of both raw outcomes and value added outcomes at a national level (Burgess et al., 2004). It is argued that these gender differences may be driven by the degree to which an individual is study-oriented (Van Hutte, 2010) and by the level of self-discipline, with high school girls indicating greater self-disci-

pline on delay of gratification methods, according to self-report, teacher and parent ratings (Duckworth & Seligman, 2006): both of these factors would have great significance in a module which depends on disciplined attendance for success. Nevertheless, it was also evident that whilst mature female students generally achieved the best scores, mature male students achieved consistently lower than for any other group.

While this could be due to the subject area, it will be important in the future to consider the teaching style used, and the possibility that mature male students may need the material to be delivered in a different way (Smith, 2008). Additionally, mature students are not a homogenous set (Baxter & Hatt, 1999, identified two age bands younger matures, 21 to 24 years and older mature, 25+), and there may be many reasons why the results differ from the younger students. For example, Simonite (1997, 2003) found that, in general, mature learners progressed better than younger students in their first and second years on modular programmes, but there is really little research evidence that addresses the issue of different pedagogical approaches in relation to the needs of older students, and this is certainly an area that should be considered in the future.

The changes which were employed in both the delivery of this research methods module and in its assessment were implemented as a result of the recognised challenges of teaching to potentially disinclined, possibly averse, undergraduate psychologists. These changes were made based on theoretical argument and empirical support. Nevertheless, whilst it is believed that the overall improvement in student marks may best be explained by the particular modifications made, one must be alert to potential challenges to those explanations. For example, might the improvement in scores be a simple artefact of practice in the teaching material? Similarly, might the fact that those marking the work were also those with a vested interest in the success of their

project, albeit unknowingly have impacted on their assessment? It seems unlikely. First, both researchers have had a long history of teaching in this subject and, therefore, the impact of practice should have had little effect on their baseline ability to teach the module – differences in teaching style emanating less, then, from personal development and more from the differences that content changes would allow. Second, and with respect to the marking of these assignments and exams, all were rigorously moderated, both internally and externally, thus ensuring consistency of marking across cohorts. In addition, whilst the coursework (research report) is, undeniably to some degrees subjective, 70 per cent of the assessment was through the multiple choice and end of year exams, both of which, as noted previously, were more difficult, and both of which were entirely objective. It seems reasonable to assume, therefore, that the improvements in scores achieved might soundly be attributed to the specified, theory-driven changes in delivery and assessment as discussed.

Students studying psychology can find the content of a Research Methods module and level of engagement required a little unexpected and daunting, but as the results of this study show, with the right support and encouragement students can be motivated to connect with and do well in the topic.

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