Teaching psychological research methods through a pragmatic and programmatic approach

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Research methods teaching in psychology is pivotal in preparing students for the transition from student as learner to independent practitioner. We took an action research approach to re-design, implement and evaluate a module guiding students through a programmatic and pragmatic research cycle. These revisions allow students to experience how diverse psychological methods can be united within a programme of research, whilst working as collaborators. In three sequential studies, researching the same topic, the module integrates qualitative methods with psychometric scale development and finally, hypothesis testing.

The evaluation highlighted that students developed a diverse range of transferable skills, but experienced uncertainty associated with the research process and anxiety attributed to the less definitive guidance provided by staff. Interestingly, the reflection prompted by the evaluation methods facilitated student appreciation of this process and its value in preparing them for their final year project.

TEACHING RESEARCH METHODS to undergraduates is one of the main challenges for educators within a psychology degree (Healey & Jenkins, 2009). For many undergraduate students, the focus on research in psychology is initially unexpected and can lead to so-called 'stats anxiety' and/or disengagement with the degree programme (Onwuegbuzie & Wilson, 2003; Onwuegbuzie, 2004). Despite this, there is great value in mastering research methods for the student, both in terms of doing well in their degree and developing the broadly applicable skills that underpin psychological literacy (Mair, Taylor & Hulme, 2013; Seymour et al., 2004; Stark, 2012).

The aim of the undergraduate psychology research methods provision is to foster autonomous researchers, able to design, articulate and investigate psychological research questions and come to considered conclusions through appropriate data collection and analysis (QAA, 2007). In the UK, on British Psychological Society (BPS) accredited degree courses, the formal research methods modules can be taught at all stages of the three-year degree programme (levels 4, 5 and 6) culminating in a empirical research project at level 6 (BPS, 2013). Therefore, formal research methods teaching is essential preparation for a substantial piece of independent research for the student. Whilst variations exist across psychology departments in the UK (Lewis et al., 2007), a standard way of teaching research methods is through theory based lectures accompanied by empirical practicals: Each practical covers a set of research methods skills and associated analysis through focus on a research question from various areas of psychology. While the skills taught in the practicals build on each other, they are usually taught as independent units within the module each focusing on a different area of psychological research.

Background

Within the School of Psychology at Newcastle University, research methods are taught in each semester at level 4 and 5 in four related but independent modules. Students tend to find these modules challenging, especially when compared to the content-orientated modules within the

degree course. This is often reflected in moderate student satisfaction scores in teaching evaluations.

A number of converging factors (feedback from external examiners, staff changes, revised BPS guidelines) led to a general re-examination and subsequent re-design of the final research methods module in the degree programme. We (the teaching team and authors) took a general action research approach (Norton, 2001) to re-designing and evaluating the process and what follows is our account, a detailed student evaluation and our reflections on this first iteration of the module.

This module is at a pivotal transition for the students, being the last before embarking on their final year research project. In previous modules, students have been introduced to the various methods of the discipline in fairly tightly controlled circumstances that were very much tutor-led. In contrast, the research project that follows in the final year is student-led and demands a high degree of independence from the student. The challenge here is the students' transition from learners of research methods and techniques to practitioners and participants in research. Healey and Jenkins (2009) conceptualise students' engagement with research and inquiry. Following their model, the aim of the re-design of our module was to incorporate the full spectrum of student engagement with research, aiding their transition from passively receiving research content to interacting in research processes and problems.

Our approach

We took a broadly constructivist approach (following Taber, 2011) to this re-design: At this stage in their degree, students are not 'novice learners' when it comes to research methods – having had three modules of formal training. We therefore intended to move away from tutor-led, direct instruction and build in more opportunities for collaborative and peer-led, enquiry-based learning. This was not to say we as tutors would disappear or employ minimal instruction, but

rather to find the happy medium between tutor-guided instruction and discovery learning. Finding this 'sweet spot' is indeed the challenge for many educational situations, however, it is particularly pertinent given the temporal position of this module. Our rationale in revising the module was to simulate a programmatic and pragmatic research situation.

Research in psychology rarely happens in isolated studies (Klahr & Simon, 2001; Proctor & Capaldi, 2001; Randolph-Seng, 2006). Psychological studies tend to occur within a larger programme of research, meaning there are empirical findings that precede and inform given research questions or methods. In order to appreciate how these processes are constructed and linked, students should experience a research cycle or programme. This approach allows the incorporation of a diverse set of methods and a demonstration of how these methods can interrelate. Specifically, we wanted to incorporate qualitative methods into the module to provide practical experience with this form of data and inquiry (Fielden, Goldie & Sillence, 2012) and foster a pragmatic approach to the use of quantiative and qualitaive research methods (Onwuegbouzie & Leech, 2005).

Research is also conducted in groups and is a process of collaborative decision making. We wanted to allow students to work in research teams, debating the issues surrounding the research questions, the methods and the interpretations. At Newcastle, students work in groups from Stage 1 onwards; alongside a mentor who is in their final year (see Rosenkranz, 2012). We utilised these pre-existing groups for this module. Moreover, whilst we as members of staff still have the ultimate responsibility for running the course, we wanted to create an atmosphere of collaboration rather than top-down instruction. Ultimately, our aims for restructuring the module were to create a learning environment that supports the transition to becoming independent researchers by scaffolding real research processes and data.

Implementation
The overall topic of the module fell in the area of cyberpsychology, more specifically relationships on online social media such as Facebook. In the past, this topic has been popular with students as most undergraduates are actively engaged with it. This also supports the aim of our restructuring of the module, as it demonstrates how research can focus on application and behaviours in everyday life.

We started off with a very general research question, namely: 'How do people use Facebook to manage their online and offline relationships?' In the first practical, students were tasked with developing an interview schedule investigating this question. They collected data by individually interviewing a participant and transcribing that data, then pooling the transcripts with their research team members, finally conducting individual thematic analysis (Braun & Clarke, 2006) on the pooled data. The results of this analysis formed the basis for their first assessment.

Based on the results of the qualitative interviews, the students went on to develop a psychometric scale. Here they used the themes from the qualitative analysis as a basis for creating scale items. Each group submitted items, which were then compiled to create a scale that would measure a construct delineating the extent an individual used Facebook to manage their offline relationships. This first draft of a scale was then tested for validation in a sample of undergraduate psychology students. The process of scale construction and validation formed the second assessed research report.

In the final phase, the validated scale was used to investigate a set of hypotheses that were derived from the literature on the psychology of online social network use. Students started by researching the literature and by suggesting appropriate variables to test these hypotheses. The final study was an online questionnaire (using the Qualtrics questionnaire design software – Qualtrics, 2014) incorporating the scale from the previous task and a number of other measures. Students recruited participants online and the responses were aggregated into a large data set. The final report focused on this study.

Evaluation
Our first line of evaluation came through the standard teaching evaluation, administered centrally by the university. This evaluation focuses on student satisfaction so was limited for our purposes. We added a number of open-ended questions to tap into some of the issues that we were concerned with. These data highlighted that the students felt they had gained some valuable research skills through introducing new methods and consolidating existing knowledge. Some students articulated broader skills they had developed over the course of the module such as feeling more proficient at collaboration and communication. However, responses also indicated the students had not necessarily enjoyed the module as much as we had hoped as the module had excessively challenged them. Whilst these data indicated the module had achieved some of its objectives the answers were on the whole short, overly descriptive and lacked any real reflection on the part of the students. The open-ended questions failed to elucidate how the students experienced the module and how their perceptions and understandings of research methods had changed. In order to address this in line with the iterative process of action research we decided to pursue a focus group in order to provide an in-depth exploration. Ethical approval for this research was granted by the Faculty of Medical Science: Ethics Committee of Newcastle University.

The focus group was arranged as an informal event, open to all students on the module. Unfortunately, as the focus groups had to be held in the official examination period, attendance was poor with only four students available (N=4). There were two male and two female students whose average grades for the module suggested a range of

abilities were represented. Refreshments were provided for the attendees and the focus group took place in a quiet room within the School of Psychology at Newcastle. A focus group guide was developed to focus the discussion around three key areas: (1) the programmatic and pragmatic approach of the module; (2) working in mentor groups; and (3) skill development, in particular psychological literacy. The focus group lasted an hour-and-a-half, the discussion was audio recorded and later transcribed verbatim, and analysed using thematic analysis following Braun and Clarke (2006).

Here we outline the themes most relevant to our research aims offering the greatest opportunity for further refinement of the module. They are the development of psychological literacy and the students' changing perceptions of psychological research.

Development of psychological literacy
To further the responses from the teaching evaluation questionnaire, the focus group explored the broader skills developed across the module. Of particular interest was how the students had experienced working in their mentor groups. The students described this experience primarily in terms of the broader skills they had developed. Whilst some of the students had enjoyed working in their mentor groups, others experienced problems with unequal contributions from group members. Despite these conflicts, and in some instances due to them, students felt they had a realistic experience of working in a collaborative environment. They felt they were better prepared for *'delegating group roles, and dealing with conflicts' (P3)* that arose and reaching decisions within their groups. The students described different approaches they had taken to dealing with the situations that had arisen in their groups and were also able to identify strategies that they would use in the future when working in groups, *'I would probably have spoken more, like hey guys you're not putting in the work, please do it, if not*

then leave. I myself didn't have the courage to say that… we should've changed something but we didn't…' (P1)* They also explained their awareness of research as a collaborative exercise, which they had been less aware of previously.

The requirement to evaluate research, analyse data and interpret results in order to write their research reports, meant students came to understand the importance of reaching evidence-based conclusions. They were able to appreciate the broader implications for their general writing and argument development skills and the importance of being able to justify their conclusions appropriately, *'there is different evidence for different explanations… but it takes confidence to make those judgements and it takes confidence to say 'I believe this and is what the evidence tells me''(P2).*

Finally, the students expressed they had been aware of the different role staff had in this module in comparison to their experience of earlier modules. Whilst they were at times frustrated by the change in communication, they saw how this facilitated their growing independence. They had gained an appreciation that in order to reach decisions in a collaborative context the possible outcomes needed to be thought about and discussed and that staff were there to assist in that process, *'and also how to discuss with staff. I think this module has been very good with that because normally in a normal module the lecturer lectures you and then you go out and you do your reading. Whereas here… you work on it together sometimes… Being able to work with them is one skill' (P1).* What the students perceived as particularly useful was this module was good preparation for what they would experience in their third year whilst completing their final year project, *'it doesn't seem like this big massive scary thing third year project is more like oh it's interesting to see what I can do with it' (P4).*

Changing perceptions of psychological research
On starting the module students' expectations were derived from their previous experience of research methods modules, rather

than what they were told the current module would entail indicating an issue with communicating these aims effectively to the students. They explained previous research methods modules had used data sets for practical sessions where the outcome of the analysis was already known by the staff. Even when students generated their own data, these data were collected in relation to a well-established psychological phenomenon and thus again the outcome of the analysis was already known, *'there was difference between that kind of data and data we're doing in this last one in the sense that the effect already existed you kinda knew… whereas with this one, the data really was… it was collected data, we had no idea…' (P3).*

The message students had from these types of practical sessions was staff had all of the answers, as they knew how the data would behave, staff were in a position to be prepared to deal with student questions, reducing the need for student decision making. To some extent this had given the students the impression that, in terms of analysing data, there was always one right way of doing things *'…and I think that leads to the perception of stage 1 and stage 2… in stage 1, you think that our demonstrators know exactly what they are going to do, they know the results we're going to get, they know the answers, they have the truth…' (P1).*

In addition to this, the students highlighted, in terms of report writing, focus had been placed on formatting and style and less on content and decision-making. *'If you'd asked us in the first year it would have been because we were told to. But if we were asked but why is it in here I would've been like, mmm I don't know' (P4).* The students felt comfortable with this approach, and whilst they expected to become more autonomous over the degree, they still anticipated staff being able to give them definite on-the-spot answers, *'it felt frustrating. Not knowing the right wrong or answer' (P1).*

Over the course of the module the students realised there was less handholding as they were expected to make decisions

independently, supported by the staff, rather than instructed by them, *'it definitely felt as if you weren't holding our hands as much as in first term and last year… you are trying to force us to think on our own' (P3).* They described how they found this situation unnerving, particularly when staff didn't appear to know the answer immediately, *'because people as well thought that you had the answers so then when we were asking, getting I don't know… well if you don't know why am I doing it, cause I don't know, so what's the point' (P1).* They were not familiar with the possibility that when it came to analysing data and writing reports, there were more than one way of doing things and liked to feel certain that they were making the correct choices, *'it is quite daunting to be honest to have to be doing it a lot more myself but that's life isn't it really, you have to do that' (P2).*

They explained whilst they were aware they were involved in developing research questions, selecting scale items and deciding on appropriate hypotheses they hadn't initially realised that this meant the phenomenon under investigation was not *'tried and tested' (P4)* and, therefore, staff didn't necessarily have an answer to hand immediately for all of their questions and queries. The students expressed they had found this particularly difficult and this feeling of uncertainty had permeated much of their time on the module, *'it would have been nice for you to maybe explicitly say, now we don't have the absolute truth, we're here with you to try and find out… that would have made me more comfortable … if they're (the staff) not sure then how can I be sure' (P1).*

What was particularly interesting was that over the course of the focus group the students were able to reflect on their experience of the module, this enabled them to consider how they now viewed psychological research. They explained they were aware research was less definitive than they had previously thought, and whilst they had struggled with this over the course of the module the realisation they were capable of making decisions had led to a sense of

empowerment, *'we could decide ourselves what graph to put in, what to exclude, that was really good because then I was like well this is actually what I am going to do next year' (P1)*. Understanding there are multiple means of investigation and realising the importance of appropriately justifying their decisions was seen as an important step in their journey as researchers. In particular, the students realised the need to really understand a particular concept or theory in order to make such justifications, *'I think it was good we were asked to justify why we put certain things in, beforehand we'd never thought about why we actually included it' (P4)*. This lead them to feel they had a truer appreciation of real research by the end of the module and they felt prepared to undertake their final year project where their independence would be expected and assessed. Importantly the students realised whilst during the module they had at times felt uncertain and uncomfortable, ultimately this would benefit them in the future, *'I'm not sure you want to take away all the negativity… if it was all plain sailing and I knew immediately what to do I think in your third year, like if I came over a hiccup I would then be panicking, having gone through it now I'd be able to approach it differently in third year with a bit more ease, be a bit more calm about it' (P3)*.

Summary
The focus group data identified students had struggled with, but through reflection come to understand, the 'uncertainty' of research. They had found this challenging and at times disconcerting but appreciated that it is uncertainty that drives research. They were, at the end of the module aware of the need to make research decisions for themselves and be able to justify them, but they did need staff to provide reassurance that they had made appropriate and well-justified choices. However, the analysis also revealed a need to improve communication between staff and students in order reduce the discomfort associated with feelings of uncertainty.

Reflections, lessons learned and next steps
The focus group discussion revealed a seeming tension between our perceptions and that of our students on the nature of research. This tension seem to focus primarily on the 'uncertainty' produced within the research process: the students felt uncomfortable with this uncertainty to the extent of being dissatisfied with the module because in some situations, they were not provided with definitive answers from the tutors, or even from the results of research itself (the nature of research often opening up more questions). Yet from our perspective, it is exactly this uncertainty that is motivation for conducting research; curiosity about a psychological phenomenon and 'not knowing' an answer, therefore, wanting to find out. Being able to manage this uncertainty, to find solutions and make decision about research methods under uncertain conditions (i.e. the outcome) is an important part of becoming an independent researcher and graduate. There is ample evidence in the focus group that the students do realise the value of this and how this approach to research methods training can prepare them for the experience of the final year project. They felt strongly, however, that we needed to communicate this process better to them and be more explicit about it.

This posed as dilemma for us as we felt that we had done a lot throughout each stage of the module to explicitly encourage the students to think for themselves, to discuss and weigh evidence and methods in their groups and to move away from relying on 'top down' instruction and answers to any research issues. The whole rational of our module is based on this: we don't want to provide 'prefab' answers and solutions, but support our students making their own decisions on research issues.

On reflection, however, we were relying on exactly these communication forms (i.e. lecture instruction) to tell our students our intentions of making them work more independently and then need to deal with uncer-

tainty. This message, of course, doesn't work and is counterproductive. After all, you can't instruct someone to think for themselves.

Fortunately, our process of action research and the conversation in our focus group has provide us with a model of how this communication can work productively: while there were tension revealed in the group, by the end we felt that the students had a chance to reflect on the module in way that allowed them to see the nature of research in a slightly different light and to appreciate both our intentions as educators, as well as the benefits of going through this process of uncertainty. The discursive and reflective nature of a focus group setting combined with the prompts of our questions scaffolded exactly the kind of insight we wanted to achieve in the module.

This process would be something worthwhile building into our module in the next iteration to further our aims of supporting the transition to independent researchers. While it is impractical to have a focus group with a full cohort of students, we already have the group infrastructure in place to build in some reflective sessions into our curriculum. While these ideas are still in development, one potential way of doing this would be to assign members of staff and demonstrators to each group. These would act as 'facilitators' in a number of reflective discussions at pivotal points of the module in which impressions and experiences can be shared and discussed. This process of reflection may address the perceived lack of communication and help provide a further opportunity for the students to gain insight into the research process.

In summary then, this first iteration of our re-designed module was broadly successful in that we were able to take a step toward creating a learning environment that would support the transition to fully aware and independent researchers. In future iterations we will attempt to harness the reflexivity encouraged in the action research process to further improve the module and to help our students on their path to becoming independent researchers.

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