

Postgraduate students learning about research: Exploring the attitudes of social work and mental health students in an English university setting

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Abstract: Initial findings from a pedagogic initiative and research project show how two cohorts comprising 105 postgraduates undertaking social work or mental health educational programmes responded to learning about research methods in one UK university. Few studies have looked specifically at postgraduate students' attitudes towards research / research methods. Previous research suggests students may express anxiety when learning about research, particularly quantitative methods. Using an existing validated rating scale with 5 subscales (Papanastasiou, 2005), we explored students' attitudes before and after taking a research module and possible significance of gender, professional group and being college or employment based. Project data was used by students to complete a quantitative module assignment. Results showed these students had a 'positive' attitude towards research pre-module; this was generally maintained but did not increase post-module. Students were rated as having overall research 'anxiety' pre-module; this lessened post-module although the change was not statistically significant. A significant change (decrease) in 'usefulness to career' subscale was recorded post-module. We consider factors that could have impacted on these research findings such as reduced follow up sample sizes, but report how combining a pedagogic initiative with a research project offers opportunities to explore this complex area, with positive outcomes for student learning.

Keywords: postgraduates; measuring attitudes to research; research methods teaching; quantitative methods; social work students; mental health students

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Introduction

Few studies have looked specifically at postgraduate students' attitudes towards research and learning about research methods (see, for example, Green et al, 2001; Mahmud & Zainol, 2008). Complex issues relate to any examination of students' attitudes towards research, especially for those undertaking professional programmes (such as social work or mental health), prompting questions such as:

- What is the significance of the kinds of research methods students are being taught; how do these influence students' attitudes towards research?
- How is 'evidence based practice' being promoted to students and what is the connection between this concept and research methods training?

In this paper we discuss a pedagogic initiative and research project we devised to explore (since 2007), how postgraduates undertaking social work or mental health educational programmes in one UK university responded to learning about research and research methods.

We have made use of an existing validated rating scale, for which we acknowledge with thanks the support of its author E. Papanastasiou (Papanastasiou, 2005). This scale with its 5 subscales was relevant to our work although originally developed for use with undergraduate students.

Literature review: Students' attitudes towards research and learning about research

It is consistently reported that students express anxiety when learning about research, particularly quantitative methods (Ballou, 2002; Bessant, 1992; DeCesare, 2007; Mahmud & Zainol, 2008; Mills, 2004; Morgenshtern et al, 2011; Waters et al, 1988; Zeidner, 1991). There are suggestions that students report the subject to be 'inherently uninteresting and difficult' (Bridges et al, 1998, p.14). Increasing concerns are being expressed in the UK and internationally that skills in quantitative methods including statistical analysis are becoming rarer (see, for example, House of Commons Select Committee on Science and Technology, 2004). Students (especially those in social sciences) may view research-related courses negatively, particularly relating to quantitative research, statistics and mathematics (for example, Murtonen, 2005, 2008; Paxton, 2006; Williams et al 2008) and this may extend to use of mixed methodologies (for example Earley 2007; Hoyles et al, 2005; Tashakkori & Teddlie, 2003). Some studies have considered gender issues in relation to achievements in maths/statistics (Holley et al, 2007; Schram, 1996) whilst others have suggested that 'research reluctance' has been exaggerated in some student groups including student

social workers (Secret, Ford & Rompf, 2003). Morgenshtern et al, 2011 however report that 62% of the social work masters students in their study reported a high degree of anxiety about their abilities in research.

Students' negative attitudes have been found to serve as obstacles to learning, associated with poor performance in such courses (for example Rosenthal & Wilson, 1992). Causal models would suggest that attitudes are mediators between past performance and future achievement. However, relatively few studies have looked at student acquisition of research methods knowledge and skills, especially in relation to quantitative methods.

Bridge et al (1998) demonstrated through a quasi-experimental study of US undergraduate sociology students that 'students' abilities to interpret and manipulate empirical [quantitative] data increased significantly' (p.14) following a course on quantitative research methods and that this occurred independently of 'students' basic reasoning skills as measured by baseline SAT verbal and math scores' (p.14). Secret, Ford & Rompf (2003) however report from their study of US undergraduate social workers that there was no relationship between students' statistical knowledge and how appealing they found research to be.

Williams et al (2008) surveyed 738 UK undergraduate sociology students in 2006 and showed specific kinds of quantitative methods were perceived to be more difficult, particularly when these required greater underpinning statistical knowledge: furthermore 'the more 'difficult' [statistical] techniques are studied by fewer students' (Williams et al, p.1014). Williams et al suggest that typically students may be more interested in using qualitative techniques for their own research work and this may be reinforced by what [undergraduate] students are taught in research methods courses. It is acknowledged that there may be additional issues to consider for postgraduate students.

Murtonen (2005) suggests from research that some students had a dichotic attitude towards quantitative and qualitative methodologies, seeming to 'choose their side' between these approaches. This study suggested a reduction in difficulties experienced with learning about quantitative methods was connected with a lowered over-appreciation of qualitative methods at the end of the course. Goguen, Knight & Tiberius (2008) also report that medical trainees and physicians showed preference for 'quantitative' research and considered this form of enquiry to be 'more scientific'; this was associated with lack of knowledge and experience of qualitative research.

Within qualifying level and post-qualifying professional programmes such as social work these methodological issues become even more significant, as professional practitioners are being urged to locate their practice within 'evidence-based' approaches. There is a continuing debate about the meaning of 'evidence based' practice and the extent to which this (necessarily) relies on 'positivist' research approaches using quantitative methods (Green, 2006; Morgenshtern et al, 2011; Webb, 2001). Webb (2001) for example suggests confidently that 'social work should abandon mechanistic approaches, such as evidential practice and those characteristic

of experimental and behavioural research' (Webb, p.76). Green (2006) suggests that social work has sometimes been viewed as 'anti-intellectual' and with a poor academic status and that this is partly due to a reluctance to embrace positivist approaches to research and research evidence.

Another study (Caldwell, Coleman, Copp, Bell, & Ghazi, 2007) researched the impact of student learning about specific critical appraisal skills for 'evidence based practice' during research methods training and the implications for future practice and research minded-ness. This survey of recently qualified professionals (including social workers and nurses) who had taken programmes in London universities showed respondents were positive about 'evidence based practice' and most had developed skills in critical appraisal of research literature during their professional education. However, once in employment few had the opportunity or time to read and evaluate research evidence on which to base their current practice. This paper however leaves open the question of what kind(s) of research evidence practitioners would be reading or basing their practice upon. Harrison, Lowery & Bailey (1991) in a pre – post test study of nursing undergraduates reported that students' attitudes towards research were more positive following a research methods course, yet their knowledge levels remained unchanged.

Other studies involving social work students have often focused on issues such as anxiety about maths or statistics, sometimes in relation to gender issues (e.g. Glisson & Fischer, 1987; Green et al, 2001; Lawson & Berleman, 1982; Lorenz, 2003; Montcalm, 1999; Morgenshtern et al, 2011; Nelson, 1983; Royse & Rompf, 1992; Secret, Ford & Rompf, 2003; Taylor, 1990; Unrau and Grinnell, 2005). International studies have also considered the significance of views expressed by social work programme staff (Lazar, 1991; Poulin, 1989; Ramachandran & De Sousa, 1985). In Lazar's Israeli study, students' attitudes towards research were shown to be more positive compared to staff views about their own students' attitudes.

Morgenshtern et al, 2011, in a recent study of Canadian social work masters students, report that during a 9 week mandatory data analysis course, students were more positive about the *value* of research, but less so about *learning about or conducting* research. This study used a similar methodology to our own project (self report ATR scale (Papanastasiou, 2005) with responses from 102 students, augmented by written qualitative responses from 77 of these respondents. Morgenshtern et al, (2011) report that their findings do not suggest any 'systemic' difficulty in relating research to the social work profession itself, but that students' apprehension about research seemed to be in relation to their own perceived abilities /lack of abilities.

From this brief background discussion we can see that few studies have looked specifically at postgraduate students' attitudes and that complex issues relate to any examination of students' attitudes towards research and research methods, especially those undertaking professional programmes.

Project methodology

Beginning in the 2007/8 academic year we have gathered and analysed data about postgraduate student attitudes towards 'research' & learning about research. We focused initially on a purposive and convenience sample of first year MA social work students, who were taking a new, revised Research Methods module for the first time in 2007/8. This year-long (two semester) module covers all aspects of research methods, both qualitative and quantitative. They were subsequently joined in class by a smaller group of MSc Dual Diagnosis (Mental health) students in 2008/9 and also by MSc Mental Health students in 2011. As part of formal module assessment, it was decided students would carry out a short assignment based on quantitative research methods in addition to preparing a critical appraisal paper and a research proposal.

We identified an existing validated rating scale (the Attitudes Toward Research scale - ATR), (Papanastasiou, 2005). This scale was relevant to our work since it asked about attitudes towards research, although it was originally developed for use with undergraduate students. The ATR consists of a 32-item (positively or negatively worded) measure using a 7-point Likert scale, originally developed at the University of Cyprus (Papanastasiou, 2005). For data analyses, negatively worded items are reversed so that a higher numbered response on the Likert scale represents positive attitudes. Whilst providing an overall attitude score, the instrument provides scores on five sub-scales (research usefulness for profession; research anxiety; positive attitude towards research; relevance to life; and research difficulty). Papanastasiou (2005) reports high reliability for the ATR ($r=0.948$) and the coefficient alpha reliabilities for the responses to items on each of the five subscales were also relatively high. We have not attempted to test the scale further except by exploring its use in our research practice. Students have reacted favourably whilst also commenting on the (sometimes ambiguous) use of the term 'research' on the scale itself. This however also allows them to reflect on what 'research' means.

Since we aimed to combine a research project with pedagogic aims in assessing student achievement in handling quantitative data, our methods involved asking all students in each cohort to complete the ATR in class at the start of the module, subsequently using the statistical data gathered from that cohort in their assessment exercise, using SPSS. This also helped to give students a sense of ownership over the data. We extended the project into a before / after, pre-post test design by asking the same students to voluntarily complete another ATR at the end of their research methods module; for this voluntary aspect of the project we obtained ethics approval from the health ethics committee in our University school. Students were asked to write a 'self-identifier' code on their questionnaire(s), comprising the first three letters of their mother's name with their year of birth. This enabled 'before' and 'after' questionnaires to be matched without revealing the name of the student to their tutors.

This approach allowed us to identify the following research questions:

- What were these postgraduate students' attitudes towards 'research', as measured by the ATR, prior to taking the research methods module?
- Did students' attitudes vary according to other key variables? (gender, age, type of study – college based or employment based, their professional programme (social work or mental health))
- What were postgraduate student volunteers' attitudes towards 'research' *after* taking the research methods module? Had these attitudes changed from those expressed initially?
- Did students' attitudes vary according to other key variables? (gender, age, type of study – college based or employment based, their professional programme (social work or mental health))
- What were student volunteers' experiences of learning about research and research methods, and how may these have influenced ideas about future career or academic study?

In 2007 our department was part of a Centre of Excellence in Mental Health & Social Work (CETL) and we obtained support from the CETL Pedagogic Research group, including a small grant enabling us to produce a report. We originally planned to hold focus groups post-module (addressing the final research question, above) but have as yet not achieved this aim.

Project results

The project is ongoing and so far we have gathered data from 5 cohorts of over 250 students in total (2007 – 2011). This has produced a considerable amount of statistical data and related material, for example relating to student assessment. We produced a project report in 2010 based on findings from the first two student cohorts, and the results presented here focus on these cohorts.

Overall response rate and profile of students

A total of 105 from a possible 113 students in cohorts 1 & 2 (93%) participated in the study (43 social work students in cohort 1, and 61 (including 10 Dual Diagnosis students) in cohort 2). Eight missing students were absent from college on the data collection day rather than refusing to participate. Most participants were MA Social Work students (90%), female (73%), holding a first degree (74%), and with 60% reporting some direct field research experience (for example undergraduate or postgraduate dissertation). Although all were pre-qualification social work students carrying out work placements for 3 days per week during terms, 45% of these

students were otherwise college based, whilst 45% were seconded to the programme by employers. The remaining 10% of the sample were MSc 'Dual diagnosis' students, qualified health or social care professionals making up a small sub-set of the 2008/9 cohort, who were either self funding or being sponsored by their employer.

Given that the profile of the two cohorts was different, Dual Diagnosis programme students being included with social workers in cohort 2, we have analysed attitudes both pre and post module in this paper by cohort rather than as one large group.

Cohort 1 (07/08 Intake). Social work students only

Baseline

The mean score for overall attitude to research prior to undertaking the module for the 07/08 cohort was 4.37 (SD 0.662). Profiles for each sub scale were also explored and mean scores determined. The higher the score (maximum 7), the more positive the attitude held by the student group, with a mean score of 4 being considered 'neutral'. As a group, these social work students thus held an overall 'positive' attitude towards research, and more specifically considered research to be useful in their professional (research usefulness mean score = 5.36), and personal lives (relevance to life mean score = 4.46). The mean score for research anxiety was however less positive at 3.46.

No significant difference was found at baseline on attitude scores between male and female students' ($t = -.693$, $df 40$, $p = 0.49$), however, students who had previously undertaken research ($t=-2.58$, $df 40$, $p = 0.01$), and had also previous experience of studying at post graduate level ($t=2.68$, $df 40$, $p = 0.01$) reported significantly more positive total research attitudes.

Follow up

Nineteen cohort 1 students (44%) completed the ATR scale after finishing the module. The mean score for overall attitude to research at follow up was 4.10 (SD 0.861). Profiles for each sub scale were also explored at follow up and mean scores compared with pre module scores. Although the overall research attitude score can be seen to reduce in positivity from 4.37, no statistically significant difference was found between students' pre test and post test scores ($t=1.31$, $df 16$, $p = 0.21$). When pre and post test scores across the five subscales were explored, three (research usefulness; positive attitude; and relevance to life) reduced in positivity, although these change scores were not statistically significant. Conversely, students' attitudes moved marginally (but again not statistically significantly) in a positive direction in the research anxiety and research difficulty subscales.

Cohort 2 (08/09 Intake). Social work plus dual diagnosis (mental health) students

Baseline

The mean score for overall attitudes to research prior to taking the module (at baseline) for the 08/09 cohort was 4.3 (SD 0.737). Profiles for each sub scale were also explored and mean scores determined. Similarly to the 07/08 cohort, students indicated that they had an overall positive attitude towards research, and considered research to be useful in their professional (research usefulness), and personal lives (relevance to life). Contrary to findings from the first cohort, male students in the 08/09 intake had a significantly more positive attitude towards research than the female students ($t = 2.73$, $df = 60$, $p = 0.00$). However, the first and second cohort showed no significant difference at baseline on total attitude score between students who had previously undertaken research ($t = -0.815$, $df = 58$, $p = 0.42$), or who had previous experience of studying at post graduate level ($t = 0.218$, $df = 56$, $p = 0.78$) (See Table 1, Cohorts 1 and 2 compared at baseline).

Follow up

Table 1

Mean Scores for Total Attitude and Subscales for both Cohorts at baseline and follow-up

Mean scores	2007- 2008 student cohort		2008- 2009 student cohort	
	N = 43 Pre-	N = 19 Post-	N = 61 Pre -	N = 34 Post -
Overall Research Attitude	4.37 (SD 0.662)	4.10 (SD 0.861)	4.30 (SD 0.737)	3.95 (SD 1.05)
<i>Subscales:</i>				
Difficulty of research	3.98	4.03	4.08	3.90
Relevance to life	4.46	4.05	4.34	4.20
Positive attitude to research	4.27	3.91	4.09	3.58
Research anxiety	3.46	3.51	3.32	3.45
Research usefulness	5.36	4.85	5.41	4.72

Thirty four students (55%) from cohort 2 completed the ATR scale after the module. The mean score for overall attitude to research at follow up was 3.95 (SD 1.05). Profiles for each post- subscale were also explored and mean scores compared with pre module scores. Although overall attitude reduced in positivity, no statistically significant difference was found between students' pre test and post test scores ($t = 1.98$, $df = 31$, $p = 0.06$). When pre and post test change scores across the five domains were explored, differences between mean scores for four

of the domains were not significant. However, the change score for the domain measuring 'research usefulness' (that is, to career) indicated that students' attitudes (albeit still positive) were less positive following the module (mean score pre-module = 5.41; post-module = 4.72) ($t= 3.053$, $df= 33$, $p= 0.00$). But similarly to the first cohort, students' attitudes moved marginally (although not statistically significantly) in a positive direction in terms of research anxiety (mean score pre-module = 3.32; post-module = 3.45)

Discussion

We have explored a number of questions associated with postgraduate student attitudes towards learning about research. By introducing a new, quantitative component to the module assessment we also aimed to test our students' ability to learn about statistical data analysis and to report the use of T tests and other statistical research methods. This study also enabled us to research and assess whether volunteers from within these student cohorts had changed their attitudes towards research since baseline testing.

There were very few changes in attitudes to research (ATR) scores in the overall samples of students in cohorts 1 and 2 post- module. This may have resulted partly from small sample size(s) at follow up. We are working on combining more recent data from different cohorts in order to obtain a broader picture. The larger number of male students in cohort 2 (2008/9) including some Dual Diagnosis students allowed us to hypothesize that total research attitude score may be different for male & female students: an independent samples T test done with that cohort showed the hypothesis that gender will influence overall research attitude is supported (T value =2.922. (60 degrees of freedom). 95% CI is 5.38: 28.78. There is a significant difference between the two groups. [$P\leq 0.005$]).

As noted above, the only statistically significant finding regarding changed scores between pre and post measures related to 'research usefulness' (that is, to career). Although not a statistically significant finding, it is also worth noting that students' attitudes related to the domains 'research difficulty' and 'research anxiety' increased marginally in a positive direction for both cohorts with respect to the former, and for cohort 2 in the latter domain.

There is some pedagogic evidence from this study that social work students in Cohort 2 appear to have gained better grades in the quantitative exercise assessment compared to the grades for Cohort 1. Although it is difficult to infer too much from this finding, it will be interesting to compare this with assessment results for subsequent cohorts. Without any 'focus group' data enabling us to explore these issues in more depth, interpretation must be guarded. We know that many students already had a positive attitude towards research when tested at baseline. This mirrors work by

Secret, Ford & Rompf (2003) and by Morgenshtern et al, (2011), suggesting that students' attitudes towards learning about research are complex but not necessarily negative. Roysse & Rompf (1992) also reported greater 'math anxiety' amongst a sample of US undergraduate social work students compared to those from other disciplines. Morgenshtern et al, (2011) followed their use of the ATR scale with a qualitative element by asking students to contribute written answers to at least one of five open-ended questions devised by students and staff. This yielded useful data from 77 students (64% of survey sample) that helped to explain students' attitudes in more detail.

Our project has suggested gender (in Cohort 2), level of education and previous research experience (in Cohort 1) can influence students' attitudes to research. These trends have been noted in other research (e.g. Secret, Ford & Rompf (2003)). However we are aware that the profile of students in each cohort was different, with the introduction of post-qualification MSc Dual Diagnosis students into Cohort 2 coming from various professions including nursing; there was also a higher proportion of male students studying dual diagnosis. This raises issues about the significance of gender to students' confidence in their research abilities in relation to other factors, which were already mentioned in research literature (although some previous research has only focused on students' attitudes towards qualitative methods e.g. Holley et al, 2006).

Although both cohorts' overall attitudes towards research seemed a little less positive after taking the research module, mean scores at follow up were encouraging because they remained above the median score or neutral point on the ATR. The only statistically significant finding regarding change scores was associated with 'research usefulness' (that is, to career) where students' attitudes (albeit still positive) were less positive following the module. Research such as that by Harrison, Lowery & Bailey (1991) however suggests students can become more positive about research following a methods course. There could be several explanations for this finding. Did our reduced follow up sample mainly consist of students with a more negative attitude towards research? Did reduced follow up response rates (44% and 55% respectively) minimize any pre-post effects? Perhaps some students had been 'over confident' and when exposed to the quantitative aspects of the module, was this confidence reduced? Did the teaching style of the different parts of the module not suit some students?

Although not statistically significant, it is worth noting the trend that cohort 1 student 'research difficulty' and 'research anxiety' scores increased marginally in a positive direction, and as did 'research anxiety' for cohort 2 students'. These findings are encouraging, and offer partial support for focusing on the development of quantitative methods skills in an effort to address areas recognized to cause some difficulty (Bridge et al, 1998; Williams et al, 2008) or to act as 'barriers' to learning' (e.g. Roysse & Rompf, 1992; Secret, Ford & Rompf, 2003).

From a pedagogic perspective, our results appear to show that by the end of

cohort 2 in terms of absolute numbers more students were obtaining their highest assessment grade in quantitative assignments compared to students' achievements in cohort 1; also that in cohort 2 there were more students obtaining a 'merit' grade for the quantitative exercises than in cohort 1. What are we to make of these results (which require further analysis)? They may seem inconsistent with other results that suggest a reduction in positive attitudes towards research; but we should also remember that Secret, Ford & Rompf (2003) reported no necessary correlation between undergraduate social work students' statistical knowledge and the appeal research had for those students (p.415).

Another factor which may be relevant here is expectations and attitudes of module tutors in our own study. As reported by Lazar (1991), staff attitudes may be an important factor to consider when examining student attitudes, and competence in research; these may differ considerably from students' attitudes. It may be that by the time staff involved in our study taught the second student cohort (in 08/09) their experience of delivering the quantitative element of the module had raised expectations and as a result the level of student achievement increased. Alternatively this particular cohort of students may already have had competence in quantitative skills which is what is reflected in assessment results.

Conclusions

In this paper we have discussed a pedagogic initiative and research project devised to explore how several cohorts of postgraduate students undertaking social work or mental health educational programmes in one UK university have responded to learning about research and research methods, using a pre-validated scale (the ATR - Papanastasiou, 2005). This project is based on relatively small samples of students and whilst we have attempted to introduce a longitudinal element by including several cohorts undertaking the same module since 2007, we cannot claim at this stage to generalize our results much beyond our own postgraduate students. The changing nature of the student group focused on in this project, coupled with potentially changing staff expectations may, we realize, have impacted considerably on our results. In order to obtain ethics approval the completion of follow up questionnaires post- module was voluntary, so our follow up samples were not as large as we had hoped. We have also been unable to hold focus groups to date but hope that this can be arranged as the project continues; this will introduce a qualitative element to our inquiry. Nevertheless we consider that by using a pre-validated scale, we have begun to provide some useful data and to raise key questions about the significance of the kinds of research methods students are being taught. More broadly our study may begin to shed some light on links between the promotion of 'evidence based practice' to students on professional programmes and research methods teaching.

Combining a pedagogic exercise with an exploration of students' attitudes towards research has offered opportunities to explore this complex area in more depth and with positive outcomes for student learning about research.

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