Developing self efficacy in research skills: becoming research-minded.

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We confirm this paper has not been submitted or published elsewhere.

Introduction

The OSWE project's aims to promote research capacity and develop outcome measures in social work education mirror the capacity and capability building ambitions articulated in the JUCSWEC research strategy (2006) and resonate with concerns about the limited research mindedness and competence of practitioners and social work students. This situation is not unique to the UK. A study from Canada (Unrau and Beck, 2004, p. 188) captures these concerns:

> While professional and academic expectations are that students integrate research into their practice frameworks…it is not at all clear to what degree students….are learning research skills. Furthermore, studies consistently show that social work students do not exercise research knowledge and skills in their early years of entering the profession.

Further synergies between the project discussed within this chapter and the intent to build research capacity in social work were created by focusing on the development of self-efficacy in research skills of social work students at Bournemouth University. This concern for research capacity and capability enhancement, or 'collaborative capacity building' (Burgess and Carpenter, 2008, p. 909), was reflected in the local project through the active collaboration between an established and an emerging researcher. This chapter describes the use of research self-efficacy as a tool to evaluate and promote student learning, through self-assessment and lecturer-assessment. We suggest ways in which the approach can be used to plan, predict and assist future learning.

The project rationale arose from the desire to increase and enhance research capacity and awareness in social work students. The underpinning premise is summarised by Holden: "when a social worker…has greater confidence regarding his or her research abilities he/she will feel more empowered as a social worker" (Holden et al., 1999, p. 465). This is because high self-efficacy ratings in research are consistently predictive of future confident and successful research behaviour in social workers in the USA (Holden et al., 1999). This confidence in being able to

engage with research will enable practitioners to develop practice based on competent reading of research and contribute to the enhancement of the profession and its research base.

The research question
The OSWE project sites used an adaptation of the Kirkpatrick (1967) and Barr (2000) model (see Carpenter, 2005, p. 6) to consider the levels of outcomes measures being attempted in the site projects. This particular project fits with Level 2a, the *modification in attitudes and perceptions* and with Level 2b, the *acquisition of knowledge and skills* of this model. Concerns relating to a lack of research mindedness and capability led us to ask 'does student confidence in understanding research terminology and completing specific research tasks increase after participation in a module on using research in social work practice?' The module aimed to develop research aware and competent practitioners for the future using the following definition of research mindedness:

> a faculty for critical reflection informed by knowledge and research; an ability to use research to inform practice which counters unfair discrimination, racism, poverty, disadvantage and injustice, consistent with core social work values; an understanding of the process of research and the use of research to theorise from practice
> (Centre for Human Services Technology 2005)

The research team
The project research team initially consisted of a lead, a mentor and a member of the Bournemouth University service users' and carers' forum. The lead researcher (Anne Quinney), new to this methodology, was mentored by an experienced academic familiar with the theory and methodology (Jonathan Parker).This approach reflects the capacity and capability building aims of the OSWE project as a whole. Holden whose work on 'self-efficacy' in social work education underpins the project (see Holden et al., 2007), provided initial guidance on the RSE scales through personal communication with Jonathan Parker.

Unfortunately, the involvement of the service user and carer forum member was not sustained throughout the three-year project because of shortage of time and competing priorities. To compensate for this, to some degree, an increased emphasis was placed on drawing students' attention to the importance of participative research methods and considering the potential impact on service users and carers in the research studies that students were required to identify and evaluate. This provided important meta-learning for students and was in accord with a clear value base for social work research (JUC SWEC, 2006)

Self-efficacy and its application to social work education

The concept of self-efficacy used in this project derives from Bandura's (1997) social cognition theory. This provides an understanding of the interactions between environment, behaviour and the person in forming individual expectations. Bandura argues that whilst a person may know what actions need to be undertaken in order to

execute a particular task successfully (outcome expectations), there needs to be an element of belief or confidence in one's ability to perform those actions in order to achieve effective completion (efficacy expectations). This has important connotations for student's learning, performance and motivation. For instance, a student who has read widely and assimilates knowledge concerning qualitative research methods may articulate this well in the classroom and may indeed be at an advantage to someone who has not undertaken such prior study. However, if the student does not have a strong self-belief that she is able to read and critically appraise a piece of qualitative research or execute the actions necessary to develop a qualitative research proposal, she is not likely to succeed in applying that knowledge.

Of course, it is important to remember that confidence alone is not enough. The individual must have the core skills and knowledge to complete a specific task. However, the theory posits that people with high self-efficacy beliefs are more likely to persist in the face of challenge and failure and therefore more likely to succeed. In respect of research self-efficacy, the more confident a student is, the more likely they are to succeed; the less confident they are, the more likely they are to need greater assistance. This suggests self-efficacy may provide a valuable predictive model for student learning and achievement.

There is a growing body of literature from both the UK and North America which explores methods for students to evaluate their own self efficacy skills, particularly in the area of practice learning in the UK (Parker 2005; 2006) and in research skills in North America (Unrau and Grinnell, 2005 and Holden et al., 2007) which build on the earlier work of Holden and colleagues (1999). The studies have provided evidence for increases in self-efficacy and make a case for self-efficacy scores to be a predictor of behaviour.

Methodology (instruments, provenance, adaptations, limitations)
Data were collected using a 15-item research self-efficacy (RSE) scale at the beginning and end of a year 2 undergraduate *Using Research for Practice* module. The first 10 questions in the RSE scale focused on knowledge and skills about research, following the scale developed by Holden and colleagues (1999) and also used by Unrau and Grinnell (2004). A further five questions, on knowledge and skills about information and computer technology (ICT) to support research, were added. This reflected Anne Quinney's particular research interest (Quinney et al., 2008) in the importance of ICT skills in accessing and sifting research through for example, the use of electronic databases, websites of research organisations, the library collections of e-journals and the electronic learning materials supporting this module of study. The scale used a 10-point Likert scale ranging from "disagree strongly" to "agree strongly". The scale is shown in box 1 below.

Start box
Box 1 Research Self-efficacy Scale with additions (Holden et al, 2007 with additions from Quinney and Parker)
How confident are you that you can successfully…?
1. Perform an electronic search for research information (e.g. journal articles) using the internet

2. Read and understand research findings and discussions in academic journals
3. Reference other people's work using the University's Harvard system of referencing
4. Briefly define 'qualitative' and 'quantitative' research methodologies
5. Debate whether a proposed research study is ethical or unethical
6. Design a questionnaire
7. Design an interview schedule
8. Conduct a research interview
9. Analyse basic quantitative and qualitative data
10. Present findings both verbally and in written form
11. Access the resources for this unit on [VLE] using university computer facilities
12. Perform an electronic literature search using databases (e.g. www.socialcareonline)
13. Access research findings in academic journals using the internet
14. Access research findings from research bodies, social work organisations and government departments (e.g. JRF, SCIE) using the internet
15. Follow an online learning programme

End box

The scale was not piloted partly because of the need to launch the project at the start of the academic year but also because of the internal reliability and construct validity of the original scale is well-established (Holden et al., 2007)

Participants

Second year undergraduate BA (Hons) Social Work students studying the module *Using Research in Practice* were invited to participate by completing the scale at the beginning and end of the module. The module was delivered by Ann Quinney, using a blended learning approach. This consisted of whole class sessions, individual and small group consultations and electronic learning resources, supported by an on-line learning course. Students had the opportunity to learn through direct experience about some of the module content by being research participants.

The scale was used with three consecutive cohorts of students, starting in 2005-06. Written information about the project was provided and consent forms were administered, assuring students of anonymity and that participation or otherwise would not impact on their grades. Students were offered the opportunity to discuss the project further with the researchers during the course of the module.

Participant numbers and data analysis

Pre- and post-test data were analysed by cohort (2005-6 n=30, 2006-7 n=23, 2007-8 n=14) and as a combined group (n=67). Whilst there were approx 40 students in each cohort, the pre- and post-test analysis resulted in lower participant numbers as students had to be present at *both* data collection points in order for their completed scales to be analysed. For example, attendance at the start of the module in 2007-8 was low due to an assignment hand-in date for another module being on the same day. These findings, of course, led to meta-learning for the academic team in planning and organising

assessment points to maximise the student experience and learning; an additional benefit of education and learning evaluation.

In order to ensure anonymity, the students were asked to generate a code using trigger questions, allowing the team to match the pre- and post-test data sets for analysis.

Three subscales were identified around overarching themes covered in the scale. The first two themes were not identified as discrete subscales in the original research but related to the passive and active elements identified, and the third subscale consisted of the additional questions relating to new technology, including question one of the RSE as follows:

- Understand and read research (questions 2-5)
- Undertake research tasks (questions 6-10)
- Use e-technologies for research purposes (questions 1, 11-15)

Data were analysed using SPSS. Measures of central tendency for each question and by sub-scale were calculated to indicate change in perceived self-efficacy in research mindedness. T-tests were used to compare the means at each time point for each cohort and a combined analysis was undertaken.

Findings

Mean scores for self-efficacy increased on each sub-scale and for each question in a consistent manner over the three years, and standard deviation decreased. The mean for subscale one, relating to confidence in understanding and reading research increased from 5.4 at pre-test to 7.97 at post-test. For subscale two, which concerned the undertaking of research tasks, the means increased from a lower start point 4.4 to 7.05. The third subscale comprised the original first question of the RSE and added further items relating to the use of e-technologies. The means increased from 5.63 at pre-test to 8.56 at post-test. Table 1 shows the combined means for pre- and post-test self-efficacy scores. This increase in self-efficacy scores suggests that engagement in the research module enhanced confidence in using, reading and critiquing research. T-tests indicated that the increase was highly statistically significant in all three sub-scales: for the first subscale $t = 12.051$, df 3, $p = 0.001$; the second subscale $t = 11.462$, df 4, $p < 0.001$; and for the third $t = 12.014$, df 5, $p < 0.001$. The increased means provide important and relevant data indicating a positive association with engagement with the module and the development of confidence in research. Overall mean scores increased from 5.16 to 7.9, $t = 20.413$, df 14, $p < 0.001$.

Add table 1

There were a number of limitations with the study. The small sample size in each cohort and in the combined group ($n = 67$) militates against generalization and attrition within each cohort reduced the statistical power of the analysis. However, the increase in self-efficacy scores and the significance of the change in two sub-scales provides a basis for further research and modeling based on the use of such scales.

Because Anne Quinney was the teacher as well as the lead researcher, the students may have been inclined to exaggerate their ratings at the end of the course in order to please. However, the anonymity of the questionnaires should have reduced possible social desirability responses.

Response shift bias occurs when a post-test response is made that does not fully reflect the change from the pre-test owing to greater familiarity with the specific tasks the respondent is reporting on or a greater appreciation of what was involved. It was considered that this may be a potential problem in this project expressed as a reduction in perceived confidence at the end of the module because students may have become more familiar with the complexity and difficulties of understanding research. However, the findings did indicate a positive direction of change suggesting response shift bias was not a problem. In future years, a retrospective then-test will be added at the post-test stage, consisting of asking the students the same questions from the perspective 'if you had known then what you know now, how confident would you have been then?'

Discussion

The use of self-efficacy scales seems to have relevance in measuring research confidence and demonstrating the effectiveness of a module in using research for social workers. However, there are other potential benefits. For example, the scales could be used to assess individual student's learning and to make plans to encourage and enhance that learning; this could involve setting tasks that test confidence or give encouragement to a less confident student (see Parker, 2005).

It was interesting that whilst subscale two started with a lower mean point, which may perhaps have been expected given its focus on research capability skills, the rise in mean scores was smear to the other two sub-scales and, gratifyingly, the change appeared highly significant. This suggested further the effectiveness of research teaching as a means of inculcating research-mindedness in social work students.

In the follow-up phase of this project students will be asked, at the end of their final year, to reveal their research project code and student number. This will enable us to consider correlations between their RSE scores and their assignment marks. Means from the combined analysis will be compared with the outcome of assignment to extrapolate mean point parameters that may indicate individual, or indeed group, support needs. It will be possible to consider other variables here that may impact on the design of the module. This analysis will help evaluate further the potential of the scales. Should our hypothesis that increased self-efficacy rating are correlated with greater success in the module be confirmed, we will develop individualised learning plans based around a self-assessment of confidence in reading and critiquing research, evaluated at post-test. In other words, we hope to be able to use the assessment of self-efficacy in evaluations at a curricular, cohort and individual student levels.

Conclusions

The use of self-efficacy scales has potential value as a means of evaluating the effectiveness of learning and teaching and can lead to the enhancement of modules by identifying problematic areas and encouraging self-belief and confidence by engaging with research mindedness activities. The current data can be used to inform adjustments

in the curriculum, the development of teaching resources and additional support to students. Whilst the formal part of the project has ended, the scales will continue to be used as a student self-assessment tool and to support a reflective approach to academic practice.

The RSE scale is easy to use and can be adopted by other programmes to evaluate the outcomes of their courses and adapt teaching accordingly. One of the potential benefits, perhaps, is that the scale can be used formatively and students could use it to monitor their own progress.

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Table 1 Research self-efficacy ratings: combined means for subscales and overall.

	Pre-test mean (n=67)	Post-test
Subscale two: Undertake research tasks		
Subscale three: Use e-technologies for research purposes		
Overall means	5.16	