Integrating Research Skills Training into Non-Research Methods Courses.

Jules Woolf, University of Windsor

Abstract

Research skills are a valued commodity by industry and university administrators. Despite the importance placed on these skills students typically dislike taking research method courses where these skills are learned. However, training in research skills does not necessarily have to be confined to these courses. In this study participants at a Cracker Barrel session (a series of short discussion sessions) discussed the issue of teaching research skills in non-research methods courses. Specific classroom strategies were identified along with issues related to the concept of research and the development of a research ethos among students and faculty.

Introduction

Training in research skills is highly valued in the marketplace (Murtonen & Lehtinen, 2005). Likewise, university administrators are emphasizing the importance of students acquiring research skills. Subsequently, many degree programs include research methodology courses as requirements (Wagner, Garner, & Kamulich, 2011) and research skills training is considered as an underlying principal of undergraduate education (Katkin, 2003). The benefits of developing research skills include enhanced cognitive (e.g., problem solving and critical thinking) and personal communication skills (Lopatto, 2003; Magolda, 1999; Sells, Smith, & Newfield, 1997; Seymour, Hunter, Laursen, & Deantoni, 2004). Research skills training has also been associated with greater success in technical professions and enhanced probability of post graduate study (Ford, Bracken, & Wilson, 2009; Lopatto, 2003).

However, students' perceptions of the relevance of research methods courses come into question and students are often reluctant to study research methods (Epstein, 1987; Nguyen & Lam, 2009; Wagner et al., 2011). Students may not understand the rationale of a research methods course when their career ambitions do not relate to academia. Training students to develop research skills does not have to take place solely within the confines of a research methods course. Assignments and activities can be conducted in discipline-specific courses where students still learn specific course content, but simultaneously develop research skills. For instance, assignments that involve inductive or deductive reasoning, creation of information collection procedures (e.g., questionnaires, interview scripts), and the subsequent collection, analysis, interpretation, synthesis and evaluation of such data can be seamlessly integrated into the syllabus.

The purpose of this study was to explore the contention that research skills training can take place outside of research methods courses, to develop specific teaching strategies and identify relevant issues. To achieve this, attendees of the Scholarship of Teaching and Learning in Higher Education 2013 annual conference were invited to participate in a 'Cracker Barrel' session – a series of short discussion sessions.

Method

The Cracker Barrel session was used to study the central question, "How can research skills training be integrated into non-research methods courses". A Cracker Barrel activity involves a collection of stalls that are hosted by different presenters who lead a short discussion activity. Discussions at each stall were limited to 12 minutes, after which attendees were instructed to move to a different stall. The entire Cracker Barrel activity lasted one hour and therefore each stall hosted four groups of participants, i.e., four rounds of discussion were conducted at each stall. Research ethics board clearance was obtained for this study.

Attendees at my stall were presented with a brief synopsis of the issue – namely that research skills are desired by industry, students typically dislike research method courses and faculty assigned to these courses are often early in their career and/or are reluctant to teach these courses (see Wagner et al., 2011). They were informed of the procedure to be used in the session (see below), that a summary report would be created from the discussion, and that a copy of the results would be sent to them. Attendees were asked if they wished to continue and if they indicated that they did, then they completed a sign up sheet.

I presented the central question and facilitated the discussion. In addition, participants were provided with a summary of discussion points raised in the previous rounds. The rationale for this procedure was adapted from Paulus's (2000) recommendations for creative idea generation in groups. This approach reduces replication of ideas from previous rounds and instead serves to stimulate thoughts, discussion, and subsequent idea generation. Ideas were recorded on colour-coded paper (to differentiate rounds) and placed in the centre of the table for attendees to view.

Fourteen people (11 faculty, 1 administrator, 1 teaching and learning specialist, 1 undeclared) participated in this Cracker Barrel session. Four people participated in the first round, four in the second, three in the third, and three in the fourth round respectively. The ideas and discussion points generated were grouped into two themes – specific classroom strategies and research ethos.

Results

Specific classroom strategies

Problem-based learning (PBL) was a common recommendation made by attendees. PBL originated from medical schools and involves students solving problems that require the acquisition of relevant knowledge (Barrows & Tamblyn, 1980). Students decide what they need to know to solve the problem and then seek out information from sources such as textbooks and journal articles. The teacher, rather than focus on instruction, acts as a tutor and assists students as a guide through the process. A similar strategy, inquiry-based learning (IBL), was also proposed. The primary difference between the two is that PBL starts with a problem, whereas with IBL students explore an issue and through an iterative process narrow down to a specific central question of interest (Hudspith & Jenkins, 2001). Both approaches are active learning strategies that, with guidance, should develop students' ability to problem solve and seek out and evaluate information sources. This latter aspect was considered important by attendees because we live in a knowledge intensive society. The point being that while information is readily available, students need to be able to evaluate the source of information. To assist in the

development of this ability it was recommended that students be introduced to their university library as early as possible, be provided instruction on information search strategies, and have assignments that require utilization of library resources.

Similar, though less structured approaches to PBL and IBL were also proposed, for instance, asking students to write a proposal, find a gap in the literature, and identify an area of interest. In contrast, cases study analysis was recommended as a systematic way for students to develop research skills. In this instance, students learn to contextualize information and analyze information to determine its validity. Public policy analysis was provided as one such example.

Concept mapping, a visual representation of concepts and ideas and the relationships among these constructs, was also proposed as a means to develop the ability to see relationships and make connections. The final two recommendations do not so much develop research skills, but provide an environment more conducive for its acquisition. First, it was recommended that students should be provided with an inventory of research skills they would develop in the class. This inventory could be part of a statement on learning outcomes. These outcomes set expectations so students are aware of the skills they will develop via assignments. Moreover, if these learning outcomes are provided with a rationale (i.e. why these learning outcomes are important), this could potentially enhances student motivation for the course. Finally, several attendees remarked that attitude plays a big role in getting students interested in research type activities. Thus, being enthusiastic, emphasizing the potential for knowledge to be created, and making the material relevant were all suggested ways to build excitement and a positive approach to develop research skills.

Research ethos

While the session was designed to focus on developing strategies to integrate research skills training into non-research methods courses, it was expected that the session would spark a broader conversation on the nature of research. The session therefore involved discussion on what is meant by the term ‘research’.

Attendees stated that research is a way of thinking and involves systematic procedures. This evolved into statements that research is about answering questions and that ‘good’ research necessitated the creation of ‘good’ questions. This latter aspect was one that several attendees commented as a major challenge for students. It was acknowledged that students often are not provided sufficient feedback on the (research) questions they create, partly due to the time needed to provide quality feedback to what may be a large number of students. The word research is parenthesised here because while some attendees spoke explicitly about research questions (i.e. for empirical testing), others spoke more generally and referred to assignments that involved secondary research (i.e. essays). It was noted that despite the fact that attendees came from diverse disciplines, many of the issues raised were similar. For instance, attendees mentioned the necessity that students be able to locate, read, and comprehend information related to their question.

Attendees from different sessions described research as fundamentally about making sense of observation. In essence, what was proposed is that research is about seeing something in action and then asking what it means and what has just happened. One attendee from a science discipline remarked that this is generally the way in which research skills training is integrated into their classes. Namely, an experiment or phenomena is observed and students are then tasked with answering the “what just happened and why” questions by applying relevant theories to the demonstrated action. It is interesting that research was described as a process that could be

conducted ‘outside out’ or ‘inside in’. These phrases referred to the notion that research can proceed through observation and then explanation or prediction followed by (dis)confirmation. Moreover, some attendees declared that their discipline tends to do one or the other, which suggests that even though the process of research has similarities across disciplines, the actual implementation of the research process (and by extension the research ethos) is partly defined by the discipline.

Finally, there was discussion as to the connotation that ‘research’ invokes for students. Namely, that research can come across as a frightening concept, especially if it is associated with statistical analysis. This link between research methods and statistics is unsurprising, as historically they have been conjoined and it is only in the last several decades that research methods have become a standalone course (Peden & Carroll, 2009). There was discussion that the idea behind research should be presented as an everyday process (much like decision making), which could then make engaging in research inevitable and the acquisition of requisite skills desirable.

Discussion

The premise of this session was that the valued commodity, research skills, could be taught implicitly via non-research method courses. While specific strategies were mentioned (e.g., PBL, IBL, case study analysis), many ideas were general in nature. It would seem prudent that specific and intentional strategies be identified if research skills training is to be effectively integrated into non-research methods courses. Even then, one must be cogniscient that a sound strategy still needs effective implementation. For instance, both PBL and IBL have been criticised as being ineffective teaching strategies particularly among novice and intermediate learners (Kirschner, Sweller, & Clark, 2006). Advocates of PBL and IBL have argued that these approaches require heavy scaffolding, such that the student is both guided and challenged through the learning process (Hmelo-Silver, Duncan, & Chinn, 2007).

As mentioned earlier, assignments that require the creation of data collection instruments, and subsequent analysis of collected data, would be suitable ways to integrate research skills training into courses. However, there was little discussion on these types of strategies. Several examples were mentioned to attendees towards the conclusion of each session. For example, the Reflected Best Self Exercise™ (Roberts et al., 2005) requires students to collect, analyze, and then synthesize approximately 30 - 60 stories about themselves “at their best” in order to create a composite one page statement on their strengths as an individual. This assignment develops qualitative data analysis skills by requiring students to condense a large volume of data into a succinct and detailed statement. Another example involved students learning leadership theories by designing a ‘mini’ ethnography research study. Students create and administration surveys, interview scripts, and collect observational data and write a report to demonstrate their knowledge of leadership theories via collected data. Students therefore learn course content via a process that simultaneously develops research skills.

These types of creative approaches are needed if we are to find ways to integrate research skills training into non-research methods courses. Simply asking students to write a proposal is unlikely to optimize the development of research skills. Instead, assignments and activities should be intentionally planned. This is not to argue that research methods courses should be jettisoned, but suggests there are alternative and additional ways to develop these desirable skill sets. Moreover, as the section on research ethos alludes to, developing a disposition towards research in and of itself could result from intentionally creating courses that incorporate research

skills training. Scholars have espoused that students develop a research disposition (Elsen, Visser-Wilnveen, & Driel, 2009), while others have argued that in a knowledge-intensive society all students will need to learn to be researchers (Scott, 2002). As demonstrated above, while there are discipline-specific approaches to research, there are also similarities in terms of process and component pieces. For instance, formulating a well-designed research question is an issue that students at all education levels may struggle with (Van der Schee & Rigborz, 2003).

Despite the declared importance of research skills, there has only recently emerged debate on developing a pedagogical culture around research methods generally and research method courses specifically (Garner, Wagner, Kawulich, 2009). If we are to equip our students with requisite skills for the future, then we need to examine the ways we deliver these skills. This means that in addition to providing research methods courses, we can also provide opportunities to develop research skills in non-research method courses. Such an approach may serve to develop these skills while also immerse students in the research culture of their discipline, which may make future research method courses more palatable.

References

Barrows, H. S., & Tamblyn, R. (1980). *Problem-based learning: An approach to medical education*. New York: Springer.

Elsen, M., Visser-Wilnveen, G. J., & Driel, J. H. (2009). How to strengthen the connection between research and teaching in undergraduate university education. *Higher Education Quarterly, 63*(1), 64-85. doi:10.1111/j/1468-2273.2008.00411.x

Epstein, I. (1987). Pedagogy of the perturbed: Teaching research to the reluctants. *Journal of Teaching in Social Work, 1*(1), 71–89. doi:10.1300/J067v01n01_06

Ford, J. D., Bracken, J. L., & Wilson, G. D. (2009). The two-semester thesis model: emphasizing research in undergraduate technical communication curricula. *Journal of Technical Writing and Communication, 39*(4), 433-453. doi:10.2190/TW.39.4.f

Garner, M., Wagner, C., & Kawulich, B. (2009). Towards a pedagogical culture in research methods. In M. Garner, C. Wagner, & B. Kawulich (Eds). *Teaching research methods in the social sciences* (pp. 1-10). Surrey, England: Ashgate.

Healey, M., Jordan, F., Pell, B., & Short, C. (2010). The research-teaching nexus: a case study of students' awareness, experiences and perceptions of research. *Innovations in Education and Teaching International, 47*(2), 235-246. doi:10.1080/14703291003718968

Hmelo-Silver, C. E., Duncan, R. G., & Clark, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006). *Educational Psychologist, 42*(2), 99 –107. doi:10.1080/00461520701263368

Hudspith, B., & Jenkins. H. (2001). *Teaching the Art of Inquiry*. Halifax, NS: Society for Teaching and Learning in Higher Education.

Katkin, W. (2003) The Boyer Commission report and its impact on undergraduate research. In J.

Kinkead (Ed.) *Valuing and supporting undergraduate research. New Directions for Teaching and Learning 93* (pp. 19-39). San Francisco: Jossey-Bass.

Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist, 41*(2), 75–86. doi:10.1207/s15326985ep4102_1

Lopatto, D. (2003). The essential features of undergraduate research. *Council on Undergraduate Research Quarterly, 23*(1), 139–142.

Magolda, M. B. (1999) *Creating contexts for learning and self-authorship: constructive developmental pedagogy.* San Francisco: Jossey-Bass.

Murtonen, M. & Lehtinen, E. (2005). Conceptions of research and methodology learning. *Scandinavian Journal of Educational Research, 49*(3), 217-224. doi:10.3102/00346543069001053

Nguyen, T. D., & Lam, B. T. (2009). Teaching research methods to trainee practitioners. In M. Garner, C. Wagner, & B. Kawulich (Eds). *Teaching research methods in the social sciences* (pp. 163-170). Surrey, England: Ashgate.

Paulus, P. B. (2000). Groups, teams and creativity: the creative potential of idea-generating groups. *Applied psychology: an International Review, 49*(2), 237-262. doi:10.1111/1464-0597.00013

Peden, B. F., & Carroll, D. W. (2009). Historical trends in teaching research methods by psychologists in the United States. In M. Garner, C. Wagner, & B. Kawulich (Eds). *Teaching research methods in the social sciences* (pp. 23-34). Surrey, England: Ashgate.

Roberts, L. M., Spreitzer, G., Dutton, J., Quinn, R., Heaphy, E., & Barker, B. (2005). How to play to your strengths. *Harvard Business Review, 83*(1), 74-80.

Sells, S. P., Smith, T. E., & Newfield, N. (1997). Teaching ethnographic research methods in social work: A model course. *Journal of Social Work Education, 33*(1), 167–84.

Seymour, E., Hunter, A., Laursen, S. L., & Deantoni, T. (2004). Establishing the benefits of research experiences for undergraduates in the sciences: First findings from a three year study. *Science Education, 88,* 493–534. doi:10.1002/sce.10131

Scott, P. (2002). Let's stop trying to separate the inseparable. *Exchange, 3*, 27–28. Retrieved from: www.exchange.ac.uk/archive.asp

Van der Schee, J., & Rijborz, D. (2003). Coaching students in research skills: a difficult task for teachers. *European Journal of Teacher Education, 26*(2), 229–237. doi:10.1080/0261976032000088756

Wagner, C., Garner, M., & Kamulich, B. (2011). The state of the art of teaching research methods in the social sciences: towards a pedagogical culture. *Studies in Higher Education, 36*, 75-88. doi:10.1080/03075070903452594