

March 2017

An Analytical Autoethnographical Account of using Inquiry-Based Learning in a Graduate Research Methods Course

Jules Woolf

Adelphi University, jwoolf@adelphi.edu

Follow this and additional works at: http://ir.lib.uwo.ca/cjsotl_rcacea

 Part of the [Educational Methods Commons](#), [Higher Education Commons](#), [Sports Management Commons](#), and the [Sports Studies Commons](#)

<https://doi.org/10.5206/cjsotl-rcacea.2017.1.5>

Recommended Citation

Woolf, Jules (2017) "An Analytical Autoethnographical Account of using Inquiry-Based Learning in a Graduate Research Methods Course," *The Canadian Journal for the Scholarship of Teaching and Learning*: Vol. 8 : Iss. 1 , Article 5.

DOI: <https://doi.org/10.5206/cjsotl-rcacea.2017.1.5>

Available at: http://ir.lib.uwo.ca/cjsotl_rcacea/vol8/iss1/5

An Analytical Autoethnographical Account of using Inquiry-Based Learning in a Graduate Research Methods Course

Abstract

Increased emphasis is being placed on integrating research and teaching in higher education because of the numerous benefits accrued by students. In accordance, research methods courses are ubiquitously contained in curricula, ostensibly to promote research training and the research-teaching nexus. Students may not appreciate the inclusion, however, of such courses or emphasis on research training when their career ambitions are outside academia. In this analytical autoethnographic study, I examined my experience of teaching research methods to twenty graduate students using an inquiry-based learning strategy. To assist my analysis, I incorporated the students' reflective journals of their experience of the course. Inquiry based learning motivated both the students and me, however the approach was time intensive and stressful for me. Contrary to current recommendations, guidance is of crucial importance with this teaching approach, particularly at the onset. Furthermore, an alignment between my own research interests and course content was not necessary for the research-teaching nexus to be experienced. Moreover, absence of such alignment provided opportunities for personal development both for the students and in my case, the instructor.

Dans l'enseignement supérieur, on met maintenant de plus en plus d'emphasis sur l'intégration de la recherche dans l'enseignement à cause des nombreux avantages dont peuvent bénéficier les étudiants. Par conséquent, les cours de méthodologie de la recherche font désormais partie des programmes de cours de façon ubiquitaire, visiblement pour favoriser la formation en recherche et le lien entre l'enseignement et la recherche. Toutefois, les étudiants n'apprécient pas toujours une telle inclusion de ces cours ni l'accent mis sur la formation en recherche lorsque leurs ambitions de carrière se situent hors du milieu universitaire. Dans cette étude analytique auto-ethnographique, j'examine l'expérience que j'ai eue quand j'ai enseigné un cours de méthodes de recherche à vingt étudiants au cycles supérieurs en utilisant une stratégie d'apprentissage basée sur l'enquête. Pour faciliter mon analyse, j'ai incorporé les journaux de réflexions personnelles des étudiants dans lesquels ils ont relaté leurs expériences concernant le cours. L'apprentissage basé sur l'enquête a motivé à la fois les étudiants et moi-même, mais il s'est avéré que cette approche avait pris énormément de temps et avait été stressante pour moi. Contrairement aux recommandations qui circulent actuellement, il est de la plus haute importance de fournir des conseils quand on utilise cette approche d'enseignement, en particulier au début. De plus, il n'a pas été nécessaire d'aligner mes propres intérêts en matière de recherche avec le contenu du cours pour faire l'expérience du lien entre la recherche et l'enseignement. Par ailleurs, l'absence d'un tel alignement a fourni des occasions de développement personnel à la fois pour les étudiants et, dans mon cas, pour l'instructeur.

Keywords

research-teaching nexus; inquiry-based learning; sport management; learning-centred

Excellence in research and teaching is the focus of many university mission statements, yet the interrelatedness of these two purposes has been found wanting (Badley, 2002; Elsen, Visser-Wijnveen, & van Driel, 2009). Greater emphasis is being placed on integrating research and teaching, such as providing students opportunities to engage in research (Healey, 2005a; Jenkins, Breen, & Lindsay, 2003; Jenkins, Healey, & Zetter, 2007). Connecting research and teaching to benefit student learning is known as the research-teaching nexus; however, the relationship between research and teaching is often viewed as antagonistic rather than complementary (Barnett, 2003). Tension exists between these functions as universities emphasize the importance of research and external funding, and yet simultaneously present high teaching demands and stress increased enrolment. The scholar is in a conundrum; she/he is being pulled in one direction by the demands for research and knowledge generation and in the other direction by the demands of teaching and knowledge transmission (Brew, 2003). Yet students benefit when research and teaching are integrated as part of their studies (Healey, 2005b, Jenkins et al., 2007).

There has been limited discussion among scholars on the ways in which research and teaching should be explicitly integrated into curricula to benefit student learning. This is evident in my own discipline of sport management – a broad discipline that examines the management of sport and sport products. Chelladurai (1985) defines sport management as “management of those organizations whose major domain of operation is sport and physical activity” (p. 4). Scholars and students of sport management study diverse sports-related topics. This involves the study of sport as a business (e.g., professional sport teams, sport manufacturers), as a leisure choice (e.g., sport and recreation participation), and as part of national and regional policy issues (e.g., tourism promotion and economic impact of sport events). A typical curriculum in sport management includes courses on management, marketing, finance, sociology, ethics, history, and law, all covered within the context of sport.

The discourse on curriculum design of sport management programs has centred on undergraduate education and the professional development of undergraduates. For example, the inclusion of experiential and service learning in undergraduate curricula (Bruening, Madsen, Evanovich, & Fuller, 2010; Jackowski & Gullion, 1998; Spence, Hess, McDonald, & Sheehan, 2009), internship programs to develop future career prospects (Young & Baker, 2004), and the design of undergraduate curricula informed by input from professional sport team executives (Petersen & Pierce, 2009) has been recommended.

As with other disciplines, conspicuously absent from the conversation is the research-teaching nexus. Within sport management this is perhaps unsurprising as it is a relatively young and small discipline compared to other established disciplines. Moreover, the focus of sport management programs on student preparation for careers in the sport industry may mean that the importance of the research-teaching nexus may not be as evident to scholars, industry, or students. With a practical-oriented discipline, the purpose of education is often viewed as a process of interpreting and transmitting knowledge that is already known. Emphasis is placed on preparing students for the workforce, as evident by previous research identified earlier on curriculum design. This focus on career preparation is likely familiar to scholars in other disciplines. Thus, the prospect that teaching can be integrated with research such that new knowledge is created (instead of merely transferred) may seem foreign and counter-intuitive when the focus of curricula is career preparation. Yet, the research skills students accrue from a pedagogical approach that integrates teaching practice with research are valued in the marketplace (Murtonen & Lehtinen, 2005).

In sum, the prospect of combining research with teaching is valued, yet viewed as conflicting. Moreover, when curriculum design emphasizes career preparation, the relevancy of incorporating, let alone integrating, research into teaching may be disregarded. In this paper, I recount my experience to integrate research with teaching and the impact it had on the students I taught. To do this, I take an analytical autoethnographic approach (Anderson, 2006). I begin with an overview of the research-teaching nexus and then describe inquiry-based learning, which was the teaching strategy I adopted. I then describe analytical autoethnography and how I examined my experience and the experience of the students before presenting my findings and discussing the implications.

The Research-Teaching Nexus

It is recommended that students engage in research (Boyer Commission, 1998; University of Helsinki, 2007) as this motivates students, who then view courses and faculty more positively (Jenkins et al., 2007). Furthermore, universities are emphasizing the importance of training students to conduct research and many degree programs include research methodology courses as requirements (Wagner, Garner, & Kamulich, 2011); however, how research method courses are designed affects the degree to which the research-teaching nexus is actualized. Four approaches have been described, which are differentiated by the extent students engage in research (Griffiths, 2004; Healey & Jenkins, 2009).

A research-led approach teaches students research findings via the traditional information transmission (or teacher-centred) approach. Current research in the discipline may be covered based on the specialty research interests of the instructor. This represents the weakest variant of the research-teaching nexus. The second approach, research-oriented, involves teaching the process of research and developing a “research ethos” among students. Here students learn about and develop research skills, such as how to design a research project. Both approaches place the students as an audience member; a passive recipient who is informed through the presentation of information from an instructor. Students are not actively engaged in research, and the nexus between research and teaching is minimalized. Such a passive approach to learning has been argued to be inferior compared to active learning approaches (Kolb, 1984; Prince, 2004). Despite this, Healey and Jenkins (2009) advocate for curricula to include these two approaches, but also that more emphasis be placed on the final two approaches, research-tutored and research-based.

A research-tutored approach involves engagement in research discussions – a process witnessed in seminar-style classes. Students read and critically discuss research articles with their peers while an instructor facilitates the discussion. This involves an active approach to learning as students actively contribute to the discussion. However, the actual experience of research is absent. In contrast, the research-based approach engages students as researchers with curriculum designed around inquiry-based activities. This represents a true nexus; the student and instructor are co-investigators in the construction of knowledge. The division between student and instructor is minimized and students are active participants rather than audience members.

The research-based approach is favoured as it is experiential, involves active learning, encourages a deep approach to learning (Prosser & Trigwell, 1999), facilitates students’ comprehension, (Healey & Roberts, 2004), intellectual development (Blackmore & Cousin, 2003), improves critical thinking skills, and develops self-efficacy as researchers (Seymour,

Hunter, Laursen, & Deantoni, 2004). Students also believe participation in research improves their employment prospects (Healey, Jordan, Pell, & Short, 2010).

Elton (2001) recommends that in order to strengthen the research-teaching nexus, research-based courses should be incorporated into the curriculum. Research methods courses are becoming ubiquitous in higher education (Wagner et al., 2011) and learning outcomes derived from these courses considered fundamental to future career success (Murtonen & Lehtinen, 2005). Students' perception of the relevancy of these courses may, however, come into question and students are often reluctant to study research methods (Epstein, 1987; Wagner et al., 2011), particularly within business studies curricula (Harrington & Booth, 2003). Students may not understand the rationale of a research methods course when their career ambitions do not relate to academia. In fact, the vast majority of students embark on careers other than academia. I have encountered this first hand, and as a result of discussions with colleagues, can attest that research methods is not viewed by students as a highly desirable course, particularly when it is a required course.

Faculty may have difficulty defending the inclusion of such a course in their curriculum, particularly when students consider their studies as a terminal degree. Furthermore, practitioners may not realize research methods as relevant for industry (e.g., Petersen & Pierce, 2009), which further belittles these courses. Given these circumstances, it is plausible that students' disinclination to study research methods is commonly experienced by faculty. Moreover, university administrators appear increasingly concerned with student preparation for the work force (Côté & Allahar, 2011) – a position that is likely communicated to faculty and may further minimize the importance of these courses. In line with this observation, Wagner et al. (2011) comment that those who are assigned to teach research methods may be assigned for reasons other than their aptitude to teach the course. It could be argued that if research methods courses are highly valued by university administrators, faculty, practitioners, and students, then faculty who have the most proficiency in research methods would teach it. The sentiment expressed here is that research method courses are implicitly devalued when the course is delivered out of necessity rather than regard.

The apparent lack of appreciation for the role of research methods may be due to these courses being taught from a research-led or research-oriented approach, which rely on a teacher-centred knowledge transmission perspective. Adopting a research-based approach would enable students to become involved in research and this will likely increase their confidence with research methods and subsequently to adopt these skills in their own future career practice (Montcalm, 1999). One way to implement a research-based approach is through an inquiry-based learning strategy.

Inquiry-Based Learning

Inquiry-based learning (IBL) involves students' self-directed, question-driven search for understanding, accompanied by varying levels of instructor support (Hudspith & Jenkins, 2001; Justice et al., 2007). With IBL co-learning and the co-construction of (ideally), new knowledge occurs between student and instructor (Le Heron, Baker, & McEwen, 2006). Although IBL can involve a research-based approach, it is not always realized. Spronken-Smith and Walker (2010) identified different types of IBL based on the amount of guidance provided. Structured inquiry involves the most guidance (where students are assigned a problem and an outline to solve it), open inquiry the least guidance (students generate their own questions and means to answer the

question), with guided inquiry set in between these extremes (students are self-directed to explore a given problem). Spronken-Smith and colleagues (2010, 2011) incorporated the work of Levy (2009) to propose a model that acknowledges the three types of IBL as well as the outcome of the process. Outcomes include information acquisition (i.e., existing knowledge) and discovery (i.e., new knowledge) creation. An open inquiry approach accompanied by discovery creation is aligned with the research-based approach and enables a strong nexus between research and teaching. In contrast, the structured inquiry approach is not considered effective as a means to integrate research with teaching.

The open inquiry version of IBL is similar to Hudspith and Jenkins (2001) iterative stage model of IBL, which provides a more prescriptive account of the process and is the approach I adopted. Here, students begin by exploring a subject area and then choose a research focus. As the focus is developed possible questions for inquiry are explored until a central question surfaces. Students develop a research strategy, anticipate findings, search for evidence, assess evidence and develop conclusions that relate back to the central question. The process is similar to the research process, yet integrates a teaching component because the instructor provides guidance throughout the process (Justice et al., 2007).

Along with learning research skills, students benefit from IBL by feeling part of a research community. Curiously Spronken-Smith and Walker (2010) argued that the research-teaching nexus is further actualized when students' inquiries align with the instructor's own research interest. This seems rather restrictive and an unnecessary criterion to impose. It suggests that students' inquiry ideas must conform to pre-existing interests, which limits the opportunity to explore. Furthermore, in their model they argued that less guidance is needed from the instructor when comparing an open inquiry and discovery creation approach to a structured inquiry information acquisition approach. This again seems counter-intuitive because a structured activity (such as following instructions in a lab manual) provides a step-by-step recipe for successful information acquisition. Hence guidance would not need to be of central importance. In contrast, an open inquiry would benefit from guidance especially if discovery creation is to be actualized. This was my experience, which will be presented and discussed below. Finally, previous research on IBL has focused on undergraduate students and students report greater motivation and interest in course subject matter (Levy & Petrulis, 2012). In this and other studies (e.g., Friedman et al., 2010; McCright, 2012), however, the use of IBL has been to increase knowledge and appreciation for subject matter (e.g., biology, philosophy), rather than for research in and of itself. My study provides an additional perspective to the use of IBL because the focus was on graduate students and the subject matter focused specifically on research methods and not as a means to motivate discipline subject matter interest.

Method

I took an analytical autoethnographic approach to study my experience using an IBL in a graduate research methods course. Autoethnography is a form of self-study where the researcher connects their personal experience to the cultural (Ellis & Bochner, 2000). The process is not about the self per se, but on the experience and change between self and the practice engaged in (Bullogh & Pinnegar, 2001). A focus is on the analysis and interpretation of the meaning of the experience described (Change, 2013). Whereas autoethnography typically takes on an autobiographical writing approach with a goal to create an emotional resonance with the reader (Ellis & Bochner, 2000), analytical autoethnography conforms to more traditional social science

research reports (Change, 2013) as witnessed here. The documentation of personal experience can be combined with additional sources used in traditional scientific analytical strategies (Jones, Adams, & Ellis, 2013). In this instance, I used students' critically reflective journals of their experience of the course to support my analysis. Research ethics approval (REB # 14-133) was obtained and students provided informed consent to have their perspective and quotes included for this study. Such an inclusion is supported as it enables the researcher to reflect deeper on their experience and the reader is provided with a more comprehensive, and potentially evocative account of the experience (Anderson & Glass-Coffin, 2013). As I taught this course I simultaneously studied for a certificate in the scholarship of teaching and learning. This involved weekly classes and meetings with an assigned mentor where I discussed my experience of the course and my teaching practice. Writing assignments (e.g., a learning portfolio) were required where I often reflected upon and evaluated my experience of the course and my teaching. I included these, along with my memories to assist my analysis. Memory recall is commonly used in autoethnography, as this can be informative of the impact an experience had on the researcher (Ellis & Bochner, 2000)

The actual process of analytical autoethnography requires that the researcher is a complete member in the social world being studied and they are self-conscious of their participation and engage in analytic reflexivity. My account conforms to these requirements as I was the teacher and routinely discussed my experiences with a mentor and wrote about these experiences. Analytical autoethnography also requires the researcher's narrative be visible within the text, focuses beyond the self and there is a commitment to theoretical analysis (Anderson, 2006). This will become apparent as I move from this description of the process to an account of my experience and its implications.

Course Context

Twenty graduate students (11 male, 9 female; 18 sport management studies, 2 movement science studies) in Kinesiology at a Canadian university were enrolled in a required graduate level research methods course. Kinesiology is the study of human movement and historically, sport management programs (my parent discipline) have been housed in this Faculty. Importantly, unlike most Canadian masters degrees in Kinesiology, at this institution a masters thesis was not mandatory to complete the degree. This served as a point of differentiate from other universities and students in this course chose to study at this institution, in part, because there were no research expectations. This compounded the challenge of teaching research methods to students.

Procedure

In the first class, as part of an icebreaker exercise, I asked students to write their interest in research and sport. This helped students become aware of their own interests and the interests of others. I informed the class that the course was designed based on a central theme of the sport of 'roller derby' and that they would complete, from start to finish, a research project of their choosing based on this sport.

Roller derby is a relatively obscure, all-female contact sport. Athletes compete on roller skates (as opposed to inline skates) round a flat track. Teams of five players each score points by having one of their players (called a "jammer") overtake and lap members of the opposing team.

The origins of the sport date back to the 1930s, where it evolved from a competitive sport to one more focused on spectacle. The modern day version has been played since 2001 (Cohen & Barbee, 2010) and is now a highly competitive sport that includes national and international championships.

I chose roller derby for several reasons. First, as the revival of the sport was relatively recent it was likely that students would be unfamiliar with the topic, which ensured students approached the topic from a similar vantage point. Second, roller derby is one of the fastest growing female sports worldwide with over 500 leagues operating in 15 countries (Cohen & Barbee, 2010). The sport is therefore a relevant contemporary phenomenon. Third, the sport is distinctive in that it is one of the few sports that is dominated by women, both in terms of management and players, and does not have a male predecessor or contemporary. Finally, there is little empirical research on roller derby, which provided multiple opportunities for the students' projects. Moreover, while I am familiar with the sport, I was not an expert in this sport, nor was it a focus of my research. My role therefore shifted from one of expert, to one of mentor who assisted students with the process of answering their own research questions and creating new knowledge. This is in sharp contrast to the criteria identified by Spronken-Smith and Walker (2010) as necessary to promote a research-teaching nexus.

Students were introduced to roller derby by watching a documentary on the sport called "Blood on the flat track" (Bagwell & Levitt 2007). We also watched a "controlled scrimmage," where a local roller derby team played a friendly game against an opponent. A scrimmage is different from an actual game in that it is closed to the public and is used as a means to practice against an opponent rather than compete. Thus, an official score is not kept. Finally, the students attended an international roller derby competition. During this period, I encouraged students to write down ideas or questions that they had and then in class, discussions were led based on these ideas. This process enabled students to take their initial research interests and adapt them within the given context. Through the identification of research interests and discussion five groups of four members each were created. The groups developed their final research questions through an iterative process of group discussion, class discussion, short writing exercises and instructor-group discussion. This process of discussion, reflective writing exercises and physical exposure to the sport corresponds with 'exploring the broad area of inquiry' (Hudspith & Jenkins, 2001) – a process whereby areas of interest are explored until a focal point for the inquiry project is identified.

Throughout this process I used "scaffolding" to assist groups develop projects that were well defined, feasible and innovative. Scaffolding refers to identifiable "zones of proximal learning" (Vygotsky, 1978), whereby learning occurs with the assistance of a more competent other, such as a peer, mentor or instructor. Scaffolding occurred via short writing exercises (e.g., answering questions on research design), during class discussions and in meetings between each group and myself. In these sessions, I engaged the students, and solicited them to engage one another, to question and challenge each other's assumptions and beliefs concerning their projects. These exchanges served to model behaviour by adopting a questioning style of thinking – a process that is designed to facilitate the development of critical thinking skills (Pithers & Soden, 2000). This process continued as the students moved from having a focal point to a central question. In effect, scaffolding assisted students move from a general conceptualization of their project to a specific area of interest. My role was to guide and mentor; to help students develop their own projects, rather than impose projects upon the students.

Thereafter, students articulated anticipated findings, searched for and created instruments for their projects (e.g., questionnaires, interview scripts, etc.), collected and analysed data, presented their findings and conclusions, and completed a final paper. Students were also introduced to library research staff and were informed of the institutions' research ethics board. Projects were required to have ethics approval from the university and therefore students completed ethics training and applied for, and received research ethics board clearance. The critical reflective journal was submitted at the end of the semester. Critical reflection is a process whereby one recollects and reasons on "experiences, values, beliefs, and practices for the purposes of evaluation and improvement" (Potter, 2009, p. 1). I explained this process to students both verbally and in writing. Critical reflection occurs best when there is a trusting relationship between student and instructor (Brockbank & McGill, 1998). The IBL strategy adopted in this course arguably helped to build trust because student had the freedom to select their research project and because frequent and open discussions accompanied this process.

Data Analysis

Data was analysed based on recommendation from Maxwell (2013). After the semester, I re-read students' journals several times to re-familiarize myself with their experience. Once I had refreshed my memory of their writing, I continued to read, and I wrote memos as a means to help me identify ideas, thoughts, and potential themes. This entailed writing comments on the papers and making separate notes on my thoughts and the themes I started to identify. I subsequently went through a process of data reduction by identifying substantive categories (Maxwell, 2013) that provided a descriptive account of common experiences held by students. This is a form of open coding (Corbin & Strauss, 2008) where potential themes are created by pulling together real examples from the analysed text.

While I analyzed the data, I continued to meet frequently with my mentor. In our meetings we discussed my experience of teaching using IBL as well other teaching related topics. These discussions included the insights I was having from reading my students' paper. This was not meant as a means to obtain inter-subjective observer agreement. Such a proposition suggests there are objective, verifiable facts (Kvale, 2002). Instead, these meetings were meant to help me reflect upon my teaching practice in general, and we used this period to also reflect on my experience of teaching IBL is particular. My mentor's role was to listen, ask questions about my experience, why I thought the way that I did, what it meant, and how I might use this information to inform my teaching practice.

As I was teaching this course, I also completed reflective writing exercises as part of my studies for the certificate in teaching. These writing contained specific reference to my experience of teaching IBL. I integrated these with my analysis of the student papers, and my recollection of the course, which were helped by the discussions that occurred in my mentorship meetings.

Results

This was my first time teaching a research methods course and I was a new faculty member in a non-tenure track line. My assignment may have been one of necessity rather than proficiency, as evident in many research method courses (Wagner et al., 2011). However, I was and am active in research and interested in research methods. I therefore approached the course

as an opportunity to further my own comprehension of research methods. I chose to use IBL specifically to achieve these ends knowing that I would need to learn, adapt and improvise based on students' interests. Below I use the substantive categories identified from the students' papers to frame the presentation of my findings and integrate my reflections and writings. Three categories are presented, with no hierarchy implied.

Motivation to Study Research Methods

Students' initial reaction to the course was negative. Many expressed displeasure in having to take a course on research methods. Statements such as "I had no desire to take this course at the outset", "not thrilled initially [to take this course]" and "I did not want to learn about research" were indicative of this perspective. Furthermore, students described previous experience in undergraduate research method classes as negative. Sentiments were made to the effect that a research methods class is not one that can be made interesting and that they did not initially understand the relevance of this course to their future career.

However, students' reactions to the inquiry-based projects were more mixed. One student remarked, "Being able to create an original research question as a group was a great idea that stimulated my interests in the research." Though some students bemoaned the context of the projects they did understand and appreciate the decision to use roller derby. As one student articulated:

In all honesty, I don't care about roller derby. If I had my choice I wouldn't have studied it...However, looking at the project solely through my opinions on the "sport" (sic) ignored the brilliance in selecting it. Using roller derby as a subject ensured that all of our work was related to the same subject. This made comparisons easier and would not have been possible if it was a decision made by students.

Restricting the context to roller derby was necessary because if students could choose any sport, issues of access to collect data would surely have surfaced. Students expressed satisfaction in knowing that their projects had practical implications. When students presented their research projects, members of a local roller derby team (the team observed earlier in the course) were invited to attend and ask questions of the group. Students were therefore able to see that their research was of interest to others. The IBL process, though demanding, was met with enthusiasm especially as data was collected. One student explained, "I experienced numerous emotions throughout the course of the semester, but when our survey went live on-line and the first person responded I was happier than I could've imagined." In my own writing I recorded:

It has been gratifying to know that my students have learned a great deal from the way this class was conducted. I have even learned that students have described the experience as 'enjoyable'. I'm being rather flippant here only because I know that my students went through a great deal of angst with their projects.

I was also more motivated to teach the course this way. For one, I was interested in their projects and how these could be studied. I also wanted their projects to reflect well on the university and myself. Self-gratification also motivated me to teach well and assist students deliver quality projects. Though students expressed that the format motivated them to study, it did not come

without cost. For the students and I, the workload was high; time was short, and pressure to complete the projects suffocating at times. This is further demonstrated in my own reflection:

...students experience discomfort and stress with this style of teaching (at least in my case). This is primarily due to entering into the unknown and feeling that time is insufficient. Moreover, students are not accustomed to the intensity of these types of projects. So while they are valuable learning experiences, the stress placed on the students needs to be considered and assuaged.

Students therefore needed, and I had to provide ample project support.

Project Support

Students felt overwhelmed. This was apparent in their journals and I recalled the anxiety being palpable in class. I met frequently with students outside of class and my calendar shows full days spent in meetings. The open inquiry format used here supposedly minimalizes guidance. I found the opposite, at least at the front end of the semester. Several explanations can be provided to account. First, students often needed assistance to develop their projects, particularly in terms of focus and research design. Moreover, to be expected, students' comprehension of research terms was limited. In one entry I wrote, "one group I worked with utilized multiple constructs interchangeable. Consequently the group did not seem to have a consensus view (of what they wanted to study)." Second, students were not familiar with writing a review of literature or completing the application for research ethics approval. Both tasks were daunting and time sensitive and yet, the course hinged on successful completion of these tasks. Without ethics approval the course would have had to be limited to a mere research proposal. Hence my role involved considerable guidance to support the development of their projects.

The guidance that I did provide, however, waned as the semester progressed. This was correlated to students' anxiety, which is captured in the following student's reflection:

I also came to realize that the reason I was so frustrated at the start of class was not because it was unfair. I was frustrated because I was doing something that I had never done before. I had unrealistic expectations of myself in that I expected things to fall into place and I expected myself to be an expert right from the get go.

Scaffolding became of critical importance for this course to be completed. Students recognized the importance of the short writing exercises to keep them on track. The class and group discussions were also beneficial and one student stated that while designing their research project, "...it almost seemed that we were going in circles with our ideas. It wasn't until you assisted us with some ideas that we finally found a clear research question." While IBL is considered a desirable teaching strategy, one needs to appreciate that the strategy is not easy on students or instructor. I learned that student guidance and scaffolding are of paramount importance at the outset of IBL, and if well conceived, the necessity of these tasks decreases as the projects progress. This process enables personal development both for the students and myself.

Personal Development

Students performed well and all passed the course. While it may appear obvious that students would remark on the research skills they developed from completing a research project it should be noted that completing a research-led, research-oriented, or even research-tutored designed research methods course does not necessitate the acquisition of research skills. For example, lecturing on the format of an interview does not guarantee that a student will be competent with the skill of interviewing. Neither does having students interview one another for 5 – 10 minutes – task I have seen described in course syllabi. In contrast, conducting an interview (and not merely a simulation) in a specific context, with a specific goal, does provide students with experience, which they can evaluate and reflect upon. One student explained that during the design of their project the group debated whether to use an interview protocol or create a questionnaire. In the end, based on the goals of the research project his team opted for interviews and the skills he developed were identified as “something I think I can use throughout my career.”

While students expressed that they gained confidence in certain research methods (e.g., interviewing) they elaborated on specifics of skills acquired within each method (e.g., active listening). Moreover, students identified transferable skills, such as improvements in their writing, the ability to work interdependently, enhanced interpersonal communication skills, and critical thinking skills. One student commented, “When I attended the [academic] conference, I was able to critically analyze and ask individuals about their research methods.” Several students wrote that while they did not have ambitions to work in academia, they did appreciate that the experience of the course would help them in other ways. Upon reflecting on their personal development, one student wrote:

As I reflect and look deeper into the events of the past semester, I certainly have been able to grow and mature not only as an individual, but also as a researcher, a leader, and a communicator.

Students recognized that the skills they developed would assist them with their future careers, regardless of whether they had aspirations for academic or industry careers. Some commented on the specific skills they acquired from interviewing participants and acknowledged that these skills will be beneficial when they interview for internships and job placements. Even students who were critical of the course expressed satisfaction as illustrated below:

Despite there being moments of animosity towards this project, especially as I approach burnout, this class has been a positive learning experience that will not only help me in the future research projects but also as a professional.

These statements support previous research on the benefits of IBL on a host of relevant educational goals (Blackmore & Cousin, 2003; Healey et al., 2010; Healey & Roberts, 2004; Seymour et al., 2004).

My own development was most apparent in my character. I benefited from having to teach students on the epistemology and ontology of research methods, research designs, and data collection and analysis methods. The main change however was the way I view the student-instructor relationship. In one of my final reflections I wrote:

I have become closer to my students during the semester. I tend to be an “arms-length” type of teacher – personable, but not personal. However, I have noticed that I am becoming more connected with my students and I think this is making me more approachable as a professor/mentor.

This might be considered a movement from being teacher-centred to student-centred, yet I felt that it was a deeper transformation. It changed my approach from seeing an invisible line between the two parties (faculty-student) to one where there was more overlap. I still contend that some separation is needed, however the experience enabled me to appreciate the roles and responsibilities of mentorship. And while I still deviate back to an instructor role when I teach other courses, I am more responsive and receptive of the need to mentor as well as instruct.

Each project was presented at the department’s annual Research Day and several groups presented at a regional academic conference. In this regard, IBL served to strengthen the nexus between research and teaching. Students learned about an unfamiliar sport context, the process of research, and specific research skills. New knowledge was created, presented, and disseminated beyond the institutional walls of the university. I also learned. My knowledge of research methods and roller derby increased, and perhaps most importantly, I learned about the differing roles one can take in the student-professor relationship.

Discussion

Research method courses are commonly featured in curricula ostensibly to increase students’ engagement in research and to promote the research-teaching nexus. The adoption of IBL in research methods course enables this to be achieved when it involves an open format and discovery frame. In contrast to recommendations (Spronken-Smith & Walker, 2010; Spronken-Smith et al., 2011), in my experience guidance was a crucial component, particularly at the beginning of the projects. Students’ experienced pronounced emotional reactions during the course; more so than I have witnessed in other course I have taught. The venture into the unknown created a great deal of risk and anxiety for all those involved. With IBL, students may feel lost and intimidated with the prospect of completing primary research. The “grief curve,” which Woods (1994) describes in the context of “problem-based learning” (a subcomponent of IBL) illuminates why this may occur and provides insights into how it may be managed. The grief curve has four distinct slopes.

First, students experience initial shock that the teaching method is not the traditional lecture format or teacher-centred approach. While this shock may negatively affect students, it is shortly replaced by an upward trajectory indicating excitement and increased student motivation for the journey into unknown territory. Students experienced these first two slopes during the initial weeks of the course, as they were initially surprised and then excited of the prospect of primary research. The third slope involves a large decline in performance and involves significant negative emotions. This includes panic, anger and resentment – all of which manifested in this class. The experience can lead to resistance against completing the project. Students experienced this phase as they wrote their literature review, designed their projects and applied for research ethics board clearance. However, the fourth slope represents an upward swing, where students come to terms with the project, and begin to understand and appreciate the direction in which they are travelling. As students started to experience success, for example

completing interviews or having respondents to their online survey, excitement was generated for their project. This excitement continued on through the process of data analysis and through the completion of their presentation to their peers and other stakeholders. Although students experienced frustration with the process eventually they adapted and achieved success and satisfaction with their projects.

With IBL then, the challenge is in managing this process – providing students support to minimize the negative affect, but not too much support that the discovery aspect is not fully realized. This challenge that comes from integrating a research component into teaching is actually desirable. Badley (2002), in his interpretation of Barnett's (2000) work on the research-teaching nexus, states that the modern world is beset with uncertainty. Subsequently, a primary role of teaching is to enable students to experience and learn how to manage uncertainty. An earlier quote presented demonstrates this frustration, but also recognition of uncertainty and acceptance of this fact. Equipping students with the skills to work within uncertain environments is surely beneficial. I now make a point of explaining the grief curve to students and the importance of being able to cope with and manage uncertainty. Moreover, I frame this as being more “realistic” to what they can expect once they work in the sport industry. Such information may not be greeted with enthusiasm, but it does manage expectation. It could, in many regards, be touted as a main, yet undervalued, benefit of IBL. Furthermore, it could assist with gaining acceptance from students that this teaching approach has merit, which is important with IBL (Spronken-Smith et al., 2011)

Another potential explanation for why my students needed more guidance with IBL could be because of the context. In other studies of IBL, inquiry has been the tool to foster interest in the subject matter, such as history or ecology. In my case, inquiry was both the tool and the context. Roller derby was superfluous in many regards and another (obscure) sport could easily have taken its place. Course instruction was not built around the sport, but instead the process of inquiry. Yet students needed to be familiar with both, whereas in other IBL initiatives students' main focus is on the context. Students may therefore have felt increased anxiety because they had to learn about both the method and the context. In some regards, my study was a meta-IBL project as the main learning outcome was to learn about the research process, and not necessarily about roller derby.

This highlights an additional departure from previous research in that it has been suggested for IBL to foster a research-teaching nexus that projects need to align with the instructor's research agenda (Spronken-Smith & Walker, 2010). This seems unnecessary and limits opportunities for personal development, both for the students and the instructor. While I needed to be competent in the process of inquiry, I did not expect to be the authority on the context or the outcome of students' inquiry. This was the purview of the students. To quote Kaye (2000), “the students become the teachers and the teachers become the students” (p. 11) – a statement he makes to illustrate that the instructor, as well as the students, can experience personal growth (i.e., learning) in the classroom. In effect, this represents a shift from the popularly advocated student-centred approach to one that is learning-centred in that students and instructor are engaging in a learning activity. This creates a classroom culture that can be described as a community of learners. One student's comment alluded to this development when she stated that the final presentation “was a great way to find out what other groups had been working on the entire semester.” Students not only learn about their own experiences, but the experiences of others, too.

This does make IBL challenging to implement in research methods course in the manner presented here. Not only is there a careful balance between providing too little and too much guidance, but also the knowledge that you are entering into uncharted territory. This ceding of control may be unfamiliar to instructors. It would therefore be wise for instructors to acknowledge, both to themselves and the students they instruct, that they may not know all the answers. This shift to being more of a mentor than an instructor is an outcome that is as beneficial as it is rewarding. My personal journal through teaching this course and reflecting on it in this writing has afforded me the opportunity for personal growth. My teaching philosophy has shifted to embrace not just a more student-centred approach, but also a more learning-centred approach. I feel more relaxed when teaching as the expectation of content expert has been dampened. Stress occasionally returns when I revert back to a teacher-centred teaching style, though I am learning to be more conscious of this relapse. Such personal development is expected when taking an analytical autoethnographic approach (Anderson, 2006) and other scholars have recommended this as a means to benefit the scholarship of teaching and learning and professional development (Attard & Armour, 2005; Duarte, 2007).

It would be inappropriate to conclude without emphasising the risks of adopting IBL as a means to develop the research and teaching nexus. This was a stressful experience and I found it challenging to work with this number of students on diverse research projects. As it was my first experience using IBL I found I needed to devote considerable time to preparing each lesson. Yet it is unknown to what extent universities value such efforts. Administrators acknowledge that instructors face barriers to adopt IBL, such as resistance from peers (Justice, Rice, Roy, Hudspith, & Jenkins, 2009). Spronken-Smith et al. (2011) identified hallmarks of teachers who adopt IBL that include rebelliousness and willingness to challenge departmental norms. It is unclear whether this is a wise approach for early career faculty to take, particularly with courses like research methods where they are arguable least proficient (compared to tenured faculty) and have to instruct students who object to these courses as part of their curriculum of study. While the students in my course were able to present their research, it is moot whether institutions, tenure and promotion committees, and hiring committees count this as evidence of research productivity. Considering the challenges of teaching using an IBL strategy, particularly with first time teachers (Spronken-Smith et al., 2011), it may be appropriate to advocate for senior colleagues to mentor early career faculty on this process (Deignan, 2009). I was fortunate in that I chose to use IBL while also studying for a certificate in the scholarship of teaching and learning with other early career faculty and had an assigned mentor.

The example presented is not without its limitations. First, it could be argued that using IBL in a research methods course is unremarkable. However, this fails to appreciate that research methods is not a desirable course for many students primarily because it is often taught from a teacher-centred approach. Moreover, Wagner et al. (2011) have bemoaned the lack of pedagogical culture in research methods and there have been limited and sporadic efforts to study the teaching of research methods. As identified earlier, using IBL in research methods may be more challenging rather than less, as a context must be provided to study and students may develop diverse projects. In context driven courses, such as marketing or leadership, the range of projects would be minimized because the subject matter would provide boundaries, making this more manageable for the instructor. Instructor would likely feel more comfortable leading IBL on familiar topics even when new knowledge is being created. Thus using IBL in a research methods course may, counter-intuitively, be harder to implement; not easier.

To conclude, this paper adds to the limited, though growing literature on the research-teaching nexus and on the teaching of research methods courses. Fundamentally, this process represents a movement away from a distinction between the role of teacher and the role of researcher. Instead, it promotes a concept where two primary functions of academic life are integrated as one. In this instance, teaching and learning is considered as another manifestation of an inquiry activity (Badley 2002). Students learn and knowledge is created, rather than a simplified process where the students (ostensibly) learn through the transmission of existing knowledge. This amalgamation of research and teaching is not only of benefit to students. Scholars also benefit from this enriching experience. It provides the opportunity to learn along with those we are charged to educate.

References

- Anderson, L. (2006). Analytic autoethnography. *Journal of Contemporary Ethnography*, 35(4), 373-395. <https://doi.org/10.1177/0891241605280449>
- Anderson, L., & Glass-Coffin, B. (2013). I learn by going: Autoethnographic modes of inquiry. In S. T. Jones, T. E. Adams, & C. Ellis (Eds). *Handbook of autoethnography* (pp. 57-83). Walnut Creek, CA: Left Coast Press.
- Attard, K., & Armour, K. M. (2005). Learning to become a learning professional: Reflections on one year of teaching. *European Journal of Teacher Education*, 28(2), 195-207. <https://doi.org/10.1080/02619760500093321>
- Badley, G. (2002). A really useful link between teaching and research. *Teaching in Higher Education*, 7(4), 443-455. <https://doi.org/10.1080/135625102760553937>
- Bagwell, L., & Levitt, L. (2007). *Blood on the flat track*. Seattle, WA: Leaky-Sleezewell.
- Barnett, R. (2000) *Realizing the university in an age of supercomplexity*. Buckingham, UK: SRHE and Open University Press.
- Barnett, R. (Ed.) (2003). *Reshaping the university: New relationships between research, scholarships and teaching*. Buckingham, UK: Open University Press.
- Blackmore, P., & Cousin, G. (2003). Linking teaching and research through research-based learning. *Educational Developments*, 4, 24-27.
- Boyer Commission on Educating Undergraduates in the Research University. (1998). *Reinventing undergraduate education: A blueprint for America's research universities*. Stony Brook: State University of New York at Stony Brook.
- Brew, A. (2003). Teaching and research: New relationships and their implications for inquiry-based teaching and learning in higher education. *Higher Education Research and Development*, 22, 3-18. <https://doi.org/10.1080/0729436032000056571>
- Brockbank, A., & McGill, I. (1998). *Facilitating reflective learning in higher education*. Buckingham, UK: SRHE and Open University Press.
- Bruening, J. E., Madsen, R. M., Evanovich, J. M., & Fuller R. D. (2010). Discovery, integration, application and teaching: Service learning through sport and physical activity. *Sport Management Education Journal*, 4, 31-48. <https://doi.org/10.1123/smej.4.1.31>
- Bullough, R. V., & Pinnegar, S. (2001). Guidelines for quality in autobiographical forms of self-study research. *Educational Researcher*, 30(3), 13-21. <https://doi.org/10.3102/0013189X030003013>

- Change, H. (2013). Individual and collaborative autoethnography as method. In S. T. Jones, T. E. Adams, & C. Ellis (Eds). *Handbook of autoethnography* (pp. 107-122). Walnut Creek, CA: Left Coast Press.
- Chelladurai, P. (1985). *Sport management: Macro perspectives*. London, ON: Sports Dynamics.
- Cohen, A., & Barbee, J. (2010). *Down and derby: The insider's guide to roller derby*. Berkeley, CA: Counterpoint.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research* (3rd ed). Thousand Oaks, CA: Sage.
- Côté, J. E., & Allahar, A. L. (2011). *Lowering higher education: The rise of corporate universities and the fall of liberal education*. Toronto, ON: University of Toronto Press.
- Deignan, T. (2009). Enquiry-based learning: perspectives on practice. *Teaching in Higher Education*, 14(1), 13-28. <https://doi.org/10.1080/13562510802602467>
- Duarte, F. P. (2007). Using autoethnography in the scholarship of teaching and learning: Reflective practice from 'the other side of the mirror'. *International Journal for the Scholarship of Teaching and Learning*, 1(2), 21. <https://doi.org/10.20429/ijstl.2007.010221>
- Ellis, C., & Bochner, A. P. (2000). Autoethnography, personal narrative, reflexivity. In N. K. Denzin & Y. S. Lincoln (Eds.). *Handbook of qualitative research* (2nd ed.) (pp. 733-768). Thousand Oaks, CA: Sage.
- Elsen, M., Visser-Wijnveen, G. J., & van Driel, J. H. (2009). How to strengthen the connection between research and teaching in undergraduate university education. *Higher Education Quarterly*, 63, 64-85. <https://doi.org/10.1111/j.1468-2273.2008.00411.x>
- Elton, L. (2001). Research and teaching: What are the real relationships? *Teaching in Higher Education*, 6, 43-56. <https://doi.org/10.1080/13562510020029590>
- Epstein, I. (1987). Pedagogy of the perturbed: Teaching research to the reluctant. *Journal of Teaching in Social Work*, 1, 71-89. https://doi.org/10.1300/J067v01n01_06
- Friedman, D. B., Crews, T. B., Caicedo, J. M., Besley, J. C., Weinberg, J., & Freeman, M. L. (2010). An exploration into inquiry-based learning by a multidisciplinary group of higher education faculty. *Higher Education*, 59(6), 765-783. <https://doi.org/10.1007/s10734-009-9279-9>
- Griffiths, R. (2004). Knowledge production and the research-teaching nexus: The case of the built environment disciplines. *Studies in Higher Education*, 29(6), 709-726. <https://doi.org/10.1080/0307507042000287212>
- Harrington, J., & Booth, C. (2003, December). Rigour versus relevance, research versus teaching. In *Evidence from business and management studies*. Paper presented to Society for Research into Higher Education Annual Conference, Royal Holloway, University of London.
- Healey, M. (2005a). Linking research and teaching: exploring disciplinary spaces and the role of inquiry-based learning. In R. Barnett (Ed.) *Reshaping the university: New relationships between research, scholarship, and teaching* (pp. 67-78). Berkshire, UK: McGraw Hill Open University Press.
- Healey, M. (2005b). Linking research and teaching to benefit student learning. *Journal of Geography in Higher Education*, 29(2), 183-201. <https://doi.org/10.1080/03098260500130387>

- Healey, M., & Jenkins, A. (2009). *Developing undergraduate research and inquiry*. Research report to the Higher Education Academy. York, UK: Higher Education Academy. Retrieved from http://www.heacademy.ac.uk/assets/documents/resources/publications/DevelopingUndergraduate_Final.pdf
- 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, 235-246. <https://doi.org/10.1080/14703291003718968>
- Healey, M., & Roberts, J. (Eds.). (2004). *Engaging students in active learning: Case studies in geography, environment and related disciplines*. Cheltenham, UK: Geography Discipline Network and School of Environment, University of Gloucestershire.
- Hudspith, B., & Jenkins, H. (2001). *Teaching the art of inquiry*. Halifax, NS: Society for Teaching and Learning in Higher Education.
- Jackowski, M., & Gullion, L. (1998). Teaching sport management through service-learning: An undergraduate case study. *Quest*, 50, 251-265. <https://doi.org/10.1080/00336297.1998.10484284>
- Jenkins, A., Breen, R., & Lindsay, R. (2003). *Re-shaping higher education: Linking teaching and research*. London, UK: SEDA.
- Jenkins, A., Healey, M., & Zetter, R. (2007). *Linking research and teaching in disciplines and departments*. York, UK: Higher Education Academy.
- Jones, S. T., Adams, R. E., & Ellis, E. (2013). Coming to know autoethnography as more than a method. In S. T. Jones, T. E. Adams, & C. Ellis (Eds). *Handbook of autoethnography* (pp. 17-47). Walnut Creek, CA: Left Coast Press.
- Justice, C., Rice, J., Roy, D., Hudspith, B., & Jenkins, H. (2009). Inquiry-based learning in higher education: administrators' perspectives on integrating inquiry pedagogy into the curriculum. *Higher Education*, 58(6), 841-855. <https://doi.org/10.1007/s10734-009-9228-7>
- Justice, C. J., Rice, W., Warry, W., Inglis, S., Miller, S., & Sammon, S. (2007). Inquiry in higher education: Reflections and directions on course design and teaching methods. *Innovative Higher Education*, 31(4), 201-214. <https://doi.org/10.1007/s10755-006-9021-9>
- Kaye, H. (2000, November). World view—students speak Franklin. *Times Higher Education Supplement*, 24, 11.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kvale, S. (2002). The social construction of validity. In N. Denzin & Y. S. Lincoln. (Eds.). *The qualitative inquiry reader* (pp. 299-325). Thousand Oaks, CA: Sage.
- Le Heron, R., Baker, R., & McEwen, L. (2006). Co-learning: Re-linking research and teaching in geography. *Journal of Geography in Higher Education*, 30, 77-87. <https://doi.org/10.1080/03098260500499659>
- Levy, P. (2009). Inquiry-based learning: A conceptual framework. Centre for inquiry-based learning in the arts and social sciences, University of Sheffield. Retrieved from <http://www.sheffield.ac.uk/content/1/c6/09/37/83/CILASS%20IBL%20Framework%20%28Version%204%29.doc>
- Levy, P., & Petrulis, R. (2012). How do first-year university students experience inquiry and research, and what are the implications for practice of inquiry-based learning? *Studies in Higher Education*, 37(1), 85-101. <https://doi.org/10.1080/03075079.2010.499166>

- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Thousand Oaks, CA: Sage.
- McCright, A. M. (2012). Enhancing students' scientific and quantitative literacies through an inquiry-based learning project on climate change. *Journal of the Scholarship of Teaching and Learning*, 12(4), 86-102.
- Montcalm, D. M. (1999). Applying Bandura's theory of self-efficacy to the teaching of research. *Journal of Teaching in Social Work*, 19, 93-107. https://doi.org/10.1300/J067v19n01_08
- Murtonen, M., & Lehtinen, E. (2005). Conceptions of research and methodology learning. *Scandinavian Journal of Educational Research*, 49(3), 217-224. <https://doi.org/10.1080/00313830500109519>
- Petersen, J., & Pierce, D. (2009). Professional sport league assessment of sport management curriculum. *Sport Management Education Journal*, 3, 110-121. <https://doi.org/10.1123/smej.3.1.110>
- Pithers, R. T., & Soden, R. (2000). Critical thinking in education: a review. *Educational Research*, 42(3), 237-249. <https://doi.org/10.1080/001318800440579>
- Potter, M. K. (2009). *A primer on critical reflection*. Unpublished manuscript. Centre for Teaching and Learning: University of Windsor, Ontario, Canada.
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223-231. <https://doi.org/10.1002/j.2168-9830.2004.tb00809.x>
- Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: The experience of higher education*. Buckingham, UK: SRHE and Open University Press.
- Seymour, E., Hunter, A., Laursen, S. L., & Deantoni, T. (2004). Establishing the benefits of research experience for undergraduates in the sciences: First findings from a three year study. *Science Education*, 88, 493-534. <https://doi.org/10.1002/sci.10131>
- Spence, K. K., Hess, D. G., McDonald, M., & Sheehan, B. J. (2009). Designing experiential learning curricula to develop future sport leaders. *Sport Management Education Journal*, 3, 1-25. <https://doi.org/10.1123/smej.3.1.1>
- Spronken-Smith, R., & Walker, R. (2010). Can inquiry-based learning strengthen the links between teaching and disciplinary research? *Studies in Higher Education*, 35(6), 723-740. <https://doi.org/10.1080/03075070903315502>
- Spronken-Smith, R., Walker, R., Batchelor, J., O'Steen, B., & Angelo, T. (2011). Enablers and constraints to the use of inquiry-based learning in undergraduate education. *Teaching in Higher Education*, 16(1), 15-18. <https://doi.org/10.1080/13562517.2010.507300>
- University of Helsinki, (2007). *Top research across a broad front*. Retrieved from <http://www.helsinki.fi/excellence/index.html>.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- 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. <https://doi.org/10.1080/03075070903452594>
- Woods, D. R (1994). *Problem-based learning: How to gain the most from PBL*. Hamilton, Ontario: McMaster University.
- Young, D. S., & Baker, R. E. (2004). Linking classroom theory to professional practice: The internship as a practical experience worthy of academic credit. *Journal of Physical Education, Recreation and Dance*, 75, 22-30. <https://doi.org/10.1080/07303084.2004.10608536>