# Creating learning communities for undergraduate students participating in research

Jason Hickey

University of Calgary in Qatar

**Abstract**

The undergraduate research experience program is a funding program offered by the Qatar National Research Fund. The purpose of the program is to provide hands-on research experience for undergraduate students in order to increase their capacity for future research activities. However, leading a team of unexperienced researchers can be challenging. Minimal literature exists of how to overcome these challenges and provide a positive learning experience for novice researchers. The purpose of this paper is to: 1) describe a 'situated learning' framework, and teaching methods and approaches that may be helpful for future researchers to actively engage students in the research learning process; 2) describe our own experiences with creating a professional community of research using a team approach; and, 3) offer some practical strategies for scaffolding students to gain research skills through working in close proximity to more experienced colleagues. Helpful situated learning strategies included active engagement of students throughout the project, setting meaningful activities, meeting regularly as a team, scaffolding student learning, setting both individual and group work, assigning specific roles, engaging students in dissemination activities, sharing responsibility, and fading control of project activities to the students as their competency increased. Using a structured mentoring strategy resulted in students being actively engaged in all stages of the project. This approach helped to overcome many challenges of working with novice researchers. It was also rewarding to observe the growth of young researchers through the experiences that they gained in working as members of a research community of practice.

## Introduction

Qatar's Undergraduate Research Experience Program (UREP) aims to engage undergraduate student researchers (URs) to participate in research projects that are undertaken with guidance and mentorship of faculty members (FMs) in selected Qatari universities and educational institutions *(Undergraduate Research Experience Program (UREP)*, 2014). Supported by the Qatar National Research Fund (QNRF), there is a call for proposals twice each year (two cycles). Proposed projects should seek to promote 'learning by doing' and 'hands-on' research activities for undergraduate students to gain experience in research through working with faculty members, postdoctoral fellows, graduate students and other research staff in Qatar.

Over the past several years, there have been many successful UREP projects undertaken. However, anecdotal reports suggest that a significant challenge with the UREP process is the utilization of teaching and learning processes that enable undergraduate students to actively and meaningfully take part in the research. Often, faculty are heard to comment that UREP projects are a lot of work as they are left to do most of the research work themselves and that it is difficult to engage the students. Despite the intention of actively engaging students, faculty researchers often do not have the pedagogical knowledge and experience needed to design effective research learning experiences for undergraduate students.

With this need in mind, the purpose of this paper is to: 1) Describe a 'situated learning' framework, and teaching methods and approaches that may be helpful for future researchers to actively engage students in the research learning process; 2) describe our own experiences with creating a professional community of research using a team approach; and, 3) offer some practical strategies for scaffolding students to gain research skills through working in close proximity to more experienced colleagues. This paper highlights a worked example of research undertaken in Qatar; however, it is relevant to any academic faculty member who chooses to include undergraduate students in research.

## Description of the Nursing Corpus research project

Language use in the nursing profession can be characterized by a certain amount of technical vocabulary (Budgell, Miyazaki, O'brien, Perkins, & Tanaka, 2007). Studying nursing in a second language presents significant barriers to comprehension and retention, can drain faculty resources, and can reduce the amount of content covered. This may be partly due to the amount of technical vocabulary these students are required to learn. This UREP project aimed to identify an inclusive list (i.e., corpus) of technical vocabulary used in oral clinical nursing instruction. Technical vocabulary was defined as nursing-related words that are unique to nursing or have specialized meaning, and are not included in the General Service List for English (West, 1953) or the Academic Word List (Coxhead, 2000). Past research has demonstrated the existence of technical language for a range of disciplines, including nursing (e.g., participate, assess, symptom), medicine (e.g., cell, data, muscular) and others (Yang, 2015; Wang et al., 2008). However, for the medical sciences, these lists have been based on language used in scientific journals and may not reflect language use in the classroom or clinical setting.

A total of 63.6 hours of instruction was audio-recorded in the lab-based classes of five core clinical courses. This included 20.2 hours of Introductory Practice, 10.1 hours of Mental Health Practice, 12.2 hours of Community Clinical and 21.0 hours of Maternity/Pediatrics. Recordings were collected from eight Instructors. The recordings were professionally transcribed, and transcripts were analyzed using VocabProfile Classic v4 (available at http://www.lextutor.ca/vp) to identify the most frequently occurring technical vocabulary. Nearly half of the vocabulary used was not included in the common English language word lists. Non-nursing vocabulary (e.g., *Canada, Qatar, Riyal*) was removed from these 'off-list' items and the most frequent technical vocabulary used in each individual course, and in all courses combined, were identified. Specific results will be published in a forthcoming manuscript: *Developing a corpus of verbal clinical nursing instruction* (Hickey et al., 2015, in press).

Preliminary results were presented at a faculty council meeting. The purpose of this presentation was to disseminate findings and to discuss ways of utilizing results to enhance teaching and learning outcomes. Two methods were identified. First, the high frequency vocabulary lists should be shared with colleagues in our English for Academic Purposes (EAP) department. Our results will be combined with other vocabulary work already underway and will likely be introduced in EAP classes. Second, the combined and course-specific high frequency word lists will be distributed to all nursing instructors. One potential way to utilize the results would be to provide the list to students prior to the start of a course (e.g., Psychiatric Nursing) so they can familiarize themselves with the course-specific vocabulary. Identifying and measuring the most effective ways to utilize results in EAP and nursing classes may be the focus of a future study.

## Adoption of a Situated Learning framework

Higher education teaching and research training is guided by many perspectives and approaches from adult learning theories and instructional principles. For example, 'experiential learning' is learning through reflection on doing – the process of making meaning from direct experience, i.e., "learning from experience" (Kolb, 1984; Moon, 2004). Typically, behavioral principles are applied for teaching new ('psychomotor') skills; cognitive principles are used to teach conceptual and clinical processes; and constructivist principles are used to explain how students gain knowledge and understanding. Despite this eclectic mix of theories, there has not yet been an overarching pedagogical framework for guiding the teaching and learning process within undergraduate teaching and research experience programs. The tendency is to draw upon a wide range of learning theories as appropriate to explain and provide direction to the teaching and learning processes.

For the purpose of our UREP project, the faculty members (FMs) adopted a 'situated learning framework' to guide teaching and learning with URs as research apprentices. 'Situated' means that the learning events are authentic and realistic – recognizing the relevant interactions between the people, the tools and the context of the situation. Unlike the broad concept of experiential learning, situated learning sees knowledge and skills as being constructed through instructors and students working in close cognitive proximity to one another. Learning is thus socially situated within a specific context and takes place through the shared use of tools and language that are used to mediate the learning process. Situated learning is not just another theory or perspective but a concise framework to guide and design learning events that incorporate the mind, the body, the activity, and other ingredients within a complex and interactive context (Paige & Daley, 2009).

Situated learning has become established as a useful framework for understanding and guiding the teaching and learning processes within nursing research education (Gieselman et al., 2000; Wyrostok et al., 2014). Paige and Daley (2009) explain how situated cognition provides a learning framework for guiding and designing clinical simulation activities. As these authors explain, the learning context is central to understanding cognition. Learning evolves within the education environment from the interactions of the: (a) activity; (b) people; and (c) prior knowledge that are brought to the situation (Jean Lave, 1988). Figure 1 provides an analysis of the ecology of the situated learning environment as this occurred within the UREP Project.

The situated learning environment included many different types of instructional methods and learning strategies. These methods and strategies can be thought of as the 'tools' that can be applied to create situated learning events.

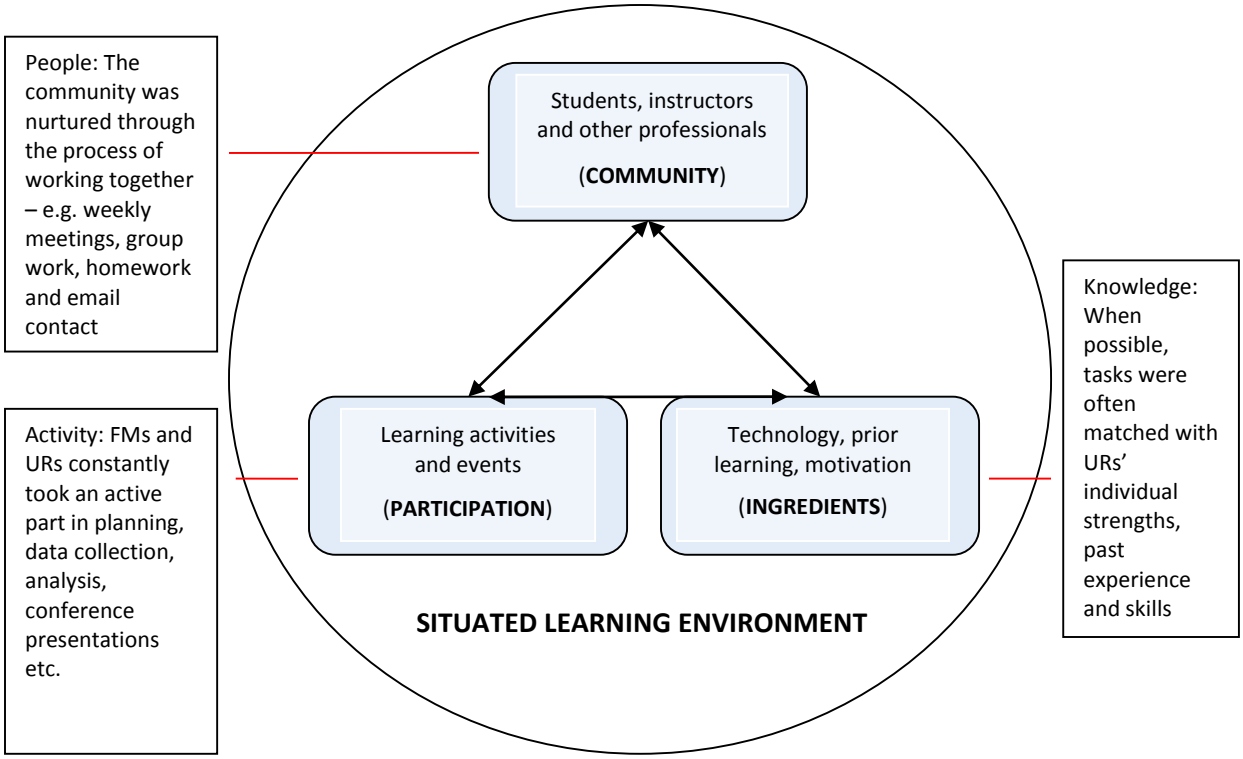


**Figure 1: Ecological analysis of the Situated Learning Environment (diagram adapted from Paige & Daley, 2009, p. e99).**

## Application of a Situated Learning framework

The situated learning framework was used from the outset to guide the development of the UREP Project and as a means to promote active participation of the Undergraduate researchers (URs) within a research community. The guiding principles for our project were as follows:

1. Actively engage students from the earliest stage.
2. Set activities that meaningfully engage the student apprentices in working with the faculty mentors.
3. Meet regularly (weekly) to review progress and engage everyone in the tasks at hand.
4. Scaffold student learning so that each UR can perform tasks and take an active part in the meetings – e.g. procedure, selecting and learning to use software, data collection, data analysis, interpretation.
5. Set individual work and group work to be completed prior to each meeting.
6. Assign roles and appoint an UR to take notes at each meeting.
7. Engage students as co-presenters in conference presentations and dissemination of results.
8. Give students responsibility at every stage of the project.
9. Fade control of project activities to URs as they become increasingly confident and competent.

## Role of the Undergraduate Researchers

Undergraduate researchers had an integral and inclusive role in all aspects of the project. Working in close proximity to FMs, the URs were guided to gain knowledge and skills in the planning and

implementation of a research study and the dissemination of results. They participated in a research enterprise that was situated within the real-world of professional inquiry and empirical research.

The situated learning framework was applied to enhance the student learning experience. Situated learning theory is drawn from the work of cognitive scientists based on the premise that learning is influenced by the situation in which it occurs (Lave & Wenger, 1991; Vygotsky, 1978). Learning and knowing are integrally and inherently situated within a definite context (e.g. research, clinical practice). In practice, situated learning occurs when learners have an opportunity to engage in shared activity with and imitation of more experienced collaborators (Brown et al., 1989).

Throughout the research project, the faculty mentors sought to create a *community of practice*, in which students as 'newcomers' worked in close cognitive proximity to the FMs as 'old timers' to develop their experience and skills. FMs collaborated with and coached the students, engaging them in a *cognitive apprenticeship* to master the skills of research. We did this purposefully through the use of situated learning events in which students were guided from the periphery to the center of the learning process (Lave & Wenger, 1991). FMs and URs worked within a collaborative project team to scaffold the students in undertaking various research tasks (e.g. planning, gathering data, analyzing and interpreting data). The approach that we adopted was based on examples provided by Gieselman et al. (2000) who demonstrated how this model can be successfully applied to teaching nursing research to novices.

The community of practice approach involved a structured division of labor and communication. First, each FM was responsible for the preparation & delivery of two-three modules (see module descriptions and timeline below). Modules were assigned to FMs based on their areas of strength; this ensured that each FM was able to divide his/her time on the project between module preparation/delivery and day-to-day mentoring of URs. The entire project was planned to occur over the period of twelve months. However, initial modules were completed prior to the official start of the project (September) and some of the work required to publish the results occurred after the close of the project.

Second, each FM was paired with two URs. These triads worked together outside of regular meeting times on assigned tasks, when clarification was needed, or when problems presented themselves. For example, if any of the six URs were having a problem with part of their independent literature review they could contact either the FM or the other UR in their triad (or both). This ensured a systematic method of day-to-day communications and provided clarity about whom someone should contact if they needed support. Issues considered serious, or those that the entire team would benefit from being made aware of, were communicated to the primary investigator and then communicated to the other members of the research team (e.g. procedure for recruiting and setting up recording of lectures with the course instructors).

URs and FMs collaborated from the outset by working together on the process of drafting, reviewing and submitting the proposal. URs were guided through clearly defined stages of the research project. They gained experience in identifying a problem, creating a research question and determining the steps to answer that question; conducting a literature review and critically appraising the literature; identifying and selecting relevant methodology, identifying appropriate tools/technology to collect data, and deciding on approaches to data analysis; submission of a request for ethics approval; recruitment of participants and obtaining consent (including discussions around ethics); and data collection, entry and analysis. URs also received mentorship related to dissemination activities. Students participated in identifying relevant conferences, preparing presentations and presenting results at internal and external venues. They also assisted in the preparation of a manuscript for submission. As well, URs were given the opportunity to review and offer feedback on the progress and final reports required by UREP funding guidelines. Throughout this collaboration, other commitments (e.g., exams, family

engagements) sometimes made it difficult for individuals to fully contribute. One of the advantages of having all members involved with each aspect of the project was that during these times, other team members were able to absorb the additional work.

The research team divided the project into eight modules:

Table 1. Timeline for learning modules.

| Module | Date |
|---|---|
| 1. Problem identification/Setting the initial research question | March 2013 |
| 2. Applying for Funding | April 2013 |
| 3. Literature Review/Revising the research question | September-October 2013 |
| 4. Research Design/Ethics | November 2013 |
| 5. Piloting the study/Data Collection/ Data Quality | December 2013-February 2014 |
| 6. Analysis of Results | February 2014 |
| 7. Dissemination and translation of results | February 2014-June 2014 |
| 8. Final report | June 2014 |

Results from this study were disseminated internally at the University through a presentation at a Faculty Council meeting and through meetings with internal stakeholders and decision makers. External presentations included the UCQ Teaching and Learning Conference, Doha Qatar (May, 2014); and the Sigma Theta Tau International 2nd European Regional Conference, Gothenburg, Sweden (June, 2014). A manuscript is currently being prepared for publication in a peer reviewed journal.

The research project provided an authentic experience for URs to work as members of a research team. In the process, they learned how to plan, implement and disseminate a quantitative research study. Specific learning experiences included: gaining experience accessing and appraising scientific knowledge; acquiring an understanding of different research methodologies; completing the University of Calgary's course on research ethics covering the importance and meaning of ethics and the rules of conduct (Panel on Research Ethics, n.d.); taking part in preparing and gaining ethics approval; and opportunities to participate in presentations and meetings to advocate for the immediate translation of research results into new institutional practices. In general, URs gained experience with problem solving; using scholarly communication skills; working productively under the tutelage of a mentor; working with an inter-professional research team, developing an understanding of the relationship between language and education at a transnational campus in Qatar; working collaboratively with faculty members outside of the classroom setting; obtaining knowledge; producing deliverables (e.g. conference presentations and publications) that could facilitate their transition to graduate studies; and developing an appreciation for scientific inquiry.

## Findings

### *Effective strategies for engaging undergraduates in research*

Like the research process itself, planning and implementing the undergraduate research experience requires strategic thinking. This can be a very creative process aimed at guiding students to acquire the knowledge and skills they need to meaningfully participate. As a form of inquiry-based learning, there

are lots of opportunities to give students roles and responsibilities in the research team. Following are some scaffolding strategies that we used to successfully engage URs in our own project.

### Inquiry-based learning

Inquiry-based learning is a

> complex process where students formulate questions, investigate to find answers, build new understandings, meanings and knowledge, and then communicate their learnings to others. (Government of Alberta, 2014)

Research suggests that inquiry-based learning has the potential to improve the quality of teaching and learning in postsecondary institutions (Deignan, 2009).

We set tasks for the each of the student groups or pairs. For example:

- Conduct literature searches on nursing language instruction and vocabulary analysis software;
- Compose individual analysis of data from the pilot class recording;
- Locate information on possible conferences and publication sources;

In order to share what they learned, groups would report back their results during the team meetings. The findings would then be discussed with a focus on how these might contribute to the current research project. Students were encouraged to voice their opinions about how to solve particular problems and issues. The lead investigator facilitated debate on these opinions and encouraged collaborative decision making at all times.

### Think-Pair-Share

This is a useful strategy for shared problem-solving and encouraging students to take an active part in research meetings (Lyman, 1987). First the group is briefed on a particular problem or issue that needs to be dealt with. Second, the team members work in pairs (in our case, triads) to identify possible ideas and solutions strategies. Third, each pair shares the ideas that they have been discussing with the entire group.

For example, in our project we needed to work out a procedure for orienting instructors and collaborating with them to ensure the audio data was gathered for each clinical lecture. Each triad worked together to identify the steps that would be required. We then reconvened as a large group to put our ideas and information together. This resulted in a procedural checklist that we used to guide the data collection process.

### Scaffolded learning

The term ‘scaffolding’ in learning was initially introduced by Wood et al. (1976). Scaffolding, in the form of coaching or modelling, supports students as they develop new skills or learn new concepts. Sufficient structure is provided to keep students productive without destroying initiative, motivation and resourcefulness. Instructors provide the structure but the most important work is done by the students who must complete the work and develop new insights. As the student achieves competence and insight, the faculty support is removed (Starr, 2000).

One situation in which we used a scaffolded learning approach was to show team members how to use vocabulary analysis software. An instructor would first show the research team the procedures for carrying out an analysis on a computer connected to an overhead projector; the entire group would do an analysis together with the instructor. Individual students were then invited to carry out an analysis of text with prompts and guidance from the instructor: each student was given a turn to complete an

analysis with the group observing. Team members were then given 'homework' requiring them to carry out an analysis on several transcripts and then to add their data to a master folder using *Dropbox.* As the students became increasingly familiar with the process, the instructor support and guidance were gradually removed, and increasing independence was encouraged.

#### Active student-centered learning

Table 2 shows how FMs and URs worked together to carry out research tasks and to contribute to the community of research practice. Tasks were clearly identified at the team meetings. Students were invited to volunteer to take lead responsibility for specific tasks – e.g. rotating computer tasks, weekly note-taking, sub group activities, and pilot testing. The FMs set expectations for all students to participate in the majority of research tasks – e.g. shared problem solving, online consultation, and stakeholder meetings.

**Table 2: Faculty and student research responsibilities.**

| | |
|---|---|
| Task analysis | Tasks were broken down into small steps and shared amongst team |
| Rotating computer tasks | Students took turns going guided analysis in a supportive group setting |
| Weekly meeting notes | Team rotated responsibility for minute taking |
| Sub groups | Faculty and students formed sub-groups (triads) for coaching and completing tasks |
| Pilot testing | Team worked together to pilot recording and data analysis |
| Shared problem solving | Team critically analyzed problems and identified solutions |
| Electronic collaboration | Collaboration via email and text messaging supplemented weekly meetings |
| Stakeholder relations | FMs/URs worked with individuals outside of the team to facilitate study |

### *UREP steps to success*

#### Engage students from the very beginning

Step one is to invite prospective students to an information session right at the beginning to outline the research opportunities and to explore their interest in participating and the benefits that could arise from the research experience. For our project, we included six students at the outset to develop the research questions and to formulate the research design, to review the funding proposal and to jointly submit the proposal online. Once the proposal was accepted, we immediately met with students to confirm their interest and availability and to gain a commitment from all members of the research team. One team member had to be replaced at this point because she did not feel she could fully commit to the project.

#### Map the project tasks, timeline and participation methods together

Step two is to define each of the stages and tasks to be undertaken by the FMs and the URs. We met with the URs in June prior to the end of the term to establish our tasks and timeline together. To assure an early start, the team decided to prepare the ethics application over the summer period (July and August) via email and document sharing so that we could have an early start in the next academic year (September onward). We asked all members of the research team to complete the CORE course on research ethics (Panel on Research Ethics, n.d.). Participation in activities that occurred prior to the proposal being accepted and/or outside of the regular semester were voluntary for students.

### Set expectations: yours and theirs

Step three is to describe the UREP process and the focus on providing undergraduate research experience. Outline the faculty and student roles and the team member responsibilities. Prepare a set of expectations together so that there is shared understanding of the requirements and expectations. For example, we expected that all team members would be present for all weekly meetings and research tasks and activities. When a team member was not able to be present at a meeting, we divided the work among those who were present and informed the missing member of our progress. Team members who were late or absent were immediately contacted and expectations for participation were reviewed. This was particularly important at the beginning of the project, since most of the URs had not been part of a research team before.

### Structure the critical elements

Structure is essential for providing meaning and direction to the URs and FMs. In our project, we emailed an agenda of the tasks that needed to be dealt with at each weekly meeting. During meetings, students volunteered to undertake specific tasks and then to report back to the research team. For example, in our project we assigned URs to a sub-group with an FM as coach to undertake different parts of the literature review.

### Provide the right kind of support

Throughout the project we maintained a focus on providing a meaningful research experience for the students. This requires that a range of teaching and learning support methods be used in order to position students so that they could take responsibility for research tasks. FMs purposefully avoided taking over; at times this would have facilitated the research process, but detracted from the student experience. We encouraged students to volunteer for tasks they felt comfortable with doing independently. When the task was more complex, or when tasks had to be assigned, more support was provided by FMs. For example, the FMs actively guided the URs in preparing a checklist of procedures for orienting the instructors and gathering the audio recording data. URs then used this checklist independently as a guide when collecting the data.

### Assess the experience

The URs and FMs frequently reviewed the project to see how things were going for each of the team members and whether they were making progress in their learning. URs were asked to write a brief statement about half way through the project outlining their learning experiences and what they had been able to contribute to the project. The principal investigator often turned to the students in order to get their ideas and advice on how to carry out particular tasks. It was important for FMs to be 'negotiable' on certain points in order to empower the URs in making decisions and taking some ownership of the project. For example, students were actively involved in preparing a presentation on scaffolded learning and self-assessment within a research community of practice. This was presented at the UCQ Teaching and Learning Conference (Doha, 2014) and the University of Calgary Postsecondary Teaching and Learning Conference (Calgary, 2014). Several of the URs in our project independently produced a high quality video program describing their participation in the project and what this had contributed to their learning and professional growth.

### Engage Students in Academic Scholarship

The final step is to provide students with active and responsible roles in preparing reports, presentations, and articles for publication. This requires a scaffolded learning approach to provide the right kind of support for students to take a meaningful and contributing part in the scholarship. In our

project, students independently did a presentation at a Faculty Committee Meeting and also led the presentation at the Teaching and Learning Conferences.

## Conclusion

The success of undergraduate research projects depends upon the effective use of teaching and learning methods that can actively and meaningfully engage students. One of the primary aims of the UREP funding program is to provide meaningful research experience for students; this should be a primary focus throughout the project. Making a systematic effort to involve and engage students in the project can be a very rewarding process as it not only produces research outputs but can also contribute to the growth of young researchers through the experiences that they gain in working as members of a research community of practice.

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## References

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, *18*(1), 32–42. http://dx.doi.org/10.3102/0013189X018001032

Budgell, B., Miyazaki, M., O'Brien, M., Perkins, R., & Tanaka, Y. (2007). Developing a corpus of the nursing literature: A pilot study. *Japan Journal of Nursing Science*, *4*(1), 21–25. http://dx.doi.org/10.1111/j.1742-7924.2007.00071.x

Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, *34*(2), 213–238. http://dx.doi.org/10.2307/3587951

Deignan, T. (2009). Enquiry-Based Learning: perspectives on practice. *Teaching in Higher Education*, *14*(1), 13–28. http://dx.doi.org/10.1080/13562510802602467

Hickey, J., Ryba, K., Adam, M., Al Neama, M., Jumah, R., Al Dosari, M., Al Mohammadi, J., Edwards, E., Zadeh, H. Developing a Corpus of Verbal Clinical Nursing Instruction. Journal of Educational Thought. *In Press*.

Gieselman, J., Stark, N., & Farrugia, M. (2000). Implications of the situated learning model for teaching and learning nursing research. *The Journal of Continuing Education in Nursing*, *31*(6), 263–268.

Government of Alberta. (2014). Inquiry Based Learning. Retrieved November 4, 2014, from https://education.alberta.ca/teachers/aisi/themes/inquiry.aspx

Kolb, D. (1984). *Experiential Learning: Experience as the Source of Learning and Development* (1st edition). Englewood Cliffs, N.J: Financial Times/ Prentice Hall.

Lave, J. (1988). *Cognition in Practice: Mind, Mathematics and Culture in Everyday Life*. Cambridge ; New York: Cambridge University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.

Lyman, F. (1987). Think-Pair-Share: An expanding teaching technique. *MAA-CIE Cooperative News*, *1*, 1-2.

Moon, J. A. (2004). *A Handbook of Reflective and Experiential Learning: Theory and Practice*. Psychology Press.

Paige, J. B., & Daley, B. J. (2009). Situated Cognition: A Learning Framework to Support and Guide High-fidelity Simulation. *Clinical Simulation in Nursing*, *5*(3), e97–e103. http://dx.doi.org/10.1016/j.ecns.2009.03.120

Panel on Research Ethics. (n.d.). TCPS 2: CORE. Retrieved November 4, 2014, from http://tcps2core.ca/welcome

Starr, L. (2000). Teaching the American Revolution: Scaffolding to Success. Retrieved November 4, 2014, from http://www.educationworld.com/a_curr/curr218.shtml

Undergraduate Research Experience Program (UREP). (2014). Retrieved October 21, 2014, from http://www.qnrf.org/en-us/Funding/Capacity-Building-and-Development-Programs/Undergraduate-Research-Experience-Program-UREP

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Wang, J., Liang, S., & Ge, G. (2008). Establishment of a Medical Academic Word List. English for Specific Purposes, 27(4), 442–458. http://dx.doi.org/10.1016/j.esp.2008.05.003

West, M. (1953). *A general service list of English words*. London: Longman Green.

Wood, D., Bruner, J. S., & Ross, G. (1976). The Role of Tutoring in Problem Solving. *Journal of Child Psychology and Psychiatry*, *17*(2), 89–100. http://dx.doi.org/10.1111/j.1469-7610.1976.tb00381.x

Wyrostok, L. J., Hoffart, J., Kelly, I., & Ryba, K. (2014). Situated cognition as a learning framework for international end-of-life simulation. *Clinical Simulation In Nursing*, *10*(4), e217–e222. http://dx.doi.org/10.1016/j.ecns.2013.11.005

Yang, M.-N. (2015). A nursing academic word list. English for Specific Purposes, 37, 27–38. http://dx.doi.org/10.1016/j.esp.2014.05.003