

Building a Culture of Research

Using Undergraduate Research to Advance the TR Profession, Build Research Capacity, and Foster Collaborative Relationships

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Abstract

The purpose of this paper is to provide a rationale for rethinking the role of undergraduate research and to describe Douglas College's innovative approach to developing a research culture through fostering undergraduate therapeutic recreation (TR) students' research skills. In the literature review we build the case for an undergraduate research-based curriculum as an essential step in building a research culture. A research skills development framework (Willison & O'Regan, 2007) is presented as a way to view research skills and to understand how a student might progress and develop research competence. The role of collaboration is examined as an intimate and essential aspect of building a research culture. We present the initiatives and ideas that Douglas College has used in its quest to create a research ethos that embraces not only the TR Department but also the TR community, and conclude by outlining future steps to continue the work at Douglas, including reaching out to other educational institutions to collaborate on research projects.

Keywords: *Therapeutic recreation, curriculum, undergraduate research, education, Research Skills Development Framework, research culture, community-based research*

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Introduction

Similar to other allied health professions, therapeutic recreation (TR) faces increasing pressure to be evidence-based. The development and integration of sound evidence into TR curricula and practice are seen as essential to the profession's sustainability and advancement (Carruthers & Hood, 2007; Reid, Landy & Leon, 2013; Stumbo, 2009). Yet placing demands on TR practitioners (TRPs) to adopt evidence-based practices is challenging. In Canada, TRPs, similar to other allied health professionals, face increasing demands on their time in a context of health care and government downsizing. It is unrealistic and ultimately unfeasible to expect TRPs to adopt evidence-based practice when they may have little research training, few supports from their workplace, and diminishing time to manage their overburdened workloads.

Douglas College, an educational institution in western Canada that offers a diploma and undergraduate degree in TR, acknowledged this tenuous situation and identified the need to foster a research culture in their TR department and among their faculty and students. No longer does the "tired old teaching versus research debate" (Boyer, 1990, p. xii) serve educational institutions that aim to support their graduates in their chosen fields. The notion of a research culture is a creative and progressive reframing of the connection between teaching and research. It does not separate teaching and research as distinct activities; rather it embraces aspects of research as integral to learning almost any subject and repositions faculty and students alike as researchers. From the perspective of the TR Department at Douglas College, a research culture is based on the following assumptions: a range of pedagogical approaches are necessary for teaching re-

search; an intimate connection exists between research and experiential learning; and ongoing and cumulative exposure is necessary to build confidence and competence in research skills. Building a culture of research that permeates a department also involves a range of initiatives, such as curriculum revisions and scaffolding research skills across courses, active involvement of community organizations and partners, and connections to faculty-directed research projects. A thriving research culture has faculty who work collaboratively across all areas of the curriculum to ensure that the development of research skills is intentional, incremental, and meaningful to the students. In sum, the sustainability and advancement of the TR profession relies on educational institutions building a research culture, and fundamentally rethinking pedagogical approaches to teaching research, so that students, faculty, and graduates have adequate skills to enable the appropriate uptake of evidence-based practice in the field. The purpose of this paper is to provide a rationale for rethinking the role of undergraduate research and to describe Douglas College's innovative approach to developing a research culture through fostering undergraduate TR students' research skills.

The Role of Research in Advancing the TR Profession

Research can be defined as "the process of discovering or uncovering new knowledge. Research is distinct from our everyday musings and problem solving because it involves a systematic inquiry into a phenomenon of interest" (Kirby, Greaves, & Reid, 2006, p. 12). There are mounting expectations for the TR profession to establish its unique body of knowledge and for TR interventions and assessments to be based on sound

evidence (Carruthers & Hood, 2007; Stumbo, 2009; Reid, et al., 2013 Velde & Murphy, 1994). To further the TR profession the need for research in practice is no longer simply 'nice to do' but rather it has become 'essential to do'. The Alberta Therapeutic Recreation Association (ATRA) identified essential growth and leadership competencies for the practice of recreation therapy in Alberta (ATRA, 2012). Research is identified under growth competencies and includes following required agency and/or government protocols, utilizing a variety of research methods, analyzing and applying findings to practice and communicating the findings through media such as presentations and journal submissions (ATRA, 2012). Building research into the profession will increase professional recognition, demonstrate evidence-based practice, provide methods to evaluate the efficacy of TR interventions, and, importantly, improve the level of service to clients. Indeed, increasing research competency in the TR profession demands that students and practitioners develop an understanding of research and research methodologies (Anderson et al., 2011; Austin, 2002; Compton, 2010; Murray & Coyle, 2006; Witman, Kinney, Sable & Kinney, 2009).

The Role of Research in TR Curricula

Over the last 40 years, numerous studies on TR education and curriculum (Anderson, Ashton-Schaeffer & Autry, 2000; Autry, Anderson & Sklar, 2010 Anderson & Stewart, 1980; Stein, 1970; Stewart & Anderson, 1990; Stumbo & Carter, 1999a/b; Stumbo, Carter & Kim, 2004a/b) have provided insight into current trends and allowed educators the opportunity to review what was working and what needed to be changed. Witman et al. (2009) discussed the standardiza-

tion of TR curricula and identified the need to ensure curriculum and current practice were connected. While there continues to be some disagreement about core TR curricula, the literature on TR professional issues and curriculum development clearly identifies the need for research in the field. Providing quality education that is current, consistent and includes research will result in more research being done leading to high quality practice and valued contributions to the field, the community and the greater society (Navar, 2009; Stumbo, 2009). TR educators must take the initiative to prepare undergraduates to recognize and appreciate the importance of research and to implement research findings into practice (Austin, 2002). Yet little literature exists on the explicit development and infusion of research skills in TR undergraduate curricula. While skill development that includes critical analysis and inquiry, decision making related to practice and service, and the ability to be reflective in practice are all vital for successful advancement of TR practice, there is a dearth of TR literature that explores how these skills, as well as skills explicitly focused on research and evaluation, are fostered with undergraduate TR students.

The Importance and Benefits of Undergraduate Research

Undergraduate research can be defined as: "An inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline" (Council on Undergraduate Research, n.d.). Although it is not the focus of this article to debate definitions of undergraduate research, tensions arise in attempting to put parameters on its definition. For example, should all undergraduate students have access to research opportunities or only

the ones with predetermined skill sets? What is the intended outcome of undergraduate student involvement in research? Is it appropriate or ethical for an undergraduate student to drive a research project? At the undergraduate level what does “original” research mean? (Beckman & Hensel, 2009). It is important to recognize and consider these tensions for two reasons. First, debating these tensions can give rise to a fundamental rethinking of what it means to do research and who can be a researcher. Second, deliberating on these tensions forces any institution, faculty or department to consider its contextual opportunities and challenges and to then arrive at some consensus on their definition of undergraduate research and how it can best be operationalized within their own environment.

Despite these tensions, discussions of the importance of undergraduate research have been ongoing for some time. The Boyer Commission Report (1998) had three major recommendations for undergraduate research that garnered the most attention: (1) make research and creative scholarly activities the focal point of undergraduate education; (2) create a first year foundational experience that engages and captivates students to develop critical skills; and (3) provide opportunities for collaborative experiences, inquiry-based learning, critical analysis and development of good written and oral communication skills. Although many educational institutions have embraced these recommendations, the majority of undergraduate research remains in the sciences where quantitative research methods are established and appear to be more easily implemented. However, now more and more undergraduate research is being applied to less traditional or less quantitative-based environments (Willison & O’Regan, 2007).

The benefits of undergraduate research include: improved student learning through developing a faculty mentorship relationship; increased student retention; more students pursuing graduate-level education; improved career preparation; improved skills that support critical thinking, creativity, problem-solving and intellectual individuality; enhanced research methods; and finally, an enhanced culture of innovation (Council on Undergraduate Research, n.d.). In various studies undergraduate students involved in research reported more confidence, self-motivation and independence in their thinking; they took more ownership of their education and learning, and feelings of competency increased as they contributed to knowledge in their chosen field (Beckman & Hensel, 2009; Brandt & Hayes, 2012; Lopatta, 2012). Student engagement increased when they were genuinely stimulated by the research question, in particular when that question focused on real-life problems. The earlier students are exposed to research experiences and related skills, the more opportunities they have to practice and utilize the skills, increasing the likelihood they will continue using research skills post-graduation (Grabowski, Heely, & Brindley, 2008).

Rethinking Research in TR Undergraduate Curricula

Rethinking the role of research in TR undergraduate curricula requires embracing a student’s active involvement in research as integral to learning almost any subject and repositions faculty and students alike as researchers. With this innovative reframing of the potential for and role of research, it is necessary to find creative ways to rethink TR undergraduate curriculum, likely resulting in curriculum reform from a more content-driven

curriculum toward a more process-driven one (Brandt & Hayes, 2012). For example, instead of students listening to faculty lecture about how to do research or the required skills, students begin to actively engage in the development of their own research skills in semester one of year one including completing observations and field notes as well as literature reviews.

To help educators reframe how teaching and research are linked, Griffiths (2004) developed a framework describing this relationship in three ways: research-led, where faculty's research is highlighted and students learn about research findings; research-oriented, which emphasizes research processes used to produce knowledge as well as learning about existing knowledge; and research-based, where roles of students and teachers are blurred and students learn as researchers using inquiry-based curriculum. This final approach mirrors the Boyer Commission's (1998) suggestion that research-based learning be the norm using inquiry-based learning techniques such as students formulating questions and finding evidence to answer them, beginning in year one of a four year degree. There are numerous inquiry-based learning methodologies that provide opportunities for more active and engaged student learning experiences where students work collectively to discover knowledge and enhance skills. "Service-learning, internships, group learning activities, and the use of advanced technologies have all been used to help shift many institutions emphasis from teaching to learning" (Malachowski, 2012, p. 55). Action-based research methodologies, including community-based research, have been shown to increase student engagement and enhance collaborative learning, social action, policy change, problem-solving abilities and overall student satisfaction (Beckman &

Hensel, 2009; Paul, 2012; Perez, 2003; van der Meulen, 2012). Healey and Jenkins (2006) believe that the linkage between teaching and research lies in the design, delivery, and grading of inquiry-based learning or research courses. If we accept that the primary purpose of undergraduate research is to foster student learning, it seems logical to construct building blocks of research skill development with skills embedded throughout the curriculum beginning in year one and moving through to year four. This recognizes that many first year students do not have the higher-order skill sets, such as synthesis and evaluation that produce effective research practice (Garde-Hansen & Calvert, 2007). By focusing on student learning, the connection between research and teaching becomes intertwined and the curriculum becomes the focal point for teaching-research linkages (Healey & Jenkins, 2006). Embedding research skill development throughout a curriculum recognizes its importance in student development and makes it one of the pillars in building a culture of research. Teaching-research linkages incorporate student engagement, encouraging them to be part of the process of knowledge development instead of just being recipients of the knowledge. This enables students to not only build on content knowledge specific to their field, but also to build research skills specific to conducting independent research (Beckman & Hensel, 2009; Garde-Hansen & Calvert, 2007). Examples are provided in the section "Douglas College Initiatives to Build a Research Culture."

Research Skill Development

In therapeutic recreation and many other disciplines, as a student advances through the curriculum, new skills and knowledge are added, challenging them

to “ask questions of increasing sophistication, specificity, depth and breadth that set them on a journey towards making the unknown known” (Australian Learning and Teaching Council–ALTC, 2009 p. 4). Research skill development should be no different. Traditionally however it has been a skill set that is associated with ‘researchers’ engaging in activities with a few ‘top’ students, such as those moving on to graduate studies or those hired to support a faculty’s project. If we want to build research capacity by increasing the competence and confidence of TR practitioners to participate in, and use research in practice, we cannot just support the limited number of graduate students as being the sole champions of research. We must shift the focus to ensure all students develop research skills for meaningful engagement, and then carefully and intentionally incorporate undergraduate research skills across the curriculum (Willison & O’Regan, 2007).

Willison and O’Regan (2007) developed the Research Skill Development Framework (RSDF) to increase awareness of the process involved in research skill development for both educators and students (see RSDF in Appendix A <http://www.adelaide.edu.au/rsd/framework/>). The RSDF provides a structure to systematically show the progressive development of research skills where the connection between research and learning is fused together “whether researching into the commonly known, the commonly unknown or the totally unknown, the process may equally be labeled researching or learning; ‘research is learning’” (Brew, 1988 cited in Brew & Boud, 1995, p. 267). A key underlying premise is that at all levels of education, whether it be at the elementary, high school or university level, students use common research processes and skill sets to com-

plete assignments but do so with variation in the degree of rigor, the depth and methodology, the complexity of discussion and level of specialization utilized in the inquiry process (Willison & O’Regan, 2007). These common research processes are labeled facets of research or inquiry and are based on elements from Bloom’s Taxonomy and ANZIL (2004) Standards models. The six facets of inquiry in the research process guide the RSDF and include (1) embarking on inquiry and determining a need for knowledge, (2) finding/generating needed information/data using appropriate methodology, (3) critically evaluating information/data and the process to find/generate them, (4) organizing the information collected/generated, (5) synthesizing and analyzing new knowledge, and (6) communicating knowledge and understanding and the processes used to generate them (Willison & O’Regan, 2007).

Other key variables that guide this framework include the degree of knownness, that is, the knowledge being examined can range from ‘commonly known’ through to ‘totally unknown.’ At all levels of education students research knowledge that is unknown to them, but which is commonly known to others, however, when students pursue a discipline such as TR they more often research knowledge commonly unknown to themselves and others outside the discipline. The degree of knownness is closely linked to the degree of student autonomy which can change from closed to open as a student progresses through the framework. Student engagement with ‘closed inquiry’ involves a lower level of autonomy with the faculty member giving more structure and guidance using set outcomes with specified methods and processes. Student engagement with open inquiries involves a higher level of autonomy with the stu-

dent making most or all of the decisions (Willison & O'Regan, 2007). For example, in first and second year courses, all students are given set criteria and assignment requirements while in many third and fourth year courses, guidelines and requirements are more general, open for interpretation and provide students the opportunity to make decisions regarding the final project outcome. This is demonstrated in the grading rubric example later in the article where the student is engaged in closed inquiry completing very structured tasks for each of the facets of research.

The RSDF can be adapted and used to allow the explicit incorporation and scaffolding of the facets of research, degree of knownness and student autonomy throughout the curriculum to build students' competence in research skills so that research will be incorporated into their everyday practice.

Building a Research Culture

Collaboration among faculty, students, administration and the community is required to build a thriving research culture in undergraduate education. Culture implies shared beliefs, philosophy, practices, and attitudes (Peterson, 1979) that encompass the whole learning experience involving not only the curriculum but also the internal and external environment of the institution. Clearly for this to occur there must be dedication and a strong desire among all the stakeholders.

Faculty collaboration includes investment in a common language regarding the definition of undergraduate research as well as consistency in themes, terminology and expectations of being involved in undergraduate research throughout the curriculum and department. It also can involve mentor-

ing students and verbalizing the importance of undergraduate research not only in a traditional research project, but also recognizing creative and scholarly work throughout the curriculum (Merkel, 2003). Faculty need time to engage in authentic collaboration where there is meaningful discussion, agreement and joint decisions about curriculum changes (Briggs, 2007). Often the biggest challenge facing educators is how to go about achieving the desired goal in an orderly way (Russell, 2010). Healey and Jenkins (2006) emphasize the important roles that course teams and departments have in taking proactive approaches to organize resources for the change to occur. When faculty can work together and reinforce the integration of an approach such as inquiry-guided learning into the curriculum there is more success (Lee & Ash, 2010).

Curriculum change, in particular change to engage students in meaningful learning and research, requires collaboration with community. As previously discussed and recommended by the Boyer Commission, inquiry-based learning methodologies such as service learning and action-based research methodologies including community-based research (CBR), are successful ways to engage students and partner with the community. Reid, Brief, and LeDrew (2009) describe CBR as an approach to research that can use either qualitative or quantitative research methodologies in an inclusive way that is both collaborative and action focused to generate knowledge. The community is at the center of this approach where the research is "...conducted by, with and for communities" (p.12). Reid et al. (2009) go on to say that collaborations and partnerships result in stronger, empowered communities that develop the capacity to "create social

and individual change through engaging diverse people in the research process” (p. 12). Hutchinson and Lord (2012) argue that CBR is underused in recreation and leisure fields. They contend that the connection between the philosophy and intended outcomes of CBR and the philosophy and intended outcomes of leisure and, by extension, therapeutic recreation, are enhanced and amplified as “principles in CBR emphasize community, participation and engagement of stakeholders” (van Dreunen, 1996 cited in Hutchinson & Lord, 2012, p. 69). In short, CBR appears to be a natural fit with leisure and TR research because of its participatory nature and its focus on community (Hutchinson & Lord, 2012).

Douglas College Initiatives to Build a Research Culture

The Douglas College TR faculty, hereafter referred to as Douglas, recognized that the most effective way to legitimize and advance the TR profession was to build a thriving research culture through the creation of an alliance between research, curriculum and the TR community. Building on our 30 years of experience offering TR education that incorporated strong community connections and a curriculum that engaged students as learners and community partners, we used the launch of the Bachelor of TR (BTR) in 2006 as an opportunity to formally begin this quest.

One of the early steps taken was to form a TR Scholarly Activity Committee comprised of faculty and TR practitioners. The committee’s first few years of meetings revealed that there was a lack of research capacity in the TR community—both because of a lack of training and a lack of confidence in research skills. In 2009 the TR community approached the committee to help them learn more

about research. Subsequently the TR Research Network was formed and engaged in a CBR project with TR practitioners across the province of British Columbia. The Network’s first collaborative project resulted in several conference presentations, workshops, and an academic publication (see Reid et al., 2013). Concurrently, the TR faculty began to discuss ways to help the students become better researchers.

Collaboration, involving faculty, community and administration, is recognized as the foundation for developing a research culture (Briggs, 2007; Lee & Ash, 2007; Merkel, 2003; Willison & O’Regan, 2007). As leaders in this collaboration, we needed to establish a shared, clear goal as well as invest time to discuss, debate and come to consensus about the essential “pieces” needed to cultivate a research-based ethos. Often this process can be a contentious and lengthy one, however, at Douglas our strong history and norm of working together to develop curriculum, share course syllabi, co-teach courses, monitor course content gaps and overlaps, and adopt program textbooks that could be shared between courses engendered a sense of genuine collaboration and support for each other and we were able to set a clear goal and plan.

During a year of discussion, debate and learning from current research we became intrigued by the notion of a framework of research skills. The idea of scaffolding research skills throughout the four year degree began to emerge as a novel way to not only intentionally teach research skills to students, but also to actively involve all faculty and build research capacity. Using Willison & O’Regan’s Research Skills Development Framework (2007) we initially tried to categorize all courses and assignments into some part of the framework, however we soon re-

alized it was better to select key research skills and explore ways to build and scaffold these into the different years of the curriculum. Designated courses were chosen to teach the targeted research skills and faculty incorporated the skills into an existing or new assignment. Similar to Willison and O'Regan (2007), we created grading rubrics using consistent language and terminology to improve student understanding and comfort with "research-ese" and to reduce confusion. For example, in second year, students research and design a TR intervention program using a structured format for a program protocol. Steps in the assignment include finding and selecting appropriate research, discerning which aspects of the research to include, translating the research into discipline specific language and synthesizing it into the structured parts of a program protocol. Since this assignment is designated as a research skills development assignment, students must attain a minimum grade on it to be successful in the course. See Appendix B for the corresponding adapted grading rubric. Lee and Ash (2010) reported that when faculty embrace inquiry-based learning and customize their courses, including designing assignments and grading rubrics to reflect this approach, students become more engaged, attendance and participation increases as well as confidence, positive affect and the quality of work produced.

To create a strong platform and foundation for students entering third year, the courses in years one and two of the curriculum housed the building blocks of research and inquiry-based skills. Cognizant of the TR field and its need for evidence to support practice, a decision was made to focus on the benefits of recreation in year one. This simple, easily applied concept, enabled students to get

excited about linking research to practice. The creation of a benefits chain, with supporting research, moved students into researching the commonly known in a closed inquiry and was the first step in developing research skills. The benefits chain evolved into a more detailed term paper or literature review in a second semester course. Supported by an academic writing course, this progression enabled students to develop more depth by writing a focused argument around a thesis or purpose. It also allowed us to apply and scaffold the APA style reference guide and research ethics and accountability specifically focused on plagiarism. Kinkead (2003) observed that becoming acquainted with research ethics as a topic and a research process through a research writing course and in subject specific courses was beneficial for teaching responsible conduct and academic integrity. In the second year, research skills are more TR-practice focused. As described earlier, in one assignment students use critical thinking skills to find not only appropriate research to support a possible TR intervention, but to go one step further and carefully discern from the research found, the best research to use to write the rationale for the program protocol of the intended TR intervention program. In another assignment students learn the foundation skills of observation and interviewing which directly apply to TR practice but can also be scaffolded into data collection research skills. These are strategically planned in year one and two courses to give cumulative exposure and gradual skill development. To bring closer attention to ethical considerations we try to use real life assignments as often as possible so students themselves have the experience of signing an informed consent form when they are participants in TR course assignments and conversely,

have opportunities to create informed consent forms to use when their research projects use participants. These hands-on experiences gave students time to consider issues of confidentiality, protection of privacy, and the requirements of a research ethics board (REB) application.

The literature describes a capstone project or course as a significant part of a research-based curriculum that uses all applied research skills (Katkin, 2003). The capstone course at Douglas uses a CBR approach which fits with the philosophy and outcomes of TR. The course is designed so the student is supported to move into a more autonomous and independent level of inquiry to examine commonly unknown or even totally unknown areas of knowledge in the TR field. Some examples of student research projects include “Why play? Finding common reasons for participation in men’s recreation league hockey,” “Increasing involvement in recreation programs: Perspectives from Cantonese assisted living residents,” and “Building cultural awareness in therapeutic recreation.”¹

While placement in year three of the curriculum may seem premature, it was intentionally done to ensure that students could take advantage of a number of important opportunities including celebrating and showcasing their research, leaving room to take an additional research course and increasing time to apply research and inquiry-based skills. Celebrating and showcasing undergraduate research is recognized in the literature as an important way to acknowledge and validate the valuable work that is accomplished by students, faculty and the community (Katkin, 2003; Kinkead, 2003; Merkel, 2003). Moreover, celebrations play an important role in nurturing cul-

ture and a sense of community. At Douglas College an annual ‘Student Research Day’ is held in the spring and students can display their work for the College community to view. In recent years the attention paid to this event has increased including prizes for outstanding research presentations and profiling exemplary research projects on the College website. To further develop students’ research skills and interests and to provide additional access for the TR community to participate in research opportunities, we developed a directed research studies elective course that is timetabled to follow the capstone CBR course. This course affords a rich opportunity to deepen community ties and to enhance the research capacities and confidence of students and TR practitioners. It is also an opportunity for some student researchers to extend their study from the capstone course. For instance, one student expanded his initial survey research data to include qualitative interviews and rewrote his project report as a mixed methods design. Finally, by offering the capstone course in year three TR students are well prepared for inquiry-based learning opportunities in their final year.

Inquiry-based learning experiences in the fourth year allow students to apply their skills in TR practice-based community service learning projects and internship. Community service learning (CSL) projects by definition present a unique chance for students and community agencies to partner and work together on identified needs to achieve outcomes that are equally beneficial (Russell, 2010). As discussed in the literature, CSL projects are recognized as outstanding ways for students to hone their research and inquiry-based skills, to acquire confidence

¹These research projects were completed by Devin Carlson, Dannis Chan and Jennifer Gilchrist, respectively.

and feelings of competence and to engage collaboratively to provide service (Russell, 2010). TR practitioners are invited to send their requests for CSL projects and students in turn review these to decide which project is of mutual interest. Faculty oversight is provided to ensure the best match between student interest and skill and agency need. The TR internship, which happens in the winter/spring semester, is the concluding learning experience in the Douglas degree.

Summary

With the current pressures for health care practices to be evidence-based, it is clear that the “tired old teaching versus research debate” (Boyer, 1990, p. xii) requires a drastic reframing. Increasingly colleges and universities are being called to meet student demands for developing research skills that will serve them in their future careers. At Douglas College we recognized these contextual pressures and viewed building a research culture as necessary to both meet these needs and to advance the TR profession. We adopted radical curriculum changes that incrementally build undergraduate students’ theoretical and methodological knowledge and practical research experience. We embraced innovative faculty and community collaborations, initiated and

completed community-based research projects, and provided multiple opportunities for our students to engage in and celebrate their own and others’ research projects. In the spirit of collaboration we endeavored to disseminate our early efforts at building a research culture and hope that others join and contribute to this exciting journey.

Next Steps

- Conduct a research study to compare the confidence and competence of TR students who completed their degree with scaffolded research skills beginning in year one.
- Iteratively refine and clarify inquiry-based learning activities and corresponding grading rubrics.
- Expand opportunities for students to partner with community TR agencies to complete research that is relevant and important to the field.
- Create opportunities to collaborate with other educational institutions on research projects involving a range of stakeholders including student researchers, faculty, and community partners.

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Research Skill Development Framework

www.rsd.edu.au

A conceptual framework for the explicit, coherent, incremental and spiralling development of students' research skills

Extent of Students' Autonomy

What characterises the difference between 'search' and 'research'? More searching and more data generation is just a 'bigsearch'! Research is when students...

when students...

Facet of

Research

	Level 1 (Prescribed Research)	Level 2 (Bounded Research)	Level 3 (Scaffolded Research)	Level 4 (Student-initiated Research)	Level 5 (Open Research)
a. Embark & Clarify Respond to or initiate research and clarify or determine what knowledge is required, heeding ethical/cultural and social/team considerations.	Highly structured directions and modelling from educator prompt student research	Boundaries set by and limited directions from educator channel student research	Scaffolds placed by educator shape student independent research	Students initiate the research and this is guided by the educator	Students research within self-determined guidelines that are in accord with discipline or context.
b. Find & Generate Find and generate needed information/data using appropriate methodology.	Respond to questions/tasks arising explicitly from a closed inquiry. Use a provided structured approach to clarify questions, terms, requirements and expectations.	Collect and record required information/data using a prescribed methodology from a prescribed source in which the information/data is clearly evident.	Respond to questions/tasks required by and implicit in a closed inquiry. Choose from several provided structures to clarify questions, terms, requirements and expectations.	Collect and record self-determined information/ data from self-selected sources, choosing an appropriate methodology based on structured guidelines.	Collect and record self-determined information/data from self-selected sources, choosing or devising an appropriate methodology with self-structured guidelines.
c. Evaluate & Reflect Determine and critique the degree of credibility of selected sources and of data generated, and reflect on the research processes used.	Evaluate information/data and reflect on the inquiry process using simple prescribed criteria.	Evaluate information/data and reflect on the inquiry process using given criteria.	Collect and record required information/data from self-selected sources using one of several prescribed methodologies.	Evaluate information/data and the inquiry process comprehensively using self-determined criteria developed within structured guidelines. Reflect insightfully to refine others' processes.	Evaluate information/data and the inquiry process rigorously using self-generated criteria based on experience, expertise and the literature. Reflect insightfully to renew others' processes.
d. Organise & Manage Organise information and data to reveal patterns and themes, and manage teams and research processes.	Organise information/data using prescribed structure. Manage linear process provided.	Organise information/data using a choice of given structures. Manage a process which has alternative pathways.	Respond to questions/tasks generated from a closed inquiry. Choose from a range of provided structures or approaches to clarify questions, terms, requirements and expectations.	Organise information/data using student-determined structures, and manage the processes, within the parameters set by the guidelines.	Organise information/data using student-determined structures and management of processes.
e. Analyse & Synthesise Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Analyse and synthesise information/data to reproduce existing knowledge in prescribed formats. *Ask emergent questions of clarification/curiosity*.	Analyse and synthesise information/data to reorganize existing knowledge in standard formats. *Ask relevant, researchable questions emerging from the research*.	Collect and record required information/data from self-selected sources using one of several prescribed methodologies.	Organise information/data using recommended structures. Manage self-determined processes with multiple possible pathways.	Analyse and synthesise information/data to construct emergent knowledge. *Ask rigorous, researchable questions based on new understandings*.
f. Communicate and Apply Write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, social and cultural (ESC) issues.	Analyse and create information/data to fill knowledge gaps stated by others.	Analyse and create information/data to fill knowledge gaps stated by others.	Use mainly lay language and prescribed genre to demonstrate understanding for lecturer/ teacher as audience. Apply to a similar context the knowledge developed. Follow prompts on ESC issues.	Use discipline-specific language and genres to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a different context. Probe and specify ESC issues in each relevant context.	Use discipline-specific language and genres to address gaps of a self-selected audience. Apply innovatively the knowledge developed to multiple contexts. Probe and specify ESC issues that emerge broadly.

... spiral through the facets, adding degrees of rigour and discernment as they dig and delve.

Research Skill Development (RSD), a conceptual framework for Primary school to PhD, developed by John Willison and Kerry O'Regan ©, October, 2006/November, 2012. Facets based on: ANZIL (2004) Standards & Bloom's et al (1956) Taxonomy. * Framing researchable questions often requires a high degree of guidance and modelling for students and, initially, may need to be scaffolded as an outcome of the researching process (Facet E, Levels 1-3). After development, more students are able to initiate research (Facet A, Levels 4 & 5)*. The perpendicular font reflects the drivers and emotions of research. Framework, resources, learning modules and references available at <http://www.rsd.edu.au>. For info: john.willison@adelaide.edu.au

Appendix B

Adapted Grading Rubric

THRT 2301 Program Protocol Grading Rubric - adapted

Name: _____

Rubric Total: /68* - adapted

Assignment Total: /23

17 marks* - adapted	1	2 – 2.4	2.5 – 3.4	3.5 – 4
Research & Key Findings: 3 pts. Builds upon benefits chain idea in THRT 1102 <i>*Embark/Clarify-Level 2</i> <i>*Generate/Find-Level 2</i>	Does not meet expectation Insufficient key findings – not enough depth, not relevant.	Developing Key findings for 2 articles are clear and reflect 1 level of benefits but depth and relevance are inconsistent;	Meets Requirements/Adequate Key findings for min. 3 articles; are mostly clear & reflect 1 level of benefits but some not as relevant to TR and program.	Excellent/Exceeds Requirements Key findings for min. 3 articles; are clear and reflect at least 1 level of benefits, show depth, relevant to TR and program. <i>Level 2 Generate/Find attained.</i> <i>Level 2 Embark/clarify attained.</i>
Rationale: 3 pts. Builds upon benefits chain idea in THRT 1102 <i>*Evaluate/Reflect – Level 2 (Discernment)</i> <i>*Organize/Manage-Level 1</i> <i>*Communicate/Apply-Level 1</i>	No clear levels of benefits; research citations are missing; not tied to program outcomes; reads like an opinion rather than research; not clearly written/presented.	1 level of benefits; 2 or fewer reference citations; not cited in APA style; inconsistent connection to the outcomes of the program; missing some imp. key findings; not clear.	Selected key findings reflect 1 level of benefits from 3 supporting research citations in APA style; Some of the chosen key findings' connections to the program are weak; Parts of rationale are unclear.	Selected key findings reflect at least 1 level of benefits from 3 or more supporting research citations in APA style Chosen key findings are relevant, connected to & support the program being developed & the client group; Clearly written. <i>Level 2 Evaluate/Reflect attained.</i> <i>Level 1 Organize/Manage attained.</i> <i>Level 1 Communicate/Apply attained</i>
Purpose: 1 pt. <i>*Organize/Manage-Level 1</i> <i>*Analyze/Synthesize – Level 2</i> <i>*Communicate/Apply-Level 1</i>	Not clearly written. Does not match rationale.	Somewhat matches rationale but not clearly written.	Matches rationale but a little unclear/awkward.	Clearly stated. Fits with key findings and rationale. <i>Level 2 Analyze/Synthesize attained</i> <i>Level 1 Organize/Manage attained.</i> <i>Level 1 Communicate/Apply attained</i>
Goals: 2 pts <i>*Organize/Manage-Level 1</i> <i>*Analyze/Synthesize – Level 2</i> <i>*Communicate/Apply-Level 1</i>	Goals do not reflect rationale or purpose.	At least 1 goal reflects rationale and/or purpose.	Sufficient # of goals; reflect rationale & purpose; wording is awkward & not always reasonable, outcome based.	Sufficient #; all are well written, outcome based, reasonable & achievable by end of program, match purpose and rationale. <i>Level 2 Analyze/Synthesize attained.</i> <i>Level 1 Organize/Manage attained.</i> <i>Level 1 Communicate/Apply attained</i>
Objectives: 3 pts <i>*Organize/Manage-Level 1</i> <i>*Analyze/Synthesize-Level 2</i> <i>*Communicate/Apply-Level 1</i>	Not enough objectives. Not concrete, overt.	Some objectives are abstract, covert; Some objectives are not steps to reach goal.	Sufficient # of obj/goal; Some objectives are abstract, covert, or unclear.	Sufficient # of obj/goal. Correctly and clearly written – concrete, overt, steps to reach goal. <i>Level 2 Analyze/Synthesize attained.</i> <i>Level 1 Organize/Manage attained.</i> <i>Level 1 Communicate/Apply attained</i>
Client Criteria: 2 pts.	Missing skills & abilities. Missing many primary	Some skills & abilities are not needed/too	Missing some secondary limitations/deficits.	Skills and abilities required are appropriate/complete.

Appendix B (cont.)

17 marks * - adapted	1 Does not meet expectation	2 – 2.4 Developing	2.5 – 3.4 Meets Requirements/Adequate	3.5 – 4 Excellent/Exceeds Requirements
	and secondary limitations/deficits Group size too large.	restrictive or missing some. Missing primary & secondary limitations/deficits.	Missing some skills/abilities.	Primary and secondary limitations/deficits are complete and appropriate. Group size is appropriate.
Evaluation Client Outcomes: 3 pts. <i>*Organize/Manage-Level 1</i> <i>*Analyze/Synthesize – Level 2</i> <i>*Communicate/Apply-Level 1</i>	Goal Attainment Scale (GAS) not written for all objectives. Many levels are unclear.	GAS written for all objectives. Many levels are unclear and not meaningful.	GAS written for all objectives but some unclear. Some levels are not meaningful.	GAS clearly written for each objective. Clear, concrete, simple, make sense, meaningful, practical. <i>Level 2 Analyze/Synthesize attained.</i> <i>Level 1 Organize/Manage attained.</i> <i>Level 1 Communicate/Apply attained</i>

*Facets of Research from Research Skill Development (RSD), a conceptual framework for Primary school to PhD, developed by John Willison and Kerry O'Regan ©, October, 2006/November, 2012.