

Professional skills acquisition in health science programs: Development of curricula, learning resources and assessment methods

**Key words:**

health professions, professional skills, practice readiness, interprofessional, assessment, curriculum

**Abstract:**

A wide range of professional competencies is required by health professionals to meet the demands of increasingly complex healthcare environments. Despite professional skills being recognized as critically important, educators and employers have noted a lack of specific knowledge of, and skill development in, professional behaviors in new graduates. Determining which professional skills are key for practice readiness will guide development of explicit curricular expectations and robust student assessment.

This project will develop and pilot innovative, interdisciplinary teaching resources, including formative and summative assessment procedures, to enhance professional skill development and clinical practice readiness in rehabilitation medicine students. Key informants and stakeholders include students, faculty, employers and professional associations. The resulting evidence-based professional skills modules and curricular recommendations will support student preparation for clinical practice and transition to professional practice.

## Background

A wide range of knowledge, skills and competencies are required by health professionals to meet the demands of increasingly complex healthcare environments. Academic training programs, professional associations, employers and clinical educators recognize the critical role of professional skills in clinical practice readiness<sup>1,2,3</sup>. Studies have identified a variety of skills related to practice readiness/work readiness including: self-assessment/reflection, communication, attitudes, knowledge of professional role, ethics, collaboration/teamwork, professional development, personal development, leadership, independence, time management, coping/confidence, cultural awareness and altruism<sup>1,3,4,5</sup>. These skills are collectively referred to as “professional skills”. Professional skills are also emphasized in the competency roles for many health professionals, based on the CANmeds framework, with roles of Communicator, Collaborator, Advocate, Leader, and Professional alongside the more traditional roles of Discipline Expert and Scholar<sup>6</sup>. Despite the recognized importance of professional skills and competencies, gaps in these areas are noted in studies of readiness for clinical practicum and transition to practice<sup>1,8,9,10,11,12,13, 14</sup>.

Many factors contribute to gaps in professional skill development. These include a lack of clarity on which skills are key for practice readiness, and the wide range of skills included, which creates difficulties in developing explicit curricular expectations and robust assessment<sup>1</sup>. Competing priorities in clinical and academic learning environments is also a factor. Acquisition of technical/clinical skills often overshadows acquisition of professional skills<sup>15,16</sup>, resulting in a lack of emphasis and time for reflection and self-evaluation specific to professional skill development<sup>1</sup>.

Despite the challenges, competency frameworks and curricular development in some professional skill areas exist<sup>6,17,18,19,20,21,22</sup>, along with evidence that brief professional skills training for students is associated with positive learning outcomes<sup>23,24</sup>.

## Project Objectives

This project will develop and pilot innovative, interdisciplinary teaching resources and assessment methods/tools to enhance professional skill development and clinical practice readiness in rehabilitation medicine students (Occupational Therapy, Physical Therapy & Speech-Language Pathology). This project will support professional skill development through explicit, evidence-based professional skills curricula with associated formative and summative assessment procedures in readiness for clinical practica and transition to practice. The resulting professional skills curriculum will include:

1. three interdisciplinary modules focusing on professional skill development, delivered at strategic points in the programs,
2. tools for formative and summative assessment of professional skills as outcome measures for the modules and to guide observation and evaluation in other courses and clinical practica, and,
3. additional curricular modifications, as needed, to embed professional skills objectives and outcomes into existing academic and clinical courses.

### **Description of Learning Resources**

A *Professional Skills Module Development Team* will guide development, implementation and preliminary evaluation of the modules, assessment tools and curricular modifications. The team will include academic and practice educators from each discipline as well as Associate Chairs from all three departments and an education faculty member with expertise in teaching and learning in higher education. Faculty from other health disciplines will be invited to participate, to explore future expansion to additional disciplines.

Professional Skills Modules: Three brief Professional Skills Modules will be developed and delivered to students in the Faculty of Rehabilitation Medicine, beginning in the fall of 2015. For the first cycle of Modules, student participation will be on a voluntary basis. Content of the modules will be determined by aligning existing curricular expectations, and competency frameworks<sup>6,7</sup> with input about key indices related to practice readiness obtained from employers, professional associations, clinical educators, experienced clinicians and new graduates during Focus Group Discussions (FGD). Content for the modules will be organized under the roles of Communicator, Collaborator and Professional<sup>6</sup>. Modules will utilize the “Flipped Classroom” method; students will complete 1 hour of online preparation and then participate in 2 hour interdisciplinary small group practice sessions, which will include experience with standardized patients.

Formative and Summative Assessment Approaches: The *Development Team* will develop tools to assess learning outcomes and practice readiness in the areas identified, adapting existing tools and developing new ones as needed. Assessment methods will be varied and may include the following formative methods: 1) self-assessment of professional competencies at regular intervals in each program, 2) peer and self-ratings of skills demonstrated in practice sessions associated with each module<sup>25</sup>, 3) instructor and standardized patient feedback in practice sessions, 4) written reflection with goal development, and 5) feedback on selected goal areas from academic and clinical educators. Summative methods may include: 1) Objective Structured Clinical Examinations prior to beginning clinical practica, and at end of program, 2) adaptations of the Integrated Performance Procedural Instrument<sup>26</sup>, 3) formal evaluation of specific skills by clinical educators, and 3) administration of the Work Readiness Scale<sup>27</sup>.

Additional Curricular Modifications: The *Development Team* will conduct an audit of program curricula and individual course objectives for alignment with existing competency frameworks and practice readiness themes resulting from the FGDs (input from employers, professional associations, clinical educators, experienced clinicians & new graduates) reporting results and suggested modifications to each of the participating Departments.

### **Educational Theory**

The theoretical framework proposed for this study is *constructive alignment*<sup>28,29,30</sup>. Constructive alignment is one of the most influential ideas in higher education<sup>31</sup> and, thus, it is a central consideration in pedagogical actions for this proposal. The basic premise of constructive alignment is that the curriculum is designed so that the learning activities and assessment tasks are aligned with the stated course knowledge, skills and competencies. Alignment of the curriculum is pivotal to understanding on the overarching objective of this study: how to support professional skill development through explicit, evidence-based professional skills curricula with associated formative and summative assessment procedures in readiness for clinical practica and transition to practice. A key issue in curriculum development is a lack of pedagogical understanding by instructors of how to create assessment of knowledge, skills and competencies to design courses effectively. For many instructors, course assessment is something of a

postscript – something to be considered after the content and activities have been established. Yet this fundamental alignment between student assessment and student learning is well established<sup>32,33,34,35</sup>. Assessment, rather than stated learning outcomes, defines the ‘*de facto* curriculum’ in institutions of higher education; that is, what students actually do in order to pass the course<sup>36,37</sup>. Others have coined this concept as the ‘backwash effect’ on student learning<sup>37</sup>. Despite research on the power of assessment to drive student learning, its potential is overlooked in higher education teaching. Watkins, Dahlin and Ekholm<sup>38</sup> argue that the problem lies in how academic development initiatives have not supported teachers. As this project proposes to support professional skill development through explicit, evidence-based professional skills curricula, this theory has been selected to frame the associated formative and summative assessment procedures in readiness for clinical practica and transition to practice.

### **Innovation and Collaboration**

Despite the generic nature of professional skills associated with practice readiness, health disciplines do not typically collaborate in curricular development or instruction in these areas. This project supports interdisciplinary collaboration of students, faculty, clinical educators, employers and professional associations. This project will connect students in the rehabilitation disciplines in learning, practicing and evaluating emerging professional skills. Involvement of the professional associations, employers, clinicians and students in student development of professional skill development forms strong connections between the practice and education environments. Inclusion of a researcher with expertise in teaching and learning in higher education supports sound pedagogy of the resulting educational framework and resources. Use of the “Flipped Classroom” method maximizes use of instructor time and facilitates delivery of an interprofessional offering, which later can easily be expanded to other disciplines on campus.

### **Research Objectives and Evaluation**

Objective 1: identify overlapping and discipline-specific key indices of professional skill development in the rehabilitation disciplines and relate those to existing curricular and competency frameworks which inform curricula and instructional design.

Methods: A qualitative approach will be used. Recent graduates, experienced clinicians, employers and professional association representatives from each discipline will be recruited to participate in focus group discussions (FGD), divided by discipline to allow for comparison of results across disciplines. The FGD will begin with an open-ended question: “*What professional skills are essential for clinical practicum readiness and transition to practice?*” Probing questions derived from existing concepts of practice-readiness and competency frameworks will follow. A descriptive content analysis will be used to summarize and describe participants’ perspectives while avoiding abstractions. These results will be used, along with existing competency frameworks and curricula in each program to guide the Development Team in curricular modifications, professional skill module development and assessment of skill development.

Objective 2: develop an evaluation strategy to enable assessment of explicit professional skills training in an interprofessional context on student’s knowledge, self-confidence and learning outcomes.

Methods: A mixed methods exploratory design will be used. In the qualitative phase, FGDs, using the same methodology described above, will be used with the instructors and students who participated in the Professional Skills Modules to operationalize formative and summative assessment strategies and explore the extent the module impacted student readiness for

placement and transition to practice. A pre-clinical (early program) and transition to practice (late program) OSCE station will then be piloted and evaluated using the rubric derived from the FGDs. Assessors in these OSCEs will be blinded to the student participation in the voluntary Professional Skills Module. A preliminary comparison of performance differences between students who participated in the module and those who did not will be used to inform a proposal for a more definitive study of the impact of explicit integration of professional skills training in rehabilitation curricula.

Objective 3: recommend additional curricular modifications

Methods: Three raters will review existing course objectives and curricula to identify alignment with results of the descriptive content analysis and existing competency frameworks, using a 3-point scale (good alignment, partial alignment or no alignment). Differences will be resolved by discussion. Objectives representing professional skills will be summarized and skills not represented highlighted.

### **Sustainability / Impact on Students**

There is support for this project from each Department in the Faculty of Rehabilitation Medicine. This support, in addition to that of the Faculty's Teaching Interest Group provides structure to ensure ongoing delivery of the modules, once they are developed. State-of-the-art teaching technology and technical support for the online module delivery are already available within the Faculty of Rehabilitation Medicine. Regular evaluation of the content, in conjunction with practice and association experts will ensure the content remains relevant to current healthcare environments. Existence of explicit curricular objectives and assessment methods for professional skills will support students in their development and transition to the practice environment. It also provides opportunities for early identification and remediation of skill deficits.

### **Dissemination**

Sharing the results and resources associated with this project will be accomplished by providing Faculties at the University of Alberta and other institutions with access to the on-line modules for use or adaptation. The modules will be presented to all Health Science programs through existing Health Sciences Education and Research Commons meetings and provide a platform for further interprofessional engagement with other health science faculties/students on campus. Access will also be provided to clinical educators and employers, to support readiness for clinical practicum and practice. Results of the project will be disseminated more broadly through conference presentations and publications in appropriate professional and interprofessional venues.

### **Outcomes**

The outcomes of this project will result in three Professional Skills Modules that are interprofessional in nature: one for students early in their training and prior to their first clinical practicum, one at mid-point in their programs, and one at the end of their program. In addition, a clearly articulated formative and summative evaluation strategy for professional skills will be developed. This evaluation strategy can be immediately integrated into each of three curricula in Rehabilitation Medicine and adapted by other Health Science. Clinical educators can also use the resources developed to support students' professional development in practice settings.

## References:

1. Gibson, S. & Molloy, E. (2013). Professional skill development needs of newly graduated health professionals: A systematic literature review. *Focus on Health Professional Education: A Multi-Disciplinary Journal* 13 (3): 187-191.
2. Verma, S., Paterson, M., Medves, J. (2006). Core competencies for health care professionals: What medicine, nursing, occupational therapy and physiotherapy share. *Journal of Allied Health* 35(2): 109-115.
3. Verma, S., Broers, R., Paterson, M., Schroder, C., Medves, J. & Morrison, C. (2009). Core Competencies: The next generation. *Journal of Allied Health* 38: 47-53.
4. Rogers, W. & Ballantyne, A. (2010). Towards a practical definition of professional behavior. *Journal of Medical Ethics* 36: 250-254.
5. Wolff, A., Pesut, B. & Regan, S. (2010). New graduate nurse practice readiness: Perspectives on the context shaping our understanding and expectations. *Nurse Education Today* 30: 187-191.
6. Frank, J.R., Snell, L.S., Sherbina, J. (2014). The Draft CanMEDS 2015 Milestones Guide. Royal College of Physicians and Surgeons of Canada.
7. Interprofessional Learning Pathway Competency Framework, Health Sciences Education and Research Commons. Retrieved December 23, 2014 from: <http://www.hserc.ualberta.ca/TeachingandLearning/Curriculum/InterprofessionalLearningPathway.aspx>
8. Dean S., Barratt A., Hendry G. & Lyon P. (2003). Preparedness for Hospital Practice among Graduates of a Problem-based, Graduate-entry Medical Program. *Medical Journal of Australia* 178: 163-166.
9. Friedman B., Snadden, D. & Hesketh, A. (2004). Linking Appraisal of PRHO Professional Competence of Junior Doctors to Their Education. *Medical Teacher* 26: 63-70.
10. Rose, M., McAlpine, L. & Strychar, I. (2005). Learning Opportunity and Preparedness for Practice: Perceptions from Dietetics Programs in Canada. *Canadian Journal of Dietetic Practice and Research* 66, 4: 221-228.
11. Stern, D., Frohna, A. & Gruppen, L. (2005). The prediction of professional behavior. *Medical Education* 39: 75-82.
12. Walker, A., Yong, M., Pang, L., Fullarton, C., Costa, B., & Dunning, A. (2013). Work readiness of graduate health professionals. *Nurse Education Today* 33: 116-122.
13. Walker, A. & Campbell, K. (2013). Work readiness of graduate nurses and the impact on job satisfaction, work engagement and intention to remain. *Nurse Education Today* 33: 1490-1495.
14. Wolff, A., Regan, S., Pesut, B. & Black, J. (2010). Ready for what? An exploration of the meaning of new graduate nurses' readiness for practice. *international Journal of Nursing Education Scholarship* 10: 1 - 14.

15. Bjorkstrom, M., Athlin, E. & Johansson, I. (2008). Nurses' development of professional self: From being a nursing student in a baccalaureate programme to an experienced nurse. *Journal of Clinical Nursing* 17: 1380-1391.
16. Musolino, G. (2006). Self-assessment abilities of physical therapy students and entry-level graduates. *Journal of Allied Health* 35: 30-42.
17. Bachmann, C., Abramovitch, H., Barbu, C., Cavaco, A., Elorza, R., Haak, R., Loureiro, E., Ratajska, A., Silverman, J., Winterburn, S. & Rosenbaum, M. (2013). A European consensus on learning objectives for a core communication curriculum in health care professions. *Patient Education and Counseling* 93: 18-26.
18. Grace, S. & Trede, F. (2013). Developing professionalism in physiotherapy and dietetics students in professional entry courses. *Studies in Higher Education* 38(6): 793-806.
19. Hannon, F. (2000) A National Medical Education Needs' Assessment of Interns and the Development of an Intern Education and Training Programme. *Medical Education* 34: 275-284.
20. Priest, H. Sawyer, A., Roberts, P. & Rhodes, S. (2005). A survey of interprofessional education in communication skills in health care programmes in the UK. *Journal of Interprofessional Care* 19(3): 236-250.
21. Street, R., & De Haes, H. (2013). Designing a curriculum for communication skills training from a theory and evidence-based perspective. *Patient Education and Counseling* 93: 27-33.
22. van Dalen, J. (2013). Communication skills in context: Trends and perspectives. *Patient Education and Counseling* 92; 292-295.
23. Bachmann, C., Barzel, A., Roschlaub, S., Ehrhardt, M., Scherer, M. (2013). Can a brief two-hour interdisciplinary communication skills training be successful in undergraduate medical education? *Patient Education and Counseling* 93: 298-305.
24. Noble, L., Kubacki, A., Martin, J. & Lloyd, M. (2007). The effect of professional skills training on patient-centredness and confident in communicating with patients. *Medical Education* 41: 432-440.
25. Kairuz, T. & Bond, J. (). Development of interpersonal communication skills among pharmacy students: Evaluation of an assessment rubric. *Focus on Health Professional Education: A Multidisciplinary Journal* 15(2): 17-29.
26. Nestel, D., Kneebone, R., Nolan, C., Akhtar, K. & Darzi, A. (2011). Formative assessment of procedural skills: students' responses to the Objective Structured Clinical Examination and the Integrated Performance Procedural Instrument. *Assessment & Evaluation in Higher Education* 36(2): 171-183.
27. Caballero, C.L., Walker, A. & Fuller-Tyszkiewicz, M. (2011). The Work Readiness Scale (WRS): Developing a measure to assess work readiness in college graduates. *Journal of Teaching and Learning for Graduate Employability* 2(2): 41-54.
28. Biggs, J., & Tang, C. (2007). *Teaching for quality learning at university* (3rd ed.). Buckingham:

29. Biggs, J. (1999). *Teaching for quality learning at university*. Buckingham: SRHE and Open University Press.
30. Biggs, J. (2003). *Aligning teaching and assessment to curriculum objectives*. Lancaster, UK: Imaginative Curriculum Project, LTSN Generic Centre.
31. Higher Education Academy (2011). *Constructive alignment: Why it is important to the learning process*. Retrieved from: <http://exchange.ac.uk/learning-and-teaching-theory-guide/constructive-alignment.html>.
32. Boud, D. (1995). *Enhancing learning through self-assessment*. London: Kogan Page.
33. Brown, S., & Knight, P. (1994). *Assessing learners in higher education*. London: Kogan Page.
34. Brown, G. (1997). *Assessing student learning in higher education*. London: Routledge.
35. Ramsden, P. (1992). *Learning to teach in higher education*. London: Routledge.
36. Kirkwood, A. & Price, L. (2008). [Assessment and student learning – A fundamental relationship and the role of information and communication technologies](#).
37. Rowntree, D. (1987). *Assessing students: How shall we know them?* London: Kogan Page.
38. Watkins, D., Dahlin, B., & Ekholm, M. (2005). Awareness of the backwash effect of assessment: A phenomenographic study of the views of Hong Kong and Swedish lecturers. *Instructional Science*, 33(4), 283–309. doi:10.1007/s11251-005-3002



