# An Interprofessional Rehabilitation University Clinic in Primary Health Care: A Collaborative Learning Model for Physical Therapist Students in a Clinical Placement

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**Background and Purpose.** Collaborative work among health care professions is the key to quality patient/client care and interprofessional care, the way of the future. Hence, interprofessional collaboration should be integrated in future health professional education process. The purpose of this paper is to describe the development, theoretical frameworks, and implementation phases of an innovative model of interprofessional clinical education and to present preliminary outcomes of students' learning emerging from the program evaluation of the first 2 years of implementation.

**Method/Model Description Evaluation.** Two questionnaires were used to monitor students' learning, a French version of the Readiness for Interprofessional Learning Scale (RIPLS) and the Description of a Meaningful Interprofessional Learning Situation Tool, developed internally. Data from the first questionnaire were analyzed with paired *t*-tests using SPSS software and content analysis was conducted in relation to the 3 learning objectives for the second questionnaire. The ATLAS/ti software program was used for the organization of data. The model describes a university clinical learning environment that provides the opportunity for health care students from 8 different programs to experience first-hand interprofessional collaboration in a student/professional team environment, while providing services to the Francophone minority population. The model is theoretically framed by the Interprofessional Education for Collaborative Patient-Centred Practice (IECPCP) Canadian framework, the Disability Creation Process Model, Mezirow's adult learning theory, and Kolb's experiential learning theory.

**Outcome.** Since the Interprofessional Rehabilitation University Clinic in Primary Health Care opened its doors to patients/clients and students in November 2006, it has demonstrated substantial progress in achieving the objectives outlined at its inception. Over 295 patients/clients have received interventions carried out within an interprofessional collaborative model. Results suggest that interprofessional education enables physical therapist students to gain knowledge of other health professionals, facilitates the development of professional identity and students' own practice, and helps develop competencies in delivering quality care.

**Discussion.** The clinic facilitates reflective learning experiences on how various professionals' roles and responsibilities complement each other and attitudes that foster collaboration. It successfully assists in preparing future collaborative health professionals. In addition, interprofessional education is greatly appreciated by students.

**Conclusion.** This interprofessional rehabilitation university clinic is a well-designed, successful model that can be applied in a variety of settings to increase the access of individuals to greatly needed health services and to ensure the education of future health professionals, as well as their readiness to participate in interprofessional collaborative teams.

**Key Words:** Interprofessional collaboration, Experiential learning, Clinical education.

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## BACKGROUND AND PURPOSE

There is increasing awareness that collaborative work among the health care professions is key to quality care for patients.[1-4] Although the Health Council of Canada[5] suggests that "health care delivery models of the future clearly envision teams of heath care providers working together to meet patient needs," there are many barriers that need to be overcome for health and social care professionals to collaborate. Individual beliefs and attitudes are aspects of collaboration that deserve much attention.[6,7] McPherson et al[1] underline that, like most complex professional competencies, learning about interprofessional collaboration cannot wait until a student completes his or her education. On the contrary, interprofessional collaboration should be viewed as a continuum of learning and integrated throughout the professional education process, starting with the prequalification experience, continuing into postgraduate education, and extending into continuing education. But it is not enough to take students from 2 different professions, sit them in a classroom, and expect interprofessional learning to occur.[8] Interprofessional education (IPE) means creating opportunities where 2 or more students from different professions learn together from and about one another to facilitate collaborative practice.[8-9]

IPE at the prelicensure level and during clinical placements has been explored in a variety of settings, such as: a community health center for an HIV population[10]; an interpro-

fessional university-conducted clinic offering placements for occupational therapy, speech pathology, and music therapy students[11]; an interprofessional training ward for older people in Sweden[12]; and an acute care hospital training center.[13] All these interprofessional learning experiences are recent and still in development. To date, interprofessional learning has not been a major part of most pre-qualification courses in rehabilitation sciences, and the majority of health care professionals (including educators) have little or no formal experience of learning with or about other professions.[1]

In Canada, federal and provincial governments have been increasingly promoting interprofessional collaboration within primary health care as a means to increase Canadians' access to needed health care services.[5,14,15] In order to break down traditional silos and facilitate a collaborative approach to client-centered care, the government has funded initiatives promoting interprofessional learning experiences from the outset of students' professional education. A small group of researchers from the School of Rehabilitation Sciences at the University of Ottawa, Canada, has received government funding to develop an interprofessional university clinic. This unique and innovative training center employs an interprofessional approach to health care professional education, while at the same time providing highly focused client services.

The purpose of this paper is to describe the development, theoretical frameworks, and implementation phases of a model of interprofessional clinical education at the Interprofessional Rehabilitation University Clinic in Primary Health Care (hereafter referred to as "the Clinic"). Some preliminary learning outcomes' emerging from the program evaluation of the first 2 years of implementation will be presented. Plans for future research will also be discussed.

### Development Phase

The development phase of the Clinic took 1 full year of planning and was supported initially by development funds from Health Canada (Société Santé en français). During the first year, the needs for services in the local community were defined and matched to the educational objectives of the University of Ottawa health care professional programs.

In order to identify the needs for community rehabilitation services in the Ottawa area population, we organized two 1-day meetings with potential collaborators from the clinical milieu of this region. Administrators and clinicians identified 2 subpopulations that were experiencing extended wait times for services: (1) adults of 50+ who were returning home from acute care after an illness or a medical intervention were waiting 2-3 months for community services; and (2) young school-aged children who were identified with learning challenges during their language and/or motor skills acquisition. The wait times for this last group ranged from several months to over a year. It was also reported that the francophone minority population in Ottawa experienced difficulty in accessing rehabilitation services in the French language. This needs identification process focused the Clinic's mandate to offer services to the regional French-speaking community, specifically to school-aged children with mild impairments or developmental delays limiting their participation in home and school environments, adults aged 50 and over with physical deficits limiting their participation in life activities, and the caregivers for these 2 groups. All partners were excited by the prospect of these new services and quickly initiated the organization of client referrals.

During this same time period, a team of 6 clinicians from audiology, medicine, nursing, occupational therapy, physical therapy, and speech-language pathology were consulted to define an interprofessional vision, mission, and clinical education program for the future clinic that would respond to both the needs of clients and the professional education programs.

Other gaps in clinical education at the Health Sciences Faculty of the university were identified by the clinical coordinators (3) at the School of Rehabilitation Sciences, the School of Nursing (2), and the School of Human Kinetics (1), as well as the coordinator for the placement in ambulatory care at the Faculty of Medicine (1). The team highlighted several issues. For instance, one of these programs had an interprofessional education component in its clinical program and this component was viewed as very desirable. However, the group also noted that there was an insufficient number of clinical placements, particularly in French. Some programs were in need of additional health promotion opportunities, while others identified shortfalls in more direct patient care opportunities for students. It was decided that the timing of placements in each academic program and the program's educational objectives for each level of clinical placement would remain as per the status quo and drive the content of learning opportunities. It was felt that the Clinic would offer a "plus value" in term of interprofessional learning opportunities. Support was obtained from all levels of university administration (school directors, the dean of the Health Sciences faculty, and the university president). At the end of this developmental phase, the focus of the Clinic was identified as: (1) to address the needs of clients wishing to resume or develop specific life habits who are medically stable, willing to receive services in French; and are on either health service waiting lists or not eligible for current services and (2) to provide students from the faculty of Health Sciences with opportunities to participate in an interprofessional fieldwork placements at the Clinic during their training.

## METHOD/MODEL DESCRIPTION AND EVALUATION

### The Design of the Interprofessional Clinical Education Program Model

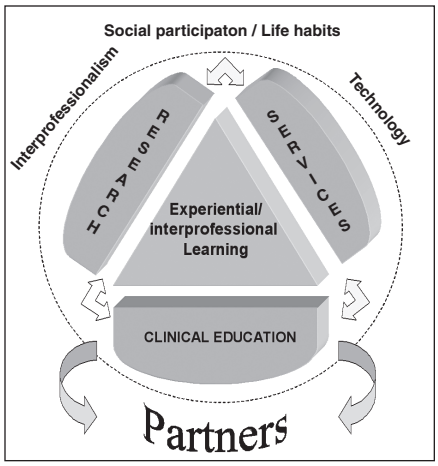
The next sections provide an overview of the mission and the theoretical frameworks of the Clinic. The clinical education component will be further described, with examples of 2 particular learning activities in which physical therapist students were involved.

***The Clinic's mission***. The Clinic's mission is to create a clinical learning environment which provides the opportunity for health care students to experience firsthand interprofessional collaboration in a student/professional team environment, while providing services to the francophone minority population. More specifically, the Clinic focuses on 3 general objectives: education, service and research.

- **Education:** To provide interprofessional learning experiences while increasing the capacity for clinical placements in audiology, occupational therapy, physical therapy, speech-language pathology, human kinetics, nursing, social work, and medicine.
- **Service:** To provide greater access to rehabilitation services to the francophone population. Services offered can be divided into 2 categories: (1) rehabilitation services and management of chronic disorders and (2) health promotion and prevention initiatives.
- **Research:** To initiate and contribute to research evidence and to the development of best practices in IPE and care.

***Theoretical frameworks.*** Figure 1 illustrates the relationship between the Clinic's 3 areas of focus, which are interrelated and contribute to and inform each other. These 3 components frame the experiential interprofessional learning situation. Partners include colleagues in the clinical and educational milieus, academics, clients, faculty from other schools, and other education organizations, such as community colleges and funders.

**Figure 1. Model of the Interprofessional Rehabilitation University Clinic in Primary Health Care**




Fougeyrollas and colleagues'[16] Disability Creation Process Model, a social health model, frames client interventions. Instead of the traditional biomedical vision of health care that centers on the medical diagnosis, services at the Clinic focus on *social participation*, defined as an individual's capacity to perform "life habits" in relation to their social and physical environment.[16,17] In this theoretical framework, *life habits* are defined as meaningful activities a persons wants to realize, or is expected to according to his or her culture and level of development. This model's interpretation of health and disability helps the Clinic teach students to understand health as an outcome of social participation. It also provides a uniform language that avoids professional jargon and enhances communication.

The Interprofessional Education for Collaborative Patient-Centred Practice (IECP-CP) Canadian framework[14] was chosen as the theoretical framework for an interprofessional collaborative approach to learning and patient/client care. As mentioned by the authors, "the interprofessional team implies a greater degree of collaboration between team members. It is a structured entity with a common goal, common decision-making process and is based on an integration of the knowledge and expertise of each professional, so that solutions to complex problems can be proposed in a flexible way."[18] Finally, learning processes are based on Mezirow's[19] adult learning theory and Kolb's[20] experiential learning theory.

### Clinical Education Component

The Clinic is a clinical education setting for students from the 8 different programs mentioned previously. A team of clinician-educators from 5 regulated professions (audiology, nursing, occupational therapy, physical therapy, and speech-language pathology) develops and guides the clinical education activities. Thus, the Clinic creates an interprofessional teaching and training environment that enhances the ability of learners and clinician-educators to provide patient/client-centered care, while recognizing the contribution of the health care teams within a respectful and collaborative framework.

Three learning objectives were identified for students participating in clinical placements: 2 cognitive learning objectives[21] and 1 affective learning objective.[22] The objectives are as follows:

- The student will be able to explain to other professionals the roles and responsibilities of each profession involved in providing care.
- The student will have learned to work with clients, other students, and clinician-educators in order to assess, plan, provide, and reassess care.
- The student will adhere to the 4 interactional determinants of collaboration during clinical interventions: collaboration, respect, communication, and trust.[23]

***Implementation of teaching/learning activities and client services at the Clinic.*** The Clinic offers 3 types of clinical placements: observation, rehabilitation, and health promotion. A short description of each of these placements is presented in Table 1 below. Each placement type corresponds directly to the learning objectives of each education program. Physical therapist students are mainly involved in rehabilitation and health promotion placements.

These placements regroup many different types of learning activities. Two are described below in more detail.

***Interprofessional initial client assessment.*** The Life–H[24] is the tool used to complete the client's initial assessment of function and expectations. This initial assessment is usually carried out by an interprofessional team composed of an educator-clinician of one discipline and 1 or 2 students from different disciplines. This process allows insight on the client's issues from different professional perspectives and promotes rich discussions among students. At the follow-up team meeting where all the educator-clinicians are present, students' observations and reasoning are challenged to further the understanding of professional limitation and overlap.

***Planning of health promotion activities.*** Students from various health care programs are paired together with 1 or 2 educator-clinicians to plan and deliver health promotion activities to address the needs identified by our community partners. Individual projects usually involve a needs assessment, the synthesis of information from various disciplines on the topic, planning of activities, and the delivery of the planned activities by students. For example, a group of students from human kinetics, occupational therapy, nursing, and physical therapy planned and delivered a fall prevention program to seniors that included an education component on various fall risk factors and an exercise component to improve balance and increase the strength of trunk and lower limb muscles. The interprofessional collaboration required by students to develop and deliver this program heightened their awareness of their own unique professional roles and how their interventions can be supported and strengthened by the activities and expertise of others. Client feedback and outcomes provided further reinforcement of the benefits of an interprofessional approach.

Placements focus both on program requirements and interprofessional learning objectives. However, only the discipline learning objectives set by each program are evaluated during placements as the interprofessional objectives are still at a developmental phase. A program evaluation process collects data to measure the effect of the Clinic's learning experiences on the 3 learning objectives.

**Table 1. Descriptions of the Various Placement Types**

| Type of Placement | Description |
|---|---|
| Observation | One or two days to introduce students to the roles of different health care professionals. |
| Rehabilitation | Students participate in the delivery of rehabilitation services as part of an interprofessional team, in part-time or full-time placements of 15 to 60 days. |
| Health promotion | Students from various programs work together to address a need identified by one of our community partners, usually for part-time placements of 10 to 30 days. |

### Program Evaluation Method

From the beginning of this initiative, a process for program evaluation was designed. This process includes ongoing evaluation of the Clinic processes organized through a database on learning activities and client services, focus groups with various stakeholders; evaluation of client satisfaction (CSQ-8 Satisfaction Questionnaire by Larsen et al[25]); and evaluation of student interprofessional learning. Only this latter component will be presented in this paper, with a particular focus on physical therapist students and the physical therapy profession.

***Collection and analysis of data.*** Two questionnaires are used to monitor students' learning. The first was the French version of the Readiness for Interprofessional Learning Scale (RIPLS),[26-28] a standardized quantitative scale of 19 items designed to measure changes in attitudes towards interprofessional learning. Besides translation, another difference between the French version[28] and the original version[26] is that, in the former, questions are presented in a random order. Students completed this scale twice, at the beginning and at the end of their placement. Data were analyzed with paired *t* tests using SPSS software[29] to determine pre-placement and post-placement differences. Results for all students confounded are presented in the outcome of learning section. The second questionnaire, the Description of a Meaningful Interprofessional Learning Situation Tool, was developed internally and administered post placement. Short-answer, open-ended questions are asked to identify: (1) new knowledge of other professions gained through interprofessional experiences, (2) learning experiences that enlighten the meaning of the 4 determinants of collaboration, and (3) students' perceived impact of the interprofessional application on client care, their learning, and educator-clinicians' supervision. A content analysis was conducted in relation to the 3 learning objectives. The ATLAS/ti[30] software program was used for the organization of data (150 pages of typed verbatim).

## OUTCOMES

Since 2007, the Clinic has offered 253 placements for a total of 3,078 days of clinical education. A total of 62 placements were observation placements, 104 placements were health promotion placements offering health education sessions to more than 2,600 individuals, and 87 placements were rehabilitation placements offering services to 295 patients/clients. A total of 2,503 patient/client visits have taken place, with an average number of 8.5 visits per patient/client, of which 64% were school-aged children and 36% were adults over 50 years of age.

The results of the Readiness for Interprofessional Learning Scale are drawn from 48 completed questionnaires from students who completed a rehabilitation placement from January 2007 to January 2008. Changes in students' attitudes towards interprofessional learning after an interprofessional placement, as measured with the RIPLS scale, were minor. Only 3 items showed a slight statistically significant improvement: item 5, "I'm not sure what my professional role will be" (mean difference = -0.283; $P = .018$), item 7, "Communication skills should be learned with other health care students (mean difference = 0.261; $P = .038$), and item 12, "The function of nurses and therapists is mainly to provide support for doctors" (mean difference = -0.5; $P < .001$).

The results of the Description of a Meaningful Interprofessional Learning Situation Tool are derived from 77 questionnaires, with 15 completed by physical therapist (PT) students. All the students who completed a rehabilitation placement from January 2007 to May 2009 are included. Three themes emerged from the initial analysis: (1) IPE and the development of knowledge of other health professionals; (2) IPE as a facilitator of the development of professional identity and students' own practice; and (3) IPE supervision as a means to develop competencies.

### IPE and the Development of Knowledge of Other Health Professions

A key element of IPE is demonstrating awareness and understanding of the importance of other health professions in caring for a shared client. One physical therapist (PT) student reported, "By learning more about the occupation of other professionals, I realized the importance of these professions." During their placement, students from different professions provide interventions together. This resulted in a more thorough and detailed understanding of the roles and responsibilities of other health care providers, as indicated by a PT student who stated, "I could understand in more detail the roles of each profession, and I can identify situations that require an interprofessional approach."

Similarly, students who have participated in IPE showed a greater appreciation and understanding of the priorities, tools, and types of interventions that are used by health care professionals in other fields. This is illustrated by a speech-language pathology student who observed, "Physical therapists work with adults and children for the prevention/treatment of gross motor function." A student in social work was surprised to observe that "the physical therapist had so much physical contact with the clients during the treatment interventions."

### IPE Facilitates the Development of Professional Identity and Practice

Interprofessional training seems to facilitate the development of professional identity within students because it allows them to compare the contribution of their own practice with that of other professions' approaches to treatment. One PT student noted, "Showing others what I did gave me more confidence in my abilities." Another PT student recognized the complementary roles between physical therapy and other professions: "We realized how other providers help patients with an issue that physical therapists are not familiar with."

Not only do students gain better knowledge of their own roles and responsibilities, they also realize some of the limits of their own discipline. A PT student reported, "Recognizing the limitations of treatment that I can offer in physical therapy, I can better refer my patients for follow up with other professionals, now that I am more familiar with their abilities."

During an interprofessional intervention, students from different professions not only learn to collaborate but also to incorporate the strategies of other professions into their own interventions to better meet the client's needs. A nursing student learned "new techniques of body movements and transfers that physical therapists use and teach." She felt she could use these transfer techniques when she moved a patient in the hospital. A PT student reported introducing:

> …speech therapy techniques during my exercise class because the patients needed the chance to talk in a group of people. I was less focusing on training and more on the improvement of the general health of the client.

### IPE Supervision and Environment as a Means to Develop Professional Competencies

At the Clinic, supervision of generic skills such as communication, attitudes toward client-centered care, and time management can be carried out by an educator from a different profession. Students highly valued the time spent by the educator–clinicians in facilitating the development of professional competencies and providing feedback to address individual learning needs. As mentioned by an audiology student, "Each professional is ready and deeply wishes to teach about their own profession." Students are learning the value of respect of other profes-

sionals through modeling, and they find their learning experiences beneficial. As the same audiology student continues, "…there is an openness of mind towards the students and other professionals that I don't think can be found in another clinical placement."

Through this highly engaging learning milieu and the dedicated and passionate team of educators, the students forged a new understanding of positive, collaborative work environments. This is exemplified by one PT student who states, "I would like to work in environment near other professionals, so I can consult them and be able to offer more complete services in rehabilitation to my patients."

## DISCUSSION AND CONCLUSION

This section discusses the results obtained and compares these to prior findings, identifies the lessons learned during this process, presents the limitations of the project, and offers ideas for future research.

Results found minor changes in students' attitudes after an interprofessional placement. As expected, students were in greater agreement with item 7 and in greater disagreement with items 5 and 12 at the end of their placement. However, no statistically significant change on the RIPLS global score ($P > .05$) were found. These results are consistent with other studies that found no or little change in attitudes from interprofessional learning activities.[31] These results may be explained in part by the fact that students' receptivity to interprofessional learning was already high before placement. The majority of students chose to do a placement at the Clinic again, indicating a possible predisposition to interprofessional education.

Preliminary results of the program evaluation indicate that students trained in this learning environment gain awareness of other professionals' roles and responsibilities while acquiring new knowledge of their own professional practice. These results show consistency with findings from previous studies that have underlined the many benefits of IPE for students.[32-36] An interprofessional placement was a highly positive experience that resulted in profound learning for students from 8 different programs and a strong interest in interprofessional care. The fundamental collaborative nature of this clinic, framed by 3 learning objectives directing the client's care and the organization of care through shared activities, is essential to the students' participation and to the creation of an interprofessional collaborative culture.

Implementing innovation or change is always a challenge. This endeavor would not have been successful without the financial support of Health Canada and Health Force Ontario, the positive response of the university administrators, and the unconditional collaboration of colleagues from our clinical and educational milieus. The success of this initiative also lies heavily on securing an appropriate physical environment, the appointment of committed and enthusiastic educator-clinicians and the tireless efforts of a passionate steering committee to confront and overcome numerous resistances from a more conservative and conventional university setting. It is imperative to develop at the beginning of such a project a comprehensive program evaluation scheme to help demonstrate the importance of the project and its value for the training of future health care professionals. Finally, this clinic is unique because the learning is directed towards interprofessional care, in which students must experience, reflect, and conceptualize their experiences in some guiding principles that they can bring forward in their next placement. It is a continuous challenge to maintain interest from all different programs, to overcome resistance to change. Thus, it is important to maintain open communication with every stakeholder and to collaborate with all partners. This requires much time and energy from all, especially the core steering committee. It is also very important to have highly competent and dedicated personnel.

The main limitations of this study lie in the tools used to measure interprofessional learning. A literature search revealed that existing tools are mainly oriented toward evaluating attitudes towards interprofessional learning. However, it may not be the best indicator of student interprofessional learning as reported by Kettenbach[37] in a study of 11 different health care programs. In that study, receptivity to interprofessional learning among freshmen was found to be high already. Creating new measurement tools with sound psychometric properties is a long-term endeavor. A short-answer, open-ended questionnaire for qualitative analysis was developed and pilot-tested with the first students to complete a placement at the Clinic. Studies are being conducted to determine whether the tool is valid. Although an interview would permit more in-depth understanding of students' learning experiences, a short-answer questionnaire was more feasible within existing time constraints.

Areas for future research include continuous monitoring of the tools used and identifying new ways of evaluating learning in terms of knowledge, attitude, skills, and competencies. It would also be interesting to identify potential moments or crucial events that could lead to a transformation of meaning in relation to interprofessional collaboration and interprofessional care.

This paper was an attempt to systematize the development and implementation of a university interprofessional clinic and to describe the aspects of its evaluation program that focused on the learning outcomes of students during their clinical placements. Preliminary results suggest that IPE enables students to gain knowledge of other health professionals, facilitates the development of professional identity and students' own practice, and helps develop competencies. In such a setting, physical therapist students learn about physical therapy and other professions, as well as develop competencies required for the practice of physical therapy. Students from other professions gain a greater understanding of physical therapy. Although all professions gain from IPE, the greatest gain is for the client who experiences a more integrated and complete intervention.

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