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ACTION RESEARCH IN HEALTH SCIENCES INTERPROFESSIONAL EDUCATION

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This paper explores action research within the critical paradigm using the example of an interprofessional education (IPE) research project at a Canadian university. A brief background about the project is provided with a focus on the philosophical and methodological aspects relative to the six characteristics of action research outlined by Street (2003). Key findings are presented along with a discussion of the relevance of this new knowledge to fellow researchers, educators and administrators.

BACKGROUND

A recommendation of *The Future of Health Care in Canada report* financed by the Canadian Federal Government was that if health care providers are expected to work together and share expertise in a team environment, then it makes sense that their education and training should prepare them for this function (Romanow, 2002). This and other recommendations made in the 'Romanow Report' led to funding by the Canadian Federal Health Ministry for research on Interprofessional Education for Collaborative Patient Centred Practice (IECPCP) building upon the work of D'Amour and Oandason (2005). This framework is designed to bridge the gap between the two separate but interacting and

interdependent spheres of interprofessional education and collaborative patient-centred practice. It establishes linkages between the determinants and processes of collaboration at various levels; teaching, institutional, and systemic. Twenty research projects were funded across the country to investigate interprofessional education for collaborative patient-centred practice. An additional project brought all the projects together to share resources and provide a forum for developing interprofessional education and practice across the country. One project, the Queen's University Inter Professional Patient-centred Education Direction (QUIPPED), was funded from July 2005 until March 2008 to address issues in the sphere of interprofessional education outlined in D'Amour and Oandansan's (2005) IECPEP framework. The goal of the QUIPPED project was to 'create an interprofessional education environment at Queen's University that enhances the ability of learners and faculty to provide patient-centred care, while recognizing the contribution of the health care team within a respectful and collaborative framework'. The primary research question was: *How do interprofessional activities/experiences influence learner attitudes/skills/behaviour for interprofessional collaboration in order to contribute to enhanced patient-centred care in future practice?* The most accepted definition of Interprofessional Education is when two or more health care professionals learn with, from, and about each other in order to improve collaboration and the quality of care (CAIPE, 1997, p. 54). Patient-centered care expands on the disease-oriented model by incorporating the patient's experience of illness, the psychosocial context, and shared decision making (Stewart et al., 1995).

PHILOSOPHICAL AND METHODOLOGICAL PERSPECTIVES ON CRITICAL ACTION RESEARCH

Action research was first developed by the social psychologist Kurt Lewin (1946) and has been adopted and adapted by many researchers in various disciplines. The critical research paradigm is based on the philosophy of critical realism, which is concerned with

how political, historical, and socio-economic factors influence our lives and how we understand them (Higgs, 2001). The aim of critical theory is 'positive social and political transformation including reducing social injustices. Thus it focuses on taken for granted ways of thinking, insights gathered through heightened awareness of diversity, and inequalities afflicting many segments of society' (Luborsky and Lysack, 2006, p. 334).

Informed by the need for renewal of the health care system in Canada, the QUIPPED project was developed within the critical paradigm. Critical theory is based on the premise that because all people are socially located, knowledge is always influenced by an inquirer's norms, values, and interests (Greenwood and Levin, 2005; Habermas, 1972). As a result, the research process requires critically examining the assumptions underlying knowledge that is held to be common sense with an aim to discover the power, inequality, exploitation, and oppression which support these social phenomena and practices in order to change these practices and the knowledge that supports them. Kemmis and McTaggart (2005) state that critical action research 'expresses a commitment to bring together broad social analysis – the self-reflective collective self study of practice, the way in which language is used, organization and power in a local situation, and action to improve things' (p. 560). While there are many variations of action research, all share common features; relationship between theory and practice, the value of participation, and the capacity of research to address practical problems in specific situations (Street, 2003). Street (2003) outlines six characteristics of action research listed in Table 1.

Table 1: Six characteristics of Action Research (Street 2003)

1	Issue and outcome based
2	Participatory and democratic
3	Cyclical
4	Knowledge in action
5	Educative, developmental and responsive
6	Credible, sustainable and transferable

We will now critique each of these characteristics individually in relation to QUIPPED over the three year period of 2005-2008.

1 Issue and outcome based

Street (2003) specifies that action research 'specifically address practical health issues of concern to a number of people' with 'the intention to provide practical, context specific knowledge and strategies to improve health care and the environments in which care is conducted' (p. 279). In the project, we aimed to develop the knowledge to implement interprofessional education for the purpose of collaborative patient-centred practice within the Faculty of Health Sciences (FHS) at Queen's University. A major impetus was the strong financial support from the federal and provincial governments of Canada for an interprofessional approach to health care and education.

Prior to the development of the project proposal an environmental scan of the FHS was undertaken to determine existing interprofessional education initiatives and opportunities for others to be developed within the curriculum. While some interprofessional education opportunities existed for learners, the overwhelming majority of students completed their professional programs without any exposure to interprofessional education. The initiatives that did exist arose from interests of individual faculty members and had no institutional support or research components.

At the beginning of the project and at pivotal points throughout, miscommunication and misunderstandings revealed that project participants had different conceptions of interprofessional education and collaboration. Hence the project team continued to facilitate discussions on interprofessional education and collaboration to ensure that all players had shared understandings of these concepts and therefore agreed on the desired outcomes of the project.

2 Participatory and democratic

The second characteristic of action research outlined by Street (2003) states that 'Action research involves all those [stakeholders] who will be affected by the new knowledge or changes...' (p. 281). Rather than

the participants being the objects of observation, they become co-researchers who are viewed as possessing important knowledge to contribute to the course of the research. As co-researchers, participants are involved in decision making, inquiring, knowing, taking action, and owning the outcomes (Street, 2003).

QUIPPED was a large and complex project involving partnership of three schools in the Faculty of Health Sciences (Medicine, Nursing, and Rehabilitation Science which included programs in Occupational Therapy and Physical Therapy) (Figure 1). In order to ensure input from each of these perspectives, three Principal Investigators led the project. From the initial stage of writing the grant proposal for the project, key stakeholders were identified and included on the proposal committee, including faculty and learners representing a wide range of disciplines at the pre- and post-registration level, and patient representatives. After funding was granted, the Steering Committee for the project mirrored the representation of the proposal committee including two patient representatives, ten faculty, and ten students with the latter two groups representing five disciplines at the pre- and post-registration level. There were five paid team members and many volunteers who worked with the principal investigators to undertake the research. The Steering Committee met bimonthly for one-hour meetings, co-chaired by two faculty members from different disciplines. In addition to the two patient representatives on this committee, many other patients participated in the action research process through multiple interprofessional activities. For example, several patients were involved as educators in interprofessional fieldwork placements by sharing their perspectives in tutorials for students and /or engaging students in a patient-shadowing assignment. Roles and responsibilities of each participant were not clearly defined in advance due to the emergent design of this research. This also required the project team to remain patient, flexible and realistic regarding expectations and accomplishments. The project responded to the challenge of varying levels of preparedness by providing consultation to participants and financial support for some faculty to attend professional development workshops.

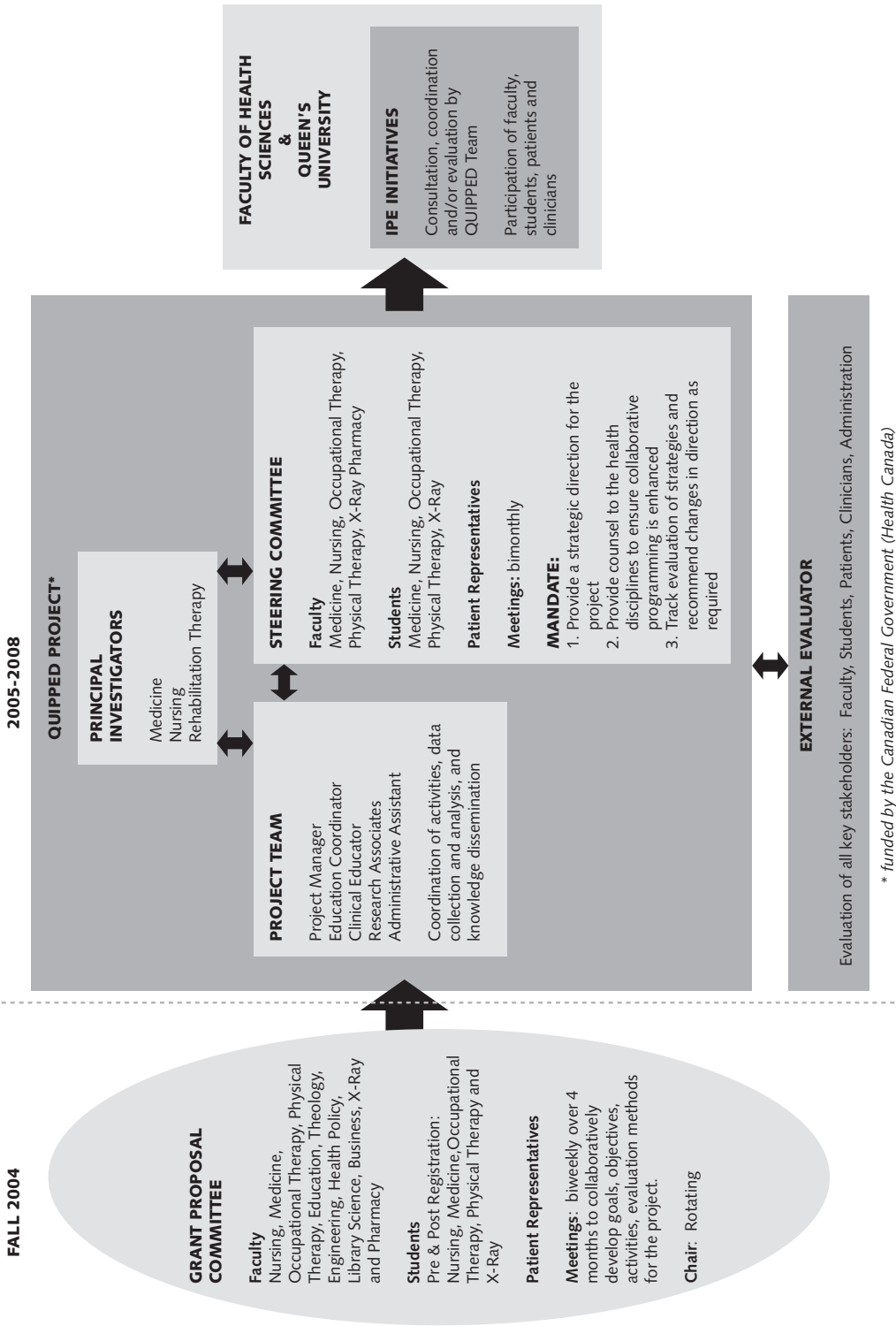


Figure 1: QUIPPED Project – March 2005 to March 2008

From the conceptualization of the project, learners, patient representatives, and faculty were involved in most aspects of the project including: defining goals and objectives; developing and implementing interprofessional education initiatives for learners: faculty and clinicians; providing feedback on the outcomes of action; reflecting on next steps in action; and disseminating findings through conference presentations and publication of journal articles.

A number of stakeholders were invited to have equal participation in the project. Significant challenges arose in meeting this goal, providing opportunities to deepen our understanding of action research and participation. For example, each patient representative was invited to comment on their experience of participation following the first year of the project. The response from each representative was quiet different. The quote below demonstrates the positive experience of one patient representative:

'The people who are QUIPPED are philosophically and instrumentally committed to making sure the voices of the recipients of health care have tangible and respectful inclusion in the planning and delivery of all its initiatives.'

While the reflections by the other patient representative included positive aspects, the selected quote below demonstrates the challenges to participation that she experienced:

'My experience of working as a consumer/patient ... has been ... disappointing because my role as disability consultant was under used ... Frustrating because as a non-Queen's staff or professional or university graduate, I often felt distant and ill informed and not connected.' ...

Though initially distressing to the Project Team, this feedback provided a valuable opportunity to deepen our understanding of the patient role and led to a special meeting with the patient representatives to discuss how the project could better draw on their perspectives, interests, and abilities. In the final year, their involvement became richer and diversified with

participation in a greater number of activities including co-supervision and evaluation of student research projects; keynote addresses at interprofessional education symposia; participation discussion forums, planning and implementation of interprofessional education activities form learners, faculty, and clinicians; development of collaborative assessment tools; and participation in conference presentations and publications.

Reflection on potential constraints to patient involvement in the project led to other considerations for the future. We realized that communication and involvement were at times limited because patient representatives did not have a designated space at the university and their attendance at meetings was sometimes affected by mobility and accessibility problems. There was much to consider in order to ensure equal participation: space, access, lines of communication, language, and mutual understanding. Reflection on this situation also led to further exploration and development of theory regarding the role of patients in interprofessional education and practice.

The experiences of the patient representatives on the Steering Committee highlighted the importance of creating a process to ensure that each participant is engaged in the research, such as dedicating time for on-going reflection and discussion with all stakeholders.

3 Cyclical

Another characteristic of the action research process outlined by Street (2003) is the construction of ongoing open cycles, a corkscrew spiral design which enables action to be carefully monitored, analyzed, and evaluated. This design allows for reflection on the success of the plan and the possibility of modification in the next cycle of planning, action, evaluation and reflection.

The iterative cycles of action, reflection, and evaluation of action research are argued to be a useful approach for complex interventions, such as interprofessional education, as they aim to help researchers define clearly where they are in the research process (Campbell et al., 2000). It allows for a sequential and systematic examination of all factors and issues

Table 2: Name of Initiative, Number of Participants, and Professional Affiliation of Participants

Initiative	Year	Number of Participants	Professional Affiliation
Professionals in Rural Practice Course	2005/06	30	Medicine, Nursing, PT*, OT**, Education, Theology
Interprofessional Education Program (IPEP)	2005/06	4	OT, PT
Bioethics Elective Course	2005/06	112	Medicine, OT
Intimate Partner Violence Workshop (IPV)	2005/06	330	Medicine, Nursing, OT, PT, X-Ray, Law
Core Academic Days	2005/06	90	Medicine
Venipuncture Laboratory	2005/06	204	Medicine, Nursing, X-Ray
Resuscitation Skills Laboratory	2005/06	222	Nursing, Medicine, Medical residents
IPV Half Day Workshop	2005/06	28	Medicine, Nursing PT, OT
Wellness Symposium	2005/06	55	Medicine
Loss & Bereavement Workshop	2005/06	60	Faculty members from Medicine, Nursing, Rehabilitation Therapy, Social Work, Clinical Psychology, X-Ray
Inter-Professional Teaching and Learning (IPTL) Faculty Development Program	2006/07	17	Faculty members from OT, PT, Nursing, Medicine, Social Work, Speech Language Pathology, Psychology, Art Therapy
Health Together Days	2006/07	130	Medicine, Nursing, OT, PT
Professionals in Rural Practice Course	2006/07	34	Nursing, Education, Theology, OT, PT, Medicine
IPV Workshop	2006/07	250	Medicine, Nursing, OT, PT, X-Ray
Stroke Team Interprofessional Placement	2006/07	5	OT, PT, Nursing
Communication Session on Core Academic Days	2006/07	160	Medical residents, OT, PT, Pharmacy residents, Nursing
Professionals in Rural Practice Course	2007/08	18	Nursing, Education, Theology, Law
Intellectual Disabilities Day	2007/08	175	OT, PT, Medicine, Psychology
IPV Workshop	2007/08	200	Medicine, Nursing, OT, PT, X-Ray
Resuscitation Skills Laboratory	2007/08	6	Faculty members
PT Emergency Unit Placement	2007/08	6	PT
Geriatric Team Interprofessional Placement	2007/08	7	Medicine, Nursing, Social Work, Psychology, OT, Theology
IPTL	2007/08	15	Faculty members from OT, PT, Nursing, Medicine, Psychology

* Occupational Therapy; ** Physical Therapy

through reflective cycles designed to incrementally orient action, generate knowledge, evaluate effectiveness and refine theory. Rather than asking: 'Did this interprofessional education intervention significantly improve patient outcomes?', more exploratory type questions such as: 'What do learners/professionals perceive collaboration to be?' and 'What are some of the barriers to collaboration?' are asked. Answers to questions such as these allow the

researchers to understand where further discussion and knowledge generation needs to be focused. Qualitative research methods which aim to generate hypotheses, provide explanations, and gain understanding complement the aims of quantitative research methods to test hypotheses, measure outcomes, and form generalizations (Jones, 1995). A mixed methods approach enhances the breadth and

depth of the study and to enable triangulation to ensure validity.

The QUIPPED project worked to support existing interprofessional education initiatives and those that had naturally evolved on an 'ad hoc' basis. The project also provided resources and networking opportunities to foster partnerships for individuals interested in creating and implementing interprofessional education initiatives. Ethical approval for the project was sought at a macro level with the understanding that there would be many amendments as the project progressed to address emerging opportunities and challenges. Table 2 lists the various QUIPPED initiatives, displays the number of participants in each activity as well as the combination of students who participated in them, over the 33 months of the project.

One of the initial goals of the project was to integrate shared learning opportunities for students from the three schools into program curricula and schedules. Stakeholders able to make such decisions were not opposed to interprofessional education but many were not ready to effect changes necessary to their academic programs in the short term. Despite these limitations, the project was able to test various models of interprofessional education through extracurricular activities that still resulted in benefits to students and faculty. Concurrently, the project team worked at promoting networking and discussion with key players about integrating interprofessional education activities within the academic curricula. While this process took considerably more time than anticipated, it allowed decision-makers of academic programs to be more involved in the development of the shared interprofessional education curricula and has brought together key players from different schools to promote networking among the three professional programs. Each interprofessional education initiative was evaluated using a mix of qualitative (interviews, focus groups, open-ended survey questions) and quantitative (electronic and paper surveys) methods and included all stakeholder groups. In addition, an external evaluator was hired to provide a transparent, confidential and global perspective of the effect of the project on the Queen's education environment. The external evaluator engaged all stakeholder groups

through interviews, focus groups and on-line surveys to allow anonymous feedback to the research team and a more global perspective of the impact of the research.

Purposeful reflection on collaborative action can focus attention on the process of knowledge construction and give rise to a shared knowledge and collaborative culture. Stakeholders who have the same facts and information will interpret them differently according to their experiences and world views. Engaging stakeholders in collective reflection provides the opportunity to recognize differences in interpretations and construction and promotes discourse to develop construction of their situation that makes sense to them all (Stringer, 2007).

Reflection within the project took place on multiple levels and by various groups. Planners and participants were asked for feedback on their experience of each initiative. The QUIPPED team reflected weekly on the interprofessional education initiatives that were taking place and discussed long term planning for the sustainability of interprofessional education at Queen's University. The Steering Committee included reflection on the outcomes of action as one of its long standing agenda items. The external evaluator attended a meeting approximately four times a year, to report back on findings and to discuss issues with the team. In addition, the QUIPPED team met twice a year for a full-day retreat as a strategy setting session.

This reflection process supported the development of new or emerging knowledge of interprofessional education to enhance patient-centred practice in general and for the specific context of Queen's University and allowed for the deconstruction of current educational practices and reconstruction of knowledge and future action.

4 Knowledge in action

Action researchers begin with everyday experience and consider how to act in intelligent and informed ways in a socially constructed world (Reason and Bradbury, 2001). Developing knowledge-in-action is included in Street's (2003) characteristics of action research because this approach seeks to reduce the gap between theory and practice through the cyclic process of investigation, implementation, evaluation, and

theorizing. The systematic cyclic process aims to reduce the theory-practice gap; theory informs action and action further develops theory (Street, 2003). Equal representation of all stakeholders in action research is important, as Street acknowledges that those whose knowledge is included in action determine the development of theory.

In health care education, each profession has developed in isolation creating a unique culture, each with a distinct system of organized knowledge resulting in an artificial division and fragmentation of knowledge (D'Amour and Oandasan, 2005). These isolated bodies of knowledge are not adequate or appropriate for collaborative practice settings. For collaboration to be successful, team members must become aware of their cognitive maps as a prerequisite to understanding those of others (Hall, 2005), and reconcile opposing views and provide an integrated and cohesive response to the needs of the patient (D'Amour and Oandasan, 2005).

Students and faculty within each discipline are accustomed to certain ways of learning and teaching. Interprofessional education requires a different way of teaching and learning than what has been established as the 'norm' in many traditional academic institutions. This approach to education requires new knowledge for administrators, faculty and students. Interprofessional education activities in this project were structured to provide opportunities for learners of different professions to learn together about a topic while explicitly reflecting on and sharing perspectives and scopes of practice of each discipline. Students were encouraged to discuss and practice skills of collaboration such as communication, coordination, assertiveness, autonomy, accountability, trust and respect (Way, Jones and Busing, 2000). Student feedback identified topics and issues that they felt were important to their future collaborative practice, and served to improve the design and implementation of subsequent learning experiences.

While models of interprofessional education exist, further research is required in order to understand specific contexts and pre-requisite knowledge for participants. Some of the best 'learning' regarding interprofessional education implementation in the project were results from initiatives that were the least

successful. Many activities brought students together for shared learning on topics such as intimate partner violence, intellectual disabilities, resuscitation and rural practice, in classroom, laboratory, and clinical placement settings using adaptations of various models found in the literature. In early attempts, students quickly noticed that they were sitting in the same classroom with students of other professions but were limited in their ability to interact and learn from one another. Faculty members developed their understanding of how to create more interactive small group learning experiences for their students, related not only to issues of pedagogy but to parameters of appropriate classroom space and design for this type of learning. As each initiative was implemented, the project team and stakeholders gained a greater understanding of key issues to address to enhance collaboration in the health care environment, thus leading to the development of knowledge necessary for action.

As initiatives were redesigned to increase opportunities for student interaction, new pedagogical issues surfaced. Students revealed that they were sometimes uncomfortable in interprofessional learning groups as they perceived differences in confidence and status among students which affected their ability to participate and fully engage in the learning experience. Students reported that they would feel more comfortable learning with students from other professions after they had a strong understanding of their own scope of practice so that they could better represent their profession and contribute to discussion with more confidence. In addition, students from each profession placed different levels of value on interprofessional education and had different needs and expectations for learning together.

From this feedback, it was realized that the needs and expectations of each group of students required careful consideration in the planning process. Over time and with regular opportunities to engage in interprofessional education, it became evident that students were more comfortable in this learning environment. Students contributed valuable insights into what issues were important to interprofessional education to prepare them for collaboration in the practice setting.

5 Educative, developmental and responsive

Street (2003) maintains that 'action research is about "learning by doing"' (p. 281). As a result, AR develops over time as skills develop and communities become established. It is 'educative in the sense that if change is to be sustainable others need to be educated in the new knowledge and strategies' (Street, p. 281).

At the end of the first year of the project, the external evaluator for the project conducted interviews with faculty, administration and project team members. One finding was the perception that the QUIPPED project was involved in too many initiatives resulting in the appearance of a 'scattered' approach. The QUIPPED team realized that they would not be able to create change on their own. Slowly, they shifted focus to developing the expertise of others and providing a consulting role for those who wished to design and implement interprofessional education activities into program curricula.

A second finding of interest was the opinion that the project needed to assist faculty by preparing them to deliver interprofessional education to their learners. These findings led to the development and implementation of a professional development training program for faculty and clinicians interested in interprofessional education. This program focused on developing the knowledge and skill for designing and implementing interprofessional education in the academic and clinical settings, and concluded with an applied project to allow participants to design interprofessional education activities tailored to their own setting. As a result of two iterations of this program, with 35 participants in total, the number of faculty and clinicians knowledgeable in interprofessional education has increased dramatically. In addition, a number of the interprofessional education projects developed through the program have been implemented in the academic and practice settings, some of which will be offered on a regular basis.

6 Credible, sustainable and transferable

'Unlike quantitative research, action research is unable to generalise and predict the answers to health problems. Action research is considered credible and valid if problems are solved and participants increase

the control over their own lives' (Greenwood and Levin, 2005). Action researchers endeavor to ensure that their improvements can be maintained over time. Through a series of cycles, this process provides the opportunity for stakeholders to fine-tune the intervention to better fit the emerging needs of the situation. Although context specific, action research enables participants to develop and test conceptual models and theories that can be transferable to other contexts with similar issues (Street, 2003).

The terms 'transferability' (Stringer, 2007) and 'recoverability' (Nielsen, 2007) have been argued to be more appropriate for the assumptions and purposes of action research than 'generalizability' and 'reproducibility'. These terms suggest that what is necessary to determine whether the outcomes of a specific action research study may be relevant in other settings are not simply the outcomes themselves, but also a detailed description of the context, activities, and events which led to these outcomes. As Stringer argues, consumers of research must be able to make judgments about whether or not the situation is sufficiently similar to their own for the outcomes to be applied. Neilsen suggests that by making research recoverable through careful documentation of the research project, the consumers of research can evaluate the outcomes of the research and the applicability to their setting for themselves.

As one means of effective communication about the context and outcomes of the project, the QUIPPED project prepared and disseminated annual public reports of all of its activities. Reports provided descriptions of each initiative, including details of the process and lessons learned. They were also used as a basis for reflection by the QUIPPED team and Steering Committee.

Greenwood and Levin (2005) argue that 'validity, credibility and reliability in action research are measured by the willingness of local stakeholders to act on the results of the action research ... and the degree to which the outcomes meet their expectations' (2005, p. 54). As the result of participation in the faculty development programs and other QUIPPED initiatives, many faculties have continued their involvement in interprofessional education activities beyond the project's time frame.

OUTCOMES OF QUIPPED

Over 1600 faculty and students have participated in various initiatives and there are a number of visible outcomes including 10 peer reviewed manuscripts (MacRae, van Diepen and Paterson, 2007; Medves et al., 2008; Medves et al., In press; Medves et al., 2006; Morgan et al., In press; Mueller, Klinger, Paterson and Chapman, In press; Paterson et al., 2007; van Diepen, MacRae and Paterson, 2007; Verma, Medves, Paterson and Patteson, 2006; Verma, Paterson and Medves, 2006) and more than 25 peer-reviewed abstracts presented as posters, presentations, or workshops at conferences regionally, nationally, and internationally by the QUIPPED team including consumer representatives and students. Many other oral or poster presentations have been conducted at local conferences. Some of QUIPPED initiatives will be continued through the new Queen's University Office of Interprofessional Education and Practice. Overall, creating an environment conducive to interprofessional education is transformational change, requiring long-term support and commitment to plan a sustainable and effective learning environment. The QUIPPED project was funded for 33 months during which time the learning environment experienced the beginning of a transformation through a process of action, reflection, and evaluation.

The key measures of transformational change at Queen's University from this action research project are as follows:

- The concept of interprofessional education is now understood and discussed among faculty and students.
- Innovative ways to teach and learn are emerging despite barriers to small group interprofessional education learning.
- Students are requesting opportunities to learn with, from, and about other professions, attending extracurricular interprofessional education sessions, and partnering with students from other professions in research activities.
- The role of the patient is better understood and their inclusion in interprofessional education initiatives through planning, implementation, and evaluation has become an expectation.

- Some infrastructure for sustainable interprofessional education at Queen's University has been created through the development of the Office of Interprofessional Education and Practice.
- Innovative interprofessional clinical placement opportunities are developing for students.
- Faculty development in interprofessional education is expected to continue.
- Curricular mapping and joint curricula are underway.
- A cadre of patients, clinicians, and faculty are contributors to interprofessional education.
- Multiple grants have been awarded to investigators who were involved in QUIPPED initiatives to advance interprofessional education and interprofessional collaboration.
- There is representation on provincial and national interprofessional education and practice committees by members of the QUIPPED project.
- The establishment of Queen's Local Chapter of the National Health Sciences Student Association.

Our success occurred because of committed faculty, students, patient representatives, and researchers; support from the institution and its leadership; innovations from project team and staff; guidance and vision from the inter-professional Steering Committee and partnerships and networking with people sharing a common goal of interprofessional education.

DISCUSSION

Street (2003) outlines six characteristics of action research which this article used as criteria to organize the description of a specific project, the QUIPPED project. The purpose of this process was to provide the reader with the opportunity to reflect on the research process of QUIPPED and to evaluate its level of the rigour and success. In addition, this paper seeks to initiate dialogue about action research in general as a means to facilitate the development of specific criteria for action research to enhance its credibility. This research project has contributed to the development of new knowledge for both local stakeholders and for the interprofessional education research community. The iterative approach has

allowed for the clarification and refinement of the research agenda for the local context and the field in general. From our work, it is clear that to become sustainable and to remain relevant to the needs of learners, faculty, community clinicians, and health care consumers, key messages must be heard and adopted by administrators, educators, health care workers, researchers and policy makers. As a result of the adoption of the iterative action research cycles, QUIPPED is confident in offering the following messages for interprofessional education in general and as a focus for future research.

Institutional and Administrative

- Support development of appropriate space to facilitate interprofessional learning opportunities.
- Provide infrastructure funding for sustainability.
- Offer financial support and time for faculty to enhance interprofessional education teaching, planning of interprofessional education curricula, and delivering interprofessional learning activities.
- Offer continuing education credits for interprofessional education and collaborative practice.

Educators

- Integrate interprofessional education into the core curriculum.
- Develop core interprofessional education competencies.
- Offer learners a choice of interprofessional education opportunities to reflect individuals' areas of interest.
- Dedicate time to team development at the beginning of any interprofessional education initiative.
- Incorporate perspectives of patient representatives into the planning and development of interprofessional education and collaborative practice initiatives.

Researchers

- Develop and validate tools to assess collaborative practice in clinical settings.
- Evaluate interprofessional education initiatives and disseminate results to guide future

interprofessional education initiatives.

In summary, this paper has explored action research within the critical paradigm using the QUIPPED project as an example. As funding for the project ended in March 2008, the number of champions of interprofessional education had reached a critical mass in the Faculty of Health Sciences at Queen's University. A number of participants submitted proposals and received funding for grants to support further research in interprofessional education and practice; interprofessional teams of the faculty have developed interprofessional education initiatives to integrate into their curricula; a shared interprofessional education curricula among the three schools is currently being developed with participation of program planners from each school; the Office of Continuing Professional Education is exploring opportunities to integrate professional development in interprofessional education into its regular program of events; and an Office of Interprofessional Education and Practice has officially opened. Challenges continue to exist, and the progress made will require ongoing reflection and changes but the beginning of a transformation in health care education is in our midst.

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SUMMARY

This paper uses six characteristics of action research outlined by Street (2003) to organize the description of an interprofessional education (IPE) project at a Canadian university. A brief background about the project is provided with a focus on the philosophy and methodology. Key findings are presented with a discussion of the relevance of this new knowledge and recommendations for future research. This description of the research process allows the reader to reflect on and evaluate the use of action research in and success of this project. In addition, this paper seeks to initiate dialogue about action research in general to facilitate the development of specific standards for this approach to research to enhance its credibility.

