Journal of Interprofessional Care

ISSN: 1356-1820 (Print) 1469-9567 (Online) Journal homepage: http://www.tandfonline.com/loi/ijic20

Theories, relationships and interprofessionalism: Learning to weave

Pippa Hall, Lynda Weaver & Pamela Anne Grassau

To cite this article: Pippa Hall, Lynda Weaver & Pamela Anne Grassau (2013) Theories, relationships and interprofessionalism: Learning to weave, Journal of Interprofessional Care, 27:1, 73-80, DOI: 10.3109/13561820.2012.736889

To link to this article: https://doi.org/10.3109/13561820.2012.736889

Published online: 14 Nov 2012.

Submit your article to this journal

Article views: 1466

Citing articles: 11 View citing articles

Full Terms & Conditions of access and use can be found at
http://www.tandfonline.com/action/journalInformation?journalCode=ijic20

Journal of Interprofessional Care, 2013, 27: 73–80
© 2013 Informa UK, Ltd.
ISSN 1356-1820 print/ISSN 1469-9567 online
DOI: 10.3109/13561820.2012.736889

informa
healthcare

ARTICLE

Theories, relationships and interprofessionalism: Learning to weave

Pippa Hall[1], Lynda Weaver[2] and Pamela Anne Grassau[3]

[1]Division of Palliative Medicine, University of Ottawa, 43 Bruyère St, Ottawa, Ontario, Canada K1N 5C8, [2]Bruyère Continuing Care, Palliative Care, 43 Bruyere St., Ottawa, Ontario, Canada K1N 5C8, [3]Bruyère Research Institute, Palliative Care Education and Research, 43 Bruyere St., Ottawa, Ontario, Canada K1N 5C8

In this article, we illustrate the application of a number of theoretical frameworks we have used to guide our work in interprofessional education (IPE) and collaborative interprofessional care (IPC). Although we do not claim to be experts in any one of these theories, each has offered important insights that have broadened our understanding of the complexities of interprofessional learning and practice. We have gained an appreciation for an increasing number of theories relevant to IPE and IPC, and, as a result, we have woven together more key principles from different theories to develop activities for all levels of interprofessional learners and clinicians. We pay particular attention to relational competencies, knotworking/idea dominance, targeted tension and situational awareness. We are now drawing on the arts and humanities and complexity theory to foster relationship-building learning. Evaluation of our endeavors will eventually follow these latter theories for methods that better match the human and social experiences that underpin learning. Our "theoretical toolbox" therefore may be of value to educators who develop and implement creative interprofessional learning activities, as well as clinicians interested in moving toward more effective collaboration.

Keywords: Interprofessional education, interprofessional practice, evaluation, theories, framework

INTRODUCTION

We came to explore theoretical frameworks for interprofessional education (IPE) and collaborative interprofessional care (IPC) through our experiences with palliative care. To address the complex suffering of patients and their families facing terminal illness, we have adhered to the principle of practice that care is best provided by an interprofessional healthcare team (Ferris et al., 2002). Self-awareness (i.e. reflective learning) and the concept of healing through relationships (Hutchison, 2008; Puchalski et al., 2009) are integral to palliative and end-of-life care (Kearney, 1996). Relationship-centered care (Beach & Inui, 2006) forms a basic framework for our practice. The impact of relationships within the care team on the quality of teamwork and the provision of care has always been evident (Sullivan & Decker, 2001; Yukl, 2006). How to facilitate the learning and implementation of these concepts, however, was not clear, and we therefore embarked on our own journey of learning. We do not claim to be experts in any of the theories presented here, but we wish to share the key principles that guided our path. Table I summarizes the evolution of our own learning by listing the major theories we have used, their relevant key points and the impact of these theories on our planning and pedagogical approach. Descriptions of some applications are provided later.

WEAVING THEORIES TO IMPROVE INTERPROFESSIONAL KNOWLEDGE

Early days: 1997–2004

Our academic palliative care program associated with the University of Ottawa and Bruyère Continuing Care's palliative care and clinical teaching services conducted an evaluation of the Continuing Professional Development (CPD) program in 1997 we were offering to community primary healthcare providers, with the goal to improve the care of the terminally ill in our urban and surrounding rural areas. One of the main findings of the evaluation was that our approach was uniprofessional in its delivery, and had not adequately met the needs of participants or the communities in which they worked (Hall, Hupé, & Scott, 1998). This finding began our search to better understand the challenges of IPE and IPC, and to develop interventions to

Correspondence: Pippa Hall, Division of Palliative Medicine, University of Ottawa, 43 Bruyère St, Ottawa, Ontario, Canada K1N 5C8.
E-mail: phall@uottawa.ca

(*Received 31 January 2012; revised 10 September 2012; accepted 30 September 2012*)

Table I. Weaving our theories for Interprofessional Education and Interprofessional Care

Theory & Key Points	Impact on Planning IP* Learning Activities
Professional Socialization & Boundary Work (Petrie, 1976; Witz, 1992) • Professional cognitive maps • Idea dominance • A profession sets the boundaries for who is included in, and excluded, from that profession Models for Group Process (Tuckman & Jensen, 1977) • Forming • Storming • Norming • Performing • Adjourning	Learning activities to facilitate sharing cognitive maps: • Small groups – uniprofessional for theory burst then interprofessional for case-based learning activities • Complex cases/situations/stories requiring multiple perspectives to be adequately addressed/assessed • Activities to explicitly recognize importance of each person's contribution • Explicit discussion of Group Process incorporated into learning activities to show that relationships between clinicians and relationships between patients and clinicians are expected to be bumpy journeys that continuously change.
Activity Theory & Knotworking (Engeström et al., 1999; Engeström, 2001) • Importance of making implicit understanding and expectations explicit • A 'knot' of loosely connected actors and activity systems, partially orchestrated, collaborating to address a dynamic, pulsating issue.	• Activities to highlight individuals' implicit rules, tools, perceived divisions of labour, community norms • Explicitly incorporate visual overview of knots of different clinical relationships into theory bursts (also see Situation Awareness below). • Demonstrate how effective relationships must form rapidly around specific patient & family needs, and be ready to adapt to meet the often rapidly changing situation. • Ensure patients (and their families) are equal members of this health team collaboration.
Tension Triangle (Illeris, 2003) • New knowledge is only incorporated into practice with social support • Without tension, there is little motivation to alter/shift one's own activity system	• Learning activities are best done with colleagues with whom you work • Some degree of stress (creative/positive) must be added to learning activities (e.g. role play, interactive theatre, complex ethical dilemmas, TOSCE)
Reflective Learning (Schön, 1983) • Skill of reflection during, after and before actions	• Reflective exercises
Situation Awareness (Mackintosh et al, 2009) • Being aware of what is required of you in any situation, given the need, available resources, and environment of the situation	Theory burst with visual description of different clinical situations and discussion: In any given clinical situation and in close collaboration with the patient/family: What can you do independently? What requires only cooperation with other professions? What requires close collaboration e.g. shared decision-making? Who can do what with what is available? How can we communicate best to address the care needs?
Scaffolding the Social Domain of Learning (D'Eon, 2005) • The domains of learning include: cognitive, attitudinal and skill PLUS social/relational	New learners in groups: start with a small number from 2-3 professions on less complex exercises. Move to cases that are more complex with more participants and/or more professions. Plan IP activities to strategically build competencies in the social/relational domain.
Actor Network Theory (Akrich, 2002; Bleakley, 2006, Latour, 2007) • All actors in a situation (animate & non-animate) have roles and relationships	Participants must be able to explicitly adapt and appreciate learning activities in the context of their own environments. Explicitly discuss concept of interactions with non-animate objects/tools will impact developing and sustaining relationships.
Complexity Theory (Davis & Sumara, 2006; Heylighen et al., 2007; McMurtry, 2010) • 5 complexity 'conditions' needed to foster collective learning: ◦ internal diversity; ◦ internal redundancy; ◦ decentralized control; ◦ neighbouring interactions; ◦ enabling constraints	Use complexity conditions as guidelines to set the stage for optimizing creativity, spontaneity and interprofessional fusion from a little chaos, e.g. ensure diversity, redundancy, etc. in the planning group membership.
Feminist Relational Theory (Brown & Gilligan 1992; Gilligan, Spencer, Weinberg, & Bertsch, 2003) • Emphasis on the centrality of relationships • Need to develop skills in building and sustaining strong relationships (relational competence & relational resilience) • Learners must reflect and re-examine how to be in multiple relationships in an environment which is constantly changing	• Focus learning on relationships in care provision i.e. not patient-based care but relationship-based care • Focus learning on complexity of being in relationship with peers, supervisors, other team members and patients and families in a context that is constantly shifting and changing • Creativity, especially arts & humanities, allows learners and clinicians to explore relational competence in the context of patient care & teamwork

enhance both. In addition to discussions and focus groups with key stakeholders in our different communities, we searched for sound theoretical frameworks that could inform our program.

The first guiding light came from the work of Petrie (1976) who discussed the socialization process that occurs during professional education, resulting in each profession having its own "cognitive map." For example, after finishing his/her professional education, each new member of that group has similar jargon/language, approach to solving problems and values. This contributes to the boundaries that arise between professions, and are challenging to cross (Witz, 1992). Indeed, the historical evolution of the professions can contribute to suspicion and distrust between professions (Baker, Egan-Lee, Martimianakis, & Reeves, 2011; Hall, 2005). Petrie states "Quite literally, two disciplinarians can look at the same thing and not see the same thing." (p. 35). He proposes "idea dominance" is necessary for effective teamwork, where members of the team focus on the same "idea" or goal rather than on the traditional focus of his/her profession, shifting the idea/goal to more holistic care of the patient and family. Success would be defined not only by the idea/goal being realized, but also by each team member perceiving that he/she has contributed to the achievement of that goal (Hall & Weaver, 2001).

Application – interprofessional continuing professional development. We developed our subsequent 30-hour palliative care interprofessional CPD program within this framework using principles of adult education. All educational sessions involved small groups working as interprofessional teams to resolve complex case-based problems (i.e. idea dominance). The problems were presented in various formats: paper cases, role-plays, community theater presentations and team-based learning games. To prepare for the relevant, dynamic and complex symptom management problems and to meet the perceived needs of the participants, separate theory bursts on pain and symptom control were given: a palliative care physician taught the physicians and pharmacists; and an advance practice palliative care nurse consultant taught the nurses and allied health participants. This ensured that participants reviewed their specific roles and responsibilities in patient care and their roles within the team. Of the 111/146 participants who returned the overall evaluation questionnaire, 83% rated the program as "very satisfactory" (4/4 on the Likert scale provided), and the most common comment by both physicians and non-physicians was the importance of the interprofessional format (Hall, Weaver, Hupé, & Seely, 1999). Anecdotally, we recognized that relationships among the participants prospered as focus was directed away from each other's behaviors and toward the patient's issues.

The program's interprofessional structure led to many unexpected outcomes and relationships, illustrating the richness of this approach. Several groups of interprofessional primary care providers, each group including at least one family physician, became interested in local community project work. We used Tuckman's group process model (Tuckman & Jensen, 1977) to facilitate these groups, focusing their efforts on achieving the goals of their projects. This contributed to an increase in palliative care initiatives in their communities and some long-term leadership impacts (Hall, 2001; Hall, Weaver, Handfield-Jones, & Bouvette, 2008). Petrie's "idea dominance" framework and the creative learning activities that fostered relationships between participants have remained important tools in our toolbox.

Application – interprofessional prelicensure education. We hypothesized that the theories we were using in our CPD programs could be applied to learning activities for pre-licensure learners to help them build skills/competencies in IPC before they developed strong professional cognitive maps within their professional cultures. The challenge was to find "idea-dominance" appropriate for this group of learners with limited clinical experience. In 2001, we found that focus – popular literature that looked at death and dying from different perspectives (Hall et al., 2006).

This elective course, "Death Made Visible: An Inter-disciplinary Exploration of Death and Dying in Literature," was launched in 2002 and has been given annually since, targeting students in medicine, nursing and spiritual care. Using the course materials as "idea dominance" for small group reflection and discussion, the course fosters reflective learning, development of collaborative competencies and ensures students are exposed to diverse perspectives (Hall et al., 2006). Faculty members and guest facilitators represent the interprofessional perspectives of medicine, nursing, spiritual care, and social work. The course has evolved to include small group student presentations, poems, film and art.

MORE THREADS FOR OUR LOOM

Adding new theories: 2004–2010

In 2004, we became aware of two theoretical frameworks proposed by Engeström (Engeström, Engeström, & Vahaaho, 1999; Engeström, 2001). Activity theory encouraged us to increase learning activities that required participants to use reflective skills (Schon, 1983). We designed learning activities (see later) explicitly for participants to discuss and question each other about the tools and signs they are trained to use in their professions, their roles in their care communities, expectations of each other and assumed rules of practice. Similar to Petrie's "idea dominance," Engeström's concept of "knotworking" helped us realize the importance of small group work with exercises that focus on complex issues (the knots) requiring multiple perspectives to be appropriately addressed. As situations evolve, the knot constantly shifts, changes and requires rapid modifications of relationship strategies between participants. Knotworking also emphasizes the importance of patients and their families as equal and active members of the healthcare team "knot," rather than passive participants at the center of the care circle.

Activities such as role-play and interactive theater were further incorporated into our educational activities. These

© 2013 Informa UK, Ltd.

types of activities add tension to the learning situation, as there is often reluctance to participate. In 2006, we learned of Illeris' (2003) theory stating that some degree of tension is necessary for a learner to consider applying new knowledge in a way that will change his/her behavior, i.e. modify his/her "activity system" (Engeström, 2001). Illeris also identifies the importance of social factors in the adoption of new behaviors, especially among colleagues in work settings. For example, if colleagues or the workplace do not support the implementation of new learning, it is unlikely to be adopted.

This social/relational domain of learning is also discussed in D'Eon's (2005) framework in which he describes the need to "scaffold" IPE activities, building interactions from two disciplines/professions working on simple joint exercises to more complex team interactions focusing on complex clinical issues through virtual cases, simulations and real-life clinical work. This strategically develops the complexity of interactions and relationships, adding tension in incremental doses.

In 2009, the concept of "situation awareness" was added to our CPD toolbox (Mackintosh, Berridge, & Freeth, 2009). Learning activities need explicitly to ask learners to consider how they address issues with their colleagues: autonomously, cooperatively or collaboratively. The skill of situational awareness requires knowing available resources (e.g. others' roles and responsibilities) and identifying who needs to be involved, when, why and how.

Actor network theory (ANT) (Akrich, Callon, & Latour, 2002; Bleakley, 2006; Latour, 2007) emphasizes the importance of the entire environment when developing effective educational and clinical interventions. ANT states that any interaction, both animate and inanimate, results in a relationship. Interactions in clinical and educational settings between individuals and objects/tools (e.g. written messages, phones, pagers, computers, electronic charts) therefore result in relationships. These animate–inanimate relationships can impact the development and maintenance of relationships and may alter the effectiveness of any intervention.

Application – interprofessional continuing professional development. Based on Engeström's theories, our CPD learning activities now include the patient's/family's voices as part of the "knot" in case discussions as written scripts, audio or video clips, and/or role-plays. Paying attention to Illeris' social factors, we request physicians to invite colleagues with whom they work to ensure they learn together in the small group activities.

Another application has been the McMaster-Ottawa Team Observed Structured Clinical Encounter (TOSCE) (Marshall, Hall, Taniguchi, & Boyle, 2008; Solomon et al., 2011). It is a new tool developed from the concepts of idea dominance, knotworking, the tension triangle and situation awareness. We have successfully integrated it into CPD (Brajtman, Wright, Hall, Bush, & Bekele, 2012) pre-licensure (Hall, Marshall, Weaver, Boyle, & Taniguchi, 2011) and post-licensure learning (Hall et al., 2011). Observers rate participants as they work as a team, using a checklist to identify interprofessional competencies (Canadian Interprofessional Health Collaborative, 2010). The observation checklist has shown reliability as a formative tool, and may have summative potential, to assess and improve team function (the TOSCE toolkit can be found at http://fhs.mcmaster.ca/tosce).

Application – interprofessional pre-licensure education. As the class numbers in the Death Made Visible course have grown, we have scaffolded the learning activities by purposely increasing the complexity of the readings and group tasks throughout the 36-hour course. Although we have not been able to have long-term follow-up with course participants, the evaluations suggest we have opened their eyes to new personal and interprofessional perspectives (Brajtman, Hall, & Barnes, 2009).

Additionally, between 2005 and 2008, we developed a bilingual (English and French) interactive online module called "Total Pain." It uses the topic of euthanasia and suffering as the tension-trigger/knot/idea dominance for an interprofessional student team problem-based learning activity. The story is delivered in first person narrative by the patient, Neil, through video, audio, photos and text. Students navigate different parts of the story according to their individual interests and activity systems.

However, the module is structured to limit time for navigation. The only way to fully address the clinical problems is for the group to collaborate through sharing of information and developing a joint care plan. The pilot study results have been encouraging (Hall, Brajtman, Barnes, Willett, & Weaver, 2009; Hall, Weaver, & Willett, 2011). Technology has been the main challenge for the module. When technology failed or became too complex, learners disconnected from the educational process. When all worked well, the relationships the learners developed between each other and with the virtual patient were so powerful, learners adamantly requested an ending to the story to know what happened to the (virtual) patient. This demonstrates the importance of the interaction of, and relationships between, the animate and inanimate, as described by ANT.

Application – interprofessional practice. These concepts have been applied in the clinical model developed for our palliative care unit (Hall, Weaver, Gravelle, & Thibault, 2007) and in the module "Interprofessional Education for Collaborative Person-Centred Practice through the Humanities" (IECPCP&H), developed for interprofessional learning during clinical placements (Hall et al., 2008). The clinical model on the palliative care unit was another example of ANT, as it focused on the tools/processes to enhance relationships of the triad of physician–nurse–patient/family in the context of complex clinical care. IECPCP&H used a lens of the humanities to focus on "knots" of clinical interactions between the healthcare provider, the patient and family and individual team members. It required reflection and exploration of each other's activity system to arrive at satisfactory outcomes.

NEW PARADIGMS FOR OUR LOOM: 2010 AND ON

Complexity theory

McMurtry (2010) guided our introduction to Complexity Theory. If one thinks of IPE as an entity with widely varying structures, processes, content and players, we can see that it possesses a number of complex characteristics: nonlinear patterns of organization (Davis & Sumara, 2006; Heylighen, Cilliers, & Gershenson, 2007); unpredictable outcomes in that small causes may produce large effects or vice versa and outcomes that are emergent only due to the encounters. Each learning encounter, even if designed to be the same each time it is given, has a multitude of variables that cause it to be different each time and with/for each person involved. As a way to further explain complexity, we can contrast it to a simple problem (following a cake recipe) or a complicated problem (building a rocketship). These latter problems have predictable and controllable characteristics, whereas complexity has neither. We believe the effects of IPE on any one individual are highly complex.

Application – interprofessional clinical learning. After reading about complexity theory in education, we conducted a retrospective analysis of our IECPCP&H project's process. At the start of the IECPCP&H project in 2006, a committee of interprofessional faculty, clinicians and students was charged with developing an unspecified interprofessional learning activity for learners on clinical placements at our nonacute care hospital. The committee members met monthly for a year, and were given loose parameters within which to work. The goal was to provide learners with a better understanding of, and experience with, interprofessional collaborative person-centered care using a lens of the humanities (the dominant idea, knot, tension-trigger) to reflect on their relationship with a patient in their care. We provided the necessary education to introduce them to IPE and adult learning principles. The group's work was highly interactive and sometimes chaotic, not to mention stressful (tension) until, gradually, the final product could be collectively imagined and delivered. The result was a self-learning module that focused on different care contexts (Palliative Care, Care of the Elderly and Rehabilitation; Complex Continuing Care, or Long-Term Care) depending on the learner's placement site (Hall et al., 2011).

A focus group with the IECPCP&H curriculum development committee toward the end of their term captured their sentiments about the process. In a retrospective exercise, we compared their comments to complexity theory principles and conditions (Canadian Interprofessional Health Collaborative, 2010; Weaver, McMurtry, Conklin, Brajtman, & Hall, 2011). Results showed that our curriculum development process for the self-learning module was characterized by complexity principles, in that the outcomes were *emergent* from the interactions, *greater than the work of any of its individuals* and *nested* within the realities of the organizations involved (Davis & Sumara, 2006). The five conditions outlined by McMurtry (2010; Weaver et al., 2011) were apparent from the focus group data and explained our philosophy and approach perfectly: *internal diversity; internal redundancy; decentralized control; neighboring interactions* and *enabling constraints*. Complexity theory is now central to our planning process as we use these condition guidelines to set the stage for creativity, spontaneity and interprofessional fusion derived from a little chaos in our new, unexplored and complex IPE projects.

The challenges of coordinating interprofessional clinical placements have been well documented and require addressing issues in, and between, multiple system and their interactions (D'Amour & Oandasan, 2005). Complexity theory has allowed us to approach the development of such a program in two of our institutions with this spirit of creativity and spontaneity (Hall et al., 2011). Rather than being discouraged by the ongoing challenges, we have learned to use our energy to experiment and research our approach. Interested staff from all professions provide diversity amongst the group, fostering a wide set of cognitive maps to broaden perspectives. The majority of staff comes from either palliative care or geriatrics, areas where teamwork is very important. This fulfills the condition of internal redundancy, ensuring a common ground (e.g. of values, culture, interest) to build upon. The project team decentralizes control, remaining open to emerging innovations and sharing responsibilities. The project is based on interactions, discussions and evolving ideas fulfilling the condition of neighboring interactions. The final condition of enabling restraints is fulfilled by the focus on the goal of the project and finding ongoing creative ways to fulfill it within the context of our institutions.

Feminist relational theory

As our work with interprofessional learning has continued, our programming and research have focused more and more on the centrality of relationships. Specifically we have focused on how learners conceptualize and understand relationships. There is an extensive theoretical base within psychology and feminist psychology that focuses on the centrality of relationships, relationship competence and relational–cultural theory (Belenky, 1986; Brown & Gilligan, 1991, 1992; Jordan, 2001, 2004).

If our goal in IPE is to move beyond the rhetoric that we "should all get along," we need to encourage learners to really think about how they build and sustain strong relationships. Centering on relationships and encouraging learners to think about care provision not as patient-based but "relationship-based" requires learners to reflect and re-examine all they have learned and continue to learn about how to be in relationships. Relational competence (Jordan, 2004) focuses on how and when people feel able "...to move another person, to effect a change in a relationship... (on an) ...emotional, cognitive and behavioral realm" (Jordan, 2004, p. 15). If we think about learners working interprofessionally and the myriad of relationships they will experience in their care provision – from patients, family members, peers, supervisors, instructors, other providers and disciplines – we begin to see the complexity of relational competence. Asking learners to reflect on how many of these

© 2013 Informa UK, Ltd.

relationships within which they would feel "relationally competent" offers an important entry point toward helping learners build stronger and more effective relational skills and competence.

Application – interprofessional pre-licensure education. Weaving in the humanities and arts-based methods into this part of our interprofessional programming has demonstrated a way to more fully explore relational competence in the context of patient care and teamwork. The final assignment of the IECPCP&H module focused on a holistic model of care and the relationships discovered during the learning experience. Learners were asked to select a person who had been in his/her care during the clinical placement and had made an impact on their learning. Using a lens from the humanities, they were to complete a "creative summary" of this learning experience in collaboration with the person in their care, and another team member using media and format of their choice (e.g. painting or drawing, poems, songs, collages, skits, short story).

Reviewing the 20 submitted creative summaries, we recognized significant relational images, providing us with a way to really "see" how learners were engaging with the depth of the care that they provide, and how this care was deeply interwoven within the relationships that they had made. We turned to arts-informed theory and arts-based inquiry (e.g. Cole, Neilsen, Knowles, & Luciani, 2004; Finley, 2005; Knowles, Luciani, Cole, & Neilsen, 2007) to systematically analyze the creative summaries. We selected the "Listening Guide," a qualitative data analysis method developed by Brown and Gilligan (Brown et al., 1988, Brown & Gilligan, 1991, Brown & Gilligan, 1992; Gilligan, Spencer, Weinberg, & Bertsch, 2003; Mauthner & Doucet, 1998) to specifically listen for voices in narratives of relationship. Weaving together arts-based methods with narrative and text-based analysis, our team modified Gilligan/Brown's Listening Guide to a "Seeing and Listening Guide" (see Table II), premised on four "readings" of narrative/text and images.

As a team of three interprofessional researchers, we used this guide to analyze the creative summaries. The results demonstrated transformational learning through relationships established with a patient; bearing witness to this person's journey; the sense of privilege in caring for a human being; appreciating the importance of relationships established through the interprofessional circle of care; holistic insights into care, facilitated by reflecting through the lens of the humanities (Hall et al., 2008).

These paradigms are helping us to understand how learners move across and within multiple roles and relationships with varying degrees of satisfaction. The humanities, especially narrative and arts-based methods, have engaged learners to think about what they know about other disciplines, and to critically think about how and in what ways cultural norms inform the relationships they develop. The importance of qualitative research to deepen our understanding of relationships in IPE and IPC is paramount in our future research.

DISCUSSION

Over the past 20 years, we have explored many theories to assist us in the development of successful IPE programs and meaningful interventions to improve IPC. We have found principles that have guided our strategies and, when woven together, have led to some successful innovations. The importance of relationships emerges as a common thread. Relationships are not static, and both healthcare learners and providers require the competence to quickly build relationships that are flexible and effective in achieving excellent patient care and personal well-being.

The ability to appreciate objectives/goals that are beyond one's usual purview is another common thread. Care providers must be able to identify those challenges that require collaboration and be able to integrate multiple perspectives. Idea dominance, knotworking and situation awareness are concepts that can make this ability explicit.

Motivating learners and clinicians to engage in activities that can lead to real changes in behavior and practice is difficult. Illeris' (2003) concept of the "tension triangle" gives insight into the role of social interaction and personal readiness. Exploring new modalities of expression (e.g. narrative, arts, humanities) may facilitate motivation, communication and collaboration.

Evaluation of process and outcomes has always been a common and important thread in our both IPE and IPC initiatives. Our expertise continues to evolve, and we are finding exciting potential in new paradigms and qualitative methodologies, particularly narrative and arts-based inquiries, to conduct evaluations that may be well suited to the complex human and social experiences comprised in learning and in teamwork (Simons & McCormack, 2007). Although Kirkpatrick's (1967) levels of education evaluation still hold merit for educational evaluation, the methods for capturing deep and meaningful data at each level must be pushed

Table II. The Listening Guide – adapted for both images and narrative.

The reading	The focus
Step 1*	Engages with the "plot" – requires the "reader"/researcher to take note of and reflect their own reactions to the plot, both in narrative and images
Step 2*	Identifying the voices in the text and images. Includes the following: I voice, You voice, We voice, They voice
Step 3†	Listen for Contrapuntal voices or "Reading for Relationships"‡. Identifying the tensions found in the narrative and the images
Step 4†	Composing an analysis or "...placing people within cultural contexts and social structures"§

* The "reader" is a "responsive listener," listening, reflecting and documenting the multiple meanings and voices within the art and narrative; † The reader is a "resisting listener," working to differentiate and elicit voices and threads which may speak of tensions, broader contextual barriers and concepts which are more abstract and multilayered; ‡ Mauthner and Doucet (1998, p. 131); § Mauthner and Doucet (1998, p. 132).

to match the complexity of the situations. We will look to complexity theory and relational competency literature, as well as change theory (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Kotter, 1996; Patterson, Grenny, Maxfield, McMillan, & Switzler, 2008), for some answers.

What therefore is needed in a toolbox to build IPE and IPC? We suggest that the toolbox be made of several paradigms that help the planner remain flexible and creative. The planner must think like a weaver, selecting the threads that will frame and support the program, and facilitate evaluation. Acknowledging the complexity of interprofessionalism, healthcare and human systems, our toolbox will continue to evolve.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

REFERENCES

Akrich, M., Callon, M., & Latour, B. (2002). The key to success in innovation part 1: The art of interessement. *International Journal of Innovation Management*, *6*, 187–206.

Baker, L., Egan-Lee, E., Martimianakis, M.A., & Reeves, S. (2011). Relationships of power: Implications for interprofessional education. *Journal of Interprofessional Care*, *25*, 98–104.

Beach, M.C., & Inui, T. (2006). Relationship-centered care. A constructive reframing. *Journal of General Internal Medicine*, *21*(Suppl 1), S3–S8.

Belenky, M.F. (1986). *Women's ways of knowing the development of self, voice, and mind*. New York: BasicBooks.

Bleakley, A. (2006). 'You are who I say you are': The rhetorical construction of identity in the operating theatre. *The Journal of Workplace Learning*, *18*, 414–425.

Brajtman, S., Hall, P., & Barnes, P. (2009). Enhancing interprofessional education in end-of-life care: An interdisciplinary exploration of death and dying in literature. *Journal of Palliative Care*, *25*, 125–131.

Brajtman, S., Wright, D., Hall, P., Bush, S.H., & Bekele, E. (2012). Toward better care of delirious patients at the end of life: Pilot study of a self-learning module and the McMaster-Ottawa Team Obsered Clinical Encounter. *Journal of Interprofessional Care*, *26*(5), 422–425.

Brown, L., Argyris, G., Attanucci, J., Bardige, B., Gilligan, C., & Johnston, K. (1988). *A Guide to reading narratives of conflict and choice for self and relational voice*. Harvard Graduate School of Education: Cambridge.

Brown, L.M., & Gilligan, C. (1991). Listening for voice in narratives of relationship. *New Directions for Child and Adolescent Development*, *54*, 43–62.

Brown, L.M., & Gilligan, C. (1992). *Meeting at the crossroads: Women's psychology and girls' development*. Cambridge, MA: Harvard University Press.

Canadian Interprofessional Health Collaborative. (2010). A national interprofessional competency framework. Available at: http://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf (on-line).

Cole, A.L., Neilsen, L., Knowles, J.G., & Luciani, T. (2004). *Provoked by art: Theorizing arts-informed inquiry*. Halifax, NS: Backalong Books.

D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of Interprofessional Care*, *19*, 8–20.

D'Eon, M. (2005). A blueprint for interprofessional learning. *Journal of Interprofessional Care*, *19*, 49–59.

Davis, B., & Sumara, D.J. (2006). *Complexity and education inquiries into learning, teaching, and research*. Mahwah, NJ: Lawrence Erlbaum Associates.

Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical conceptualization. *Journal of Education and Work*, *14*, 133–156.

Engeström, Y., Engeström, R., & Vahaaho, T. (1999). When the center does not hold: The importance of knotworking. In S. Chaiklin, M. Hedegaard, U.J. Jensen (Eds.), *Theory and social practice: Cultural-historical approaches* (pp. 345–374). Aarhus: Aarhus University.

Ferris, F.D., Balfour, H.M., Bowen, K., Farley, J., Hardwick, M., Lamontagne, C., Lundy, M., et al. (2002). *A model to guide hospice palliative care: Based on national practices and norms of practice*. Ottawa: Canadian Hospice Palliative Care Association.

Finley, S. (2005). Arts-based inquiry: Performing revolutionary pedagogy. In N.K. Denzin, Y.S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 681–694). 3rd ed., Thousand Oaks: Sage.

Gilligan, C., Spencer, R., Weinberg, M.K., & Bertsch, T. (2003). On the listening guide: A voice-centred relational method. In P. Camic, J. Rhodes, L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 157–172). Washington, DC: American Psychological Association.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly*, *82*, 581–629.

Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. *Journal of Interprofessional Care*, *19*, 188–196.

Hall, P. (2001). Serendipitous ripples: Unexpected outcomes of a palliative care educational project. *Journal of Palliative Medicine*, *4*, 345–352.

Hall, P., & Weaver, L. (2001). Interdisciplinary education and teamwork: A long and winding road. *Medical Education*, *35*(9), 867–875.

Hall, P., Brajtman, S., Barnes, P., Willett, T.G., & Weaver, L. (2009). Complex care, complex issues: Innovations in development and content for effective team learning on-line. *Society for Teaching & Learning in Higher Education, Alan Blizzard Annual Publication*.

Hall, P., Brajtman, S., Weaver, L., Barnes, P., Mullins, D., & Bekele, E. (2008). The experience of learning interprofessional collaborative person-centred practice through the lens of the humanities. In *All Together Better Health IV Conference* (pp. 259).

Hall, P., Hupé, D., & Scott, J. (1998). Palliative care education for community-based family physicians: The development of a program, the evaluation, and its consequences. *Journal of Palliative Care*, *14*, 69–74.

Hall, P., Marshall, D., Weaver, L., Boyle, A., & Taniguchi, A. (2011). A method to enhance student teams in palliative care: Piloting the McMaster-Ottawa team observed structured clinical encounter. *Journal of Palliative Medicine*, *14*, 744–750.

Hall, P., Tucker, T., Grassau, P., Bekele, E., Casimiro, L., Tchen, P., Germain, M., et al. (2011). An evaluation of interprofessional education and placement activities for health professional learners at two teaching hospitals. In *Collaborating Across Borders III* (pp. 10).

Hall, P., Weaver, L., Fothergill-Bourbonnais, F., Amos, S., Whiting, N., Barnes, P., & Legault, F. (2006). Interprofessional education in palliative care: A pilot project using popular literature. *Journal of Interprofessional Care*, *20*, 51–59.

Hall, P., Weaver, L., Gravelle, D., & Thibault, H. (2007). Developing collaborative person-centred practice: A pilot project on a palliative care unit. *Journal of Interprofessional Care*, *21*, 69–81.

Hall, P., Weaver, L., Handfield-Jones, R., & Bouvette, M. (2008). Developing leadership in rural interprofessional palliative care teams. *Journal of Interprofessional Care*, *22*, 73–79.

Hall, P., Weaver, L., Hupé, D., & Seely, J. (1999). Community based palliative care education: Can it improve care of the terminally ill? *Academic Medicine*, *74*, S105–S107.

Hall, P., Weaver, L., & Willett, T.G. (2011). Addressing suffering through an inter-professional online module: Learning with, from, and about each other. *Journal of Palliative Care*, *27*, 244–246.

Heylighen, F., Cilliers, P., & Gershenson, C. (2007). Philosophy and complexity. In J. Bogg, R. Geyer (Eds.), *Complexity, science and society* (pp. 117–134). New York: Radcliffe Publishing.

© 2013 Informa UK, Ltd.

Hutchison, T. (2008). Healing and whole person care: Palliative care – Just another specialty? *17th International Congress on Palliative Care* (pp. 10).

Illeris, K. (2003). Towards a contemporary and comprehensive theory of learning. *International Journal of Lifelong Education*, *22*, 396–406.

Jordan, J.V. (2001). A relational-cultural model: Healing through mutual empathy. *Bulletin of the Menninger Clinic*, *61*, 92–103.

Jordan, J.V. (2004). Toward competence and connection. In J.V. Jordan, M. Walker, L.M. Hartling (Eds.), *The complexity of connection: Writings from the Stone Center's Jean Baker Miller Training Institute*. New York: The Guilford Press.

Kearney, M. (1996). *Mortally wounded: Stories of soul pain, death, and healing*. New York: Scribner.

Kirkpatrick, D.L. (1967). Evaluation of training. In R. Craig, I. Bittel (Eds.), *Training and development handbook* (pp. 87–112). New York: McGraw Hill.

Knowles, G., Luciani, T., Cole, A.L., & Neilsen, L. (2007). *The art of visual inquiry*. Halifax: Backalong Books.

Kotter, J.P. (1996). *Leading change*. Boston, MA: Harvard Business School Press.

Latour, B. (2007). *Reassembling the social: An introduction to actor-network theory*. Oxford: Oxford University Press.

Mackintosh, N., Berridge, E.-J., & Freeth, D. (2009). Supporting structures for team situation awareness and decision-making: Insights from four delivery suites. *Journal of Evaluation in Clinical Practice*, *15*, pp 46–54.

Marshall, D., Hall, P., Taniguchi, A., & Boyle, A. (2008). Team OSCEs: Evaluation methodology or an educational encounter? *Medical Education*, *42*, 1129–1130.

Mauthner, N., & Doucet, A. (1998). Reflections on a voice-centred relational method: Analyzing maternal and domestic voices. In J. Ribbens, R. Edwards (Eds.). *Feminist dilemmas in qualitative research: Public knowledge and private lives* (pp. 119–146). London: Sage Publications Ltd.

McMurtry, A. (2010). Complexity, collective learning and the education of interprofessional health teams: Insights from a university-level course. *Journal of Interprofessional Care*, *24*, 220–229.

Patterson, K., Grenny, J., Maxfield, D., McMillan, R., & Switzler, A. (2008). *Influencer: The power to change anything*. New York: McGraw-Hill.

Petrie, H.G. (1976). Do you see what I see? The epistemology of interdisciplinary inquiry. *J. Aesthetic Educ*, *10*, 29–43.

Puchalski, C., Ferrell, B., Virani, R., Otis-Green, S., Baird, P., Bull, J., Chochinov, H., et al. (2009). Improving the quality of spiritual care as a dimension of palliative care: The report of the Consensus Conference. *Journal of Palliative Medicine*, *12*, 885–904.

Schon, D. (1983). *The reflective practitioner*. San Francisco, CA: Jossey-Bass.

Simons, H., & McCormack, B. (2007). Integrating arts-based inquiry in evaluation methodology – Opportunities and challenges. *Qualitative Inquiry*, *13*, 292–311.

Solomon, P., Marshall, D., Boyle, A., Burns, S., Casimiro, L., Hall, P., & Weaver, L. (2011). Establishing face and content validity of the McMaster-Ottawa team observed structured clinical encounter (TOSCE). *Journal of Interprofessional Care*, *25*, 302–304.

Sullivan, E.J., & Decker, P.J. (2001). *Effective leadership and management in nursing*. New Jersey: Prentice Hall.

Tuckman, B.W., & Jensen, M.C. (1977). Stages of small group development revisited. *Group and Organizational Studies*, *2*, 419–427.

Weaver, L., McMurtry, A., Conklin, J., Brajtman, S., & Hall, P. (2011). Harnessing complexity science for interprofessional education development: A case study. *Journal of Research in Interprofessional Practice and Education (on-line)*. Available at: http://www.jripe.org/index.php/journal/article/view/48/44.

Witz, A. (1992). *Professions and patriarchy*. London: Routledge.

Yukl, G. (2006). *Leadership in organizations*. New Jersey: Pearson Prentice Hall.