2015

Assessment of Learning Within Interprofessional Client-Centered Collaborative Practice -- Challenges and Solutions

Carole A. Orchard
University of Western Ontario, corchard@uwo.ca

Chapter 12

ASSESSMENT OF LEARNING WITHIN INTERPROFESSIONAL CLIENT-CENTERED COLLABORATIVE PRACTICE – CHALLENGES AND SOLUTIONS

Carole Orchard
Western University, London, ON, Canada

ABSTRACT

The focus in this chapter is on the assessment of learning associated with continuing interprofessional education (CIPE) programs. It presents a case for using a formative approach to learning that is then assessed beyond just the CIPE program. How a participant converts learning gained and how it can be shared with fellow members in an interprofessional team are discussed. Factors that influence and impede knowledge uptake are presented. The chapter then shifts to discussion of assessment of team performance addressing team dynamics, knowledge contributions of members, and the organizational environment within which the team practices. Finally, the author provides examples of measurement instruments that can be used for an organization to determine the level of interprofessional client-centered collaboration in teams that is present across a variety of service areas.

Keywords: assessment, formative learning, life-long learning, shared knowledge, shared learning, learning transfer

INTRODUCTION

We often use the terms evaluation and assessment to mean the same processes when considering measurement of the learning participants gain from a CIPE program. However, assessing learning relates to the formative or ongoing development of learning as one gains more knowledge, skills, and insights. Assessment of learning is used for certification of learning (summative) and to help with one's learning at a key point in time (formative). For the purposes of this chapter we are focusing on the latter or formative learning. The relevancy of this focus relates to the ongoing (life-long) learning in practice that must occur at the post-licensure level to assist practitioners to be, as Bleakley (2006) discusses, "fit for practice". Bleakley challenges a focus on only the learning that occurs within the CIPE program by presenting the importance of the "sociocultural models of learning, where the learner is viewed

as subject of social and historical discourse, and cognition is described as distribution across people and artefacts making up a community of practice, rather than situated in persons" (p. 151). He further stresses the importance of the information flow between members in a team (Bleakley 2006). It appears that knowing within oneself is insufficient until it is shared with others through interactions, allowing for a participation in knowledge expansion or conversely contraction, which is there stored not as a solitary knowing but as a team's "rememberings"; the learning then becomes a "jointly realized activity" (Bleakley 2006, pp. 152–153). If we support the above, then restricting assessment of learning to only an individual participant and to only the outcome of the learning from the CIPE program seems limited.

Participation in a CIPE program needs to be considered as the stimulus for a formative process of learning that creates opportunity for sharing of what is learned, and assessing its applicability into interprofessional team practice through the learning transfer to make judgments about how it can benefit team practice. Boud (2000) suggests formative learning today needs to be structured to allow the learner to determine if the 'standard' set out by the program is being met. The Interprofessional Collaboration Competencies shared by Orchard and Bainbridge (in Chapter 2) provide one form of standard that can be used. These standards may be transformed as CIPE program learning objectives. Further, it is important to determine whether the learning has merit to one's practice. If the learning is of value to the CIPE program participants, then participants' formative assessment of the learning as an outcome from the CIPE program is dependent on individuals sharing their learning with team members (Boud 2000). This sharing with team members relates to Bainbridge and Reghr's (Chapter 4) learning network, and, as Bender et al. (Chapter 9) suggest, the team then becoming a community of inquiry will enable application of the learning into their shared experimentation. Trialing the learning in practice is then followed by their team assessment of its effectiveness and determination for continuance, for adjustment, or for deletion of the trial change depending on shared feedback obtained. Hence, in this chapter, a cycle is provided related to assessment of learning beginning with a CIPE program, then moving into the transfer process of the learning gained by the learner into knowledge that can be shared, and its uptake by the team, followed by a commitment to trial the new knowledge and determine if the quality of their teamwork and its impact on their clients care improves (or does not improve).

Learning Assessment

Assessment of the learning gained from a continuing interprofessional education program is generally gained through feedback from participants on their learning experience using a feedback — or what is often termed 'evaluation' — form. However, the connection between the learning gained from the program and how it was transferred into practice and more importantly whether any change was sustained as an outcome is often not carried out. Hence a key focus is determining if the learning gained at the end of an educational session translates and is then applied to their practice and finally results in a positive health outcome for clients.

Assessment of learning focuses on the learning achieved by those who participated in the program. Hence, this assessment focuses on the individual or group of individuals working collaborative together. When assessment is considered at the continuing education level it reflects three levels of assessment. The first level, and the most commonly focused on, is the professional level, and it relates directly to both the entry-to practice competencies

professionals are expected to have as they set out into practice, and their ongoing practice monitored through enacting standards of practice and codes of ethics set out within each profession. The second level relates to individual professionals as members of an interprofessional team and how they participate within the team. Criteria for this level can be considered as the interprofessional competencies ascribed through the 2010 Canadian Interprofessional Health Collaborative (CIHC) *National Interprofessional Competency Framework* (patient/client/family/community-centered care, interprofessional communication, role clarification, team functioning, interprofessional collaborative leadership, and interprofessional conflict resolution) or the Interprofessional Education Collaborative (2011) *Core Competencies for Interprofessional Collaborative Practice* (values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork).

Figure xv. Interprofessional levels of assessment for teamwork.

Hence, at this level, professionals are enacting both their professional and interprofessional competence to practice within a team. At the third level the focus is on the team and its collaborative functioning. Again the two sets of competencies identified for the second level can be applied, but addressing how the total collaborative group works together. Some promising work is being carried out by the CIHC International Interprofessional Competency Work Group through their Interprofessional Collaborative Team Judgment Process Assessment Tool framework (Orchard, Anderson, Ford, and Moran, 2015). This framework is comprised of five sequential phases (getting ready, working together to assess, diagnose and plan care, delivery care, and reviewing care) and one integrated phase (reflecting on teamwork throughout the process). Within each of these phases the processes that are expected to occur relate to each

of the CIHC competencies being identified (Orchard 2015). The focus of discussion on assessment in the remainder of this chapter will focus on both Levels 2 and 3 (see Figure xiv).

Measurement of the Individual Member, or of the Team?

Measurement is generally considered to be about performance by individuals within a job role. However, it is presented in this chapter as occurring formatively within three dimensions of learning: (a) the learning gained from a CIPE program, (b) learning from a CIPE program and its transfer into individual practice, and (c) the impact of that transferred learning into the interprofessional client-centered collaborative team practice.

Learning As an Outcome of Continuing Interprofessional Education Training

This is the traditional level that most CE facilitators focus on and is associated with participants' session satisfaction with less emphasis on what they specifically learned in favor of global open-ended questions about its value to their learning. It is proposed here that two simple additions can enhance CIPE evaluations. Firstly, all CIPE programs have a set of objectives. These objectives are used by the session developers to guide what learning is facilitated.

Therefore, these objectives should provide insight into what was actually learned. If the objectives are taken and transformed into learning statements by the program assessors, a more in-depth understanding of what was learned can be obtained. When these statements then have a 5-point rating scale attached to each, the learning outcomes can be numerically assessed and analyzed using descriptive statistics. An example is shown below.

The values participants select for each item can then be added together and a construct of the perceived learning effectiveness of the session can be achieved as a percentage out of a possible total (in our example the total would be out of 10 items with a maximum rating of 5, for a sum of 50). If the total gained from all the participants was 45/50 then the learning effectiveness score would be 90%. Gaining information about the learning perceived to be gained from the participants is far more valuable to the CIPE facilitator than the traditional approach of only a global learning assessment of how satisfied they are with the arrangements and the program itself.

Comparison of CIPE Session Learning Objectives and their Rating as an Outcome from the Session

LEARNING OBJECTIVE	LEARNING OUTCOME*
To explore their own understanding of the roles, knowledge, and skills of selected members of interprofessional teams they normally encounter in practice settings.	I now understand how my previous socialization into my profession may have related to some myths about other health professions. I now have a better appreciation of why it is difficult to change practice from multidisciplinary to interprofessional.
To challenge their existing assumptions about interprofessional collaborative practice, including the role of the client and family within care planning.	I now understand how my previous professional education can result in problems with communications across health professions. I now have a better understanding of the role of patients/clients and families within interprofessional collaborative teams.
To explore evidence-based practice on effective interprofessional teaching strategies in practice settings.	I have gained some ideas about strategies to assist learners to be more interprofessional and collaborative.
To develop a process for assisting students in combining both professional and interprofessional learning into their practice placement learning goals.	I now have an understanding of how I can seek out practice-based interprofessional learning opportunities for students/practitioners. I have gained some ideas about actions that can be used to support interprofessional learning strategies.
To explore the means to assess interprofessional learning, including socialization changes, collaborative working relationships, client-centered care, collaborative leadership, shared decision making, and addressing conflicts in practice.	I now have an understanding of what competencies comprise interprofessional collaborative practice. I have gained an understanding of how the interprofessional competency descriptors can be used to assess interprofessional practice learning.
To explore evidence to determine students' abilities to demonstrate Interprofessional collaboration competencies at the appropriate level of their program.	I have gained an understanding of how to identify evidence that can be used to support evaluation of learners' collaborative practice.

Note. *Each statement is rated by participants using the following scale: 1 = strong disagree, 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

The second augmentation can be in the form of additional open-ended statements or questions than in traditional feedback forms that ask about what they liked or did not about the program. In our interprofessional office we use the following standard questions on all our program evaluations:

- What surprised you the most from this learning event?
- What is the most significant thing, to you, that you will take away from this learning event?
- Overall, how would you rate this learning event? (This last question is rated by participants using a scale from 1 = of limited value to 5 = very valuable.)

Surprisingly, we receive a large number of comments to these questions that are very valuable in understanding how our participants perceived the learning event.

At this juncture participants' acquisition of new knowledge is retained within themselves. While valuable to one's own practice in a health care teamwork environment, this can limit how one's own ideas for changes in practice can be enacted.

As Bleakley (2006) discussed, the knowledge gained must be shared within the team for transfer of the learning to be fully operationalized into practice.

Transfer of Learning into Practice

In CIPE it is as important to know how the participants in a learning session transfer the learning from a CIPE session into their practice as from the program itself. The transition of learning from a CIPE session then is related to how the learner uses knowledge gained and transfers this knowledge to others in the team. As Janhonen and Johanson (2011) noted, knowledge can be *explicit* (formulated and presented in work or pictorial renderings); *implicit* (associated with the senses and tactile feelings, values, etc.); or *converted* (shared and new knowledge is created through a synthesis of explicit and tacit knowledge). The capacity of a learner to share gained knowledge is dependent on her or his capacity to synthesize both the explicit and tacit knowledge acquired. Thus, moving the learning into an understandable form through a knowledge-conversion process is needed before team members can consider integrating the new information or process. Janhonen and Johanson (2011) suggest conversion of knowledge occurs through four processes: socialization, externalization, internalization, and combined externalization-internalization (p. 218; see below).

Comparison of Knowledge Conversion into Use Within Teams

KNOWLEDGE CONVERSION PROCESSES	TRANSFER OF KNOWLEDGE	TEAM USE
SOCIALIZATION	TACIT → TACIT	Group tacit knowledge needed for task completion and group performance
EXTERNALIZATION	TACIT → EXPLICIT	Movement of ideas and images into words/concepts leading to reflection and sharing
INTERNALIZATION	EXPLICIT → TACIT	Making meaning out of ideas and images
COMBINATION-INTERNAL/ EXTERNALIZATION	TRANSFER OF CONTENT AND STRUCTURES → USABLE FORMS	Systemization of knowledge into teamwork

Note. Adapted from "Role of Knowledge Conversion and Social Networks in Team Performance" by M. Janhonen and J.-E. Johanson, 2011, International Journal of Information Management, 31, p. 218.

The success of an individual team member's sharing of new knowledge is dependent upon how well the knowledge is converted into the mental models that the team members share. Mental models "are organized knowledge structures that allow individuals to interact with their environment" (Mathieu, Heffner, Goodwin, Salas, and Cannon-Bowers 2000, p. 274).

The challenge for the individual in knowledge sharing is in her or his capacity to translate the knowledge gained through a profession-specific set of terms and approaches into interprofessional shared information (Pearson and Pandya 2006). The effectiveness of this sharing of information and the subsequent developing of shared mental models within the team can be assessed within the integration, synthesizing, and sharing of information and coordination of the team members' learning and how it leads to their cooperation around care task demands (Salas, Cooke, and Rosen 2008). The above elements then are critical to tracking the transfer of learning from a CIPE session into team practice and subsequent performance.

As Lamb, Wong, Vincent, Green, and Sevdalis (2011) noted, the uptake of the learning by the team can be viewed through how the team uses information they obtain (interprofessional communication), how team leadership (interprofessional collaborative leadership) is provided, and the application of team-shared decision-making processes (team functioning). Team decision-making processes can be assessed further for both the "level of involvement of different professional groups [and their] ability to reach and implement a decision" (Lamb et al. 2011, p. 3). Lavé's (2009) social learning theory may assist in considering how to assess for the uptake of the new learning in the team. Lavé considers how practitioners who come together bring with them "knowledge of different things" (p. 206), "communicate from a base of different interests" (p. 206), and bring "experiences from different social locations" (p. 206) into the same situation. In so doing, coming to a shared understanding will likely create conflicting viewpoints (interprofessional conflict resolution). The effectiveness of their collaborative teamwork then must reflect their ability to come to a shared viewpoint about the care needs of their clients (interprofessional collaborative leadership). Hence, it is the social world (practice context) and the experiences team members gain through their respective worlds that provides the enriched capacity of a collaborative team to arrive at approaches to addressing client goals. At the same time, when another individual provides her or his viewpoint into potential changes to how the team functions, unless there is an agreed-upon process for dealing with divergent viewpoints across members, the ability of the learner to influence new knowledge uptake may be at odds with team norms.

Assessing for the effectiveness of knowledge transfer may be considered by asking team members to rate their effectiveness and consider the application of their innovation to their practice Field and West's (1995) Team Effectiveness subscale on innovation may serve as a means to help in assessing this process as well as asking team members about what the new knowledge and its application to their practice means to team care delivery. Such a question may allow for the surfacing of mental models and their consistency across the team.

Further factors to consider related to transfer of learning in the team relates to members' capacity to attend to what is being discussed by the CIPE program participant, which is also influenced by 'noise' in the environment. This noise may arise from distractions occurring outside of the team, such as pressing workload that still needs to be carried out, or from a concerning problem in their personal lives that cause changes in their ability to attend to the team discussions.

Hence, perception of what is being said, often considered as effective listening, is normally challenged by noise. Lavé (2009) suggests this is normal in any environment, and strategies are needed to both attend to what the individual is sharing while providing space for other members' sharing their viewpoints about the information, which will allow for an agreement on whether or not to uptake the information and transform this knowledge into their team practice.

There is also the need to verify what team decisions are reached as an outcome of this discussion.

The process and outcome of this sharing of learning by the CIPE participant is further influenced by the culture set within and by the team, which creates a set of norms for its practice. Norms are standards that are created and shared by team members to set a tone for teamwork. How team members perceive and then enact these norms occurs at two levels — *conscious* and *unconscious*.

Unconsciously, members synthesize what is occurring in their teamwork, and this is consciously used through members emulating and actualizing perceived team norms (Pollard, 2008, p. 4). Hence, at an unconscious level, what their colleague is sharing about her or his new learning may be discounted without realizing it by some members, while others may listen and consider the information at a conscious level. Thus, there may be a need to explore the meaning of discounted viewpoints to gain more clarity as to why some members unconsciously thwart a move to change practice that others may want to enact. Periodic focus group interviews could be carried out, in which members are asked to identify issues that occurred within the team that they personally felt challenged their own perspectives and why; this may uncover how well the transfer of knowledge was then transformed (or not transformed) into a team mental model.

Clearly, the transfer of knowledge into a team environment is a complex process influenced by a variety of factors. Many of which may be out of the control of an individual trying to influence a positive change in her or his team practice. Hence, the capacity of the individual to influence a change in the performance of the team is dependent on many factors, as well as on the individual's capacity to persuade, negotiate, and adapt the new knowledge into the team. Subsequently, it is the team's performance that is the measure of the success of knowledge transfer into practice.

Assessment of Team Performance

The transfer of learning into a team seems to be associated with how the team functions. Hence, the discussion will now shift to addressing the assessment of collaborative team effectiveness. Kvarnström (2008) suggests such assessment should focus on *team dynamics*, *knowledge contribution from each provider*, in concert with the *organizational environment* (p. 194).

Team dynamics. Team dynamics is a commonly stated term, but what it constitutes for purposes of team assessment is somewhat amorphous. To assist, we first need to consider what a team is. Cohen and Bailey (1997) define a team as

> a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems, and who manage their relationship across organizational boundaries. (p. 241)

Thus, three criteria to assess are team *interdependencies*, *complementary relationships*, and how they work within professional and organizational *boundaries*.

Assessment of interdependencies can be considered in relation to how well team members communicate with each other, coordinate client care with each other, and negotiate with each other, with their clients, and their clients caregivers around the most effective care feasible.

Interdependencies also relate to how relationships are complementary across the team and with the team and their clients and caregivers. Gittell, Godfrey, and Thistlethwaite's (2013) approach to relational coordination can assist in identifying what to assess, for example how well the team (a) reaches shared goals with each other and with their clients and caregivers; (b) share their knowledge with each other; (c) demonstrates mutual respect for each other and for their clients and caregivers; and (d) perceives and respects boundaries of knowledge, skills, and expertise within the group. To respect boundaries, the team requires clarity in understanding the roles, knowledge, skills, and expertise of each member (role clarification), including that of their clients and their caregivers (client/family-centered care). Thus, the above become criteria for assessing team dynamics (team functioning). Consequently, using the CIHC (2010) *Interprofessional Competency Framework* provides a means for determining how the team members enact their team dynamics in practice.

Another approach to assessment of team dynamics might be achieved by taking the five dysfunctions of teams advocated by Lencioni (2002) and changing these into positive functions; for example, (a) focus on achievement of collective team results; (b) hold one another accountable; (c) commit to shared decisions and plans of action; (d) engage together in addressing and resolving conflicts around care/treatment issues; and (e) trust one another. Furthermore, Jeffery, Maes, and Bratton-Jeffery (2005) suggest that the objectives relating to team performance should focus on the following:

- Clarify their team goals, tasks, working environment, and client care needs.
- Establish the roles and responsibilities and accountabilities to which each member agrees.
- Determine how team members share information, and compare what, how, and when members communicate with each other against their agreed-upon interprofessional guidelines.
- Ascertain how the team as a whole takes advantage in sharing team members' knowledge, skills, and expertise.
- Assess how the team functions collaboratively as a team.

Thus, there are a number of criteria that can be adopted to measure client-centered collaborative teamwork effectiveness. How well team members work together, then, is dependent on the contribution that each member brings into the collaborative teamwork.

Knowledge contribution of members. The contributions of knowledge from each team member in their various forms influence the effectiveness of collaborative teamwork and create a value-added nature to team assessment. Team members' individual contributions reflect two constructs — *feelings about communicating with each other* and *means used to communicate with each other*. Field and West (1995) suggest five principles to focus on feelings relating to communication by assessing how (a) individuals feel their contributions are leading to team success; (b) individuals feel that their roles within the team are both meaningful and intrinsically rewarding to them; (c) individuals feel that the tasks they are provided to perform in the team are interesting to them; (d) the contributions of individuals are being identified, acknowledged, and assessed within the team; and (5) individuals understand team goals and how their work will be assessed against the same. Hence, it is not only the performance of the

individual within the team (competence), but also how the team members make them feel about their contributions to the team (relationships) that are equally important to team effectiveness.

Relationships are about communication and interactions with each other. Thus, the *communication means* used within interprofessional collaborations to be valued should reflect the following set actions reported from Robinson, Gorman, Slimmer, and Yudkowsky's (2010) study of nurse–physician interactions: (a) provide clarity and precision in messages that are verified by members; (b) collaboratively problem-solve through respecting, soliciting, and using each other's advice; (c) maintain a calm and supportive demeanor in shared conversations even during times of stress; (4) maintain respect for each other, which leads to team trust; and (5) demonstrate authentic understanding of the unique role each member, including clients and their caregivers, contribute (p. 211). Thus, there are some principles and concepts that can be used to determine what to assess in relation to team performance effectiveness.

When assessing team performance effectiveness, assessors must consider whether they wish to focus on the process or outcomes of team functioning. In practice, a manager may wish to consider the team's performance from a formative perspective, but may also be required by the organization to provide an outcome or summative perspective at key points in time. The formative focus of team assessment, then, is on what actions the team and its members take with their clients and the client's family members to reach agreed-upon goals. Hence, assessors are advised to review Schön's (1991) stage of "reflecting-in action" (p. 49) about practice. The evaluation of team outcomes in a summative assessment relates to Schön's "reflecting-on" (p. 277) practice. That is, did the team achieve its set shared goals for a client's care. Since both process and outcomes assessments provide complementary perspectives on team performance, Salas, Rosen, Burke, Nicholson, and Howse (2007) suggest that assessment of team performance should reflect both *process* and *outcome* determinations that are carried out over time. Thus, the value of these dual assessments is in learning both about the strength of the teamwork being provided and achieved, as well as areas where further CIPE can be provided to enhance team performance.

Using either processes (formative) or outcomes (summative) goals to determine team performance judgments is dependent on how an assessor understands both the social (team) environment being assessed and the clarity of and sharing of information occurrences between team members. How an assessor perceived the situational 'reality' of the teamwork, and how the assessment is compared against the assessor's perceived norms of practice, is subject to the perspective of the assessor (Dowding and Thompson 2003). While the idea of assessing a team's collaborative work is appealing, the reality of achieving an accurate rating may be more difficult to achieve due to variances in assessors' perspectives. Clearly, standards are needed against which assessors can compare team performance to potentially arrive at consistent ratings.

Process assessment allows for understanding the sequential method that an individual in a team, or a team as a whole, used to arrive at the decision or judgment (Salas et al. 2007). Learning about the processes teams use provides insight into both the knowledge and behaviors used by team members to accomplish team tasks, whereas outcomes provide an end result of these processes (Salas et al. 2007, p. B79). The ability of collaborative teams to enact client-centered collaborative teamwork is also influenced by the support they are provided within their organization.

Organizational environment. Although a number of authors have discussed the impediments to collaborative practice at the institutional level, less attention has been focused

on what can be assessed to determine a supportive environment. At the big-picture level, Légaré et al. (2011) suggest there is both a *transition zone* between the team and the organization and the *environment* set by the organization. In the transition zone, the organizational routines determine the level support for collaborative team practice, while the organizational policies, values, rules, resources, and culture create the environment that is viewed by team members as supportive or not (Légaré et al. 2011, p. 22). San Martín-Rodríguez, Beaulieu, D'Amour, and Ferrada-Videla (2005) previously identified two broad areas — *organizational determinants* and *interactional determinants* — that influence how an organization supports collaboration (p. 143). Organizational determinants relate to the leadership and expertise shown by management responsible for the team, as well as the provision of training in collaborative client-centered practice for team members, and further provision of structural supports, such as time release and funding to support team development. At the interactional determinant level, the focus is on managers to whom teams report and how they mentor, support, incorporate new knowledge and additional resources, and encourage collaborative work of teams. In more recent work, D'Amour, Goulet, Labadie, San Martín-Rodríguez, and Pineault (2008) have identified a four-dimensional model of collaboration. Two dimensions related to the organizational level (*governance* and *formalization*) and the other two to the team level (*shared goals and vision* and *internalization*). Within the governance dimension four indicators (*centrality*, *leadership, support for innovation*, and *connectivity*) are proposed that may provide a means to assess the impact of the organizational environment on support for the effectiveness of a collaborative team. Centrality relates to how the institutional governance sets direction to support a culture of client-centered collaborative practice. Direction is associated with the allocation of resources for both staff training and teamwork practice. While the direction is important, administrators also need to encourage, support, and celebrate with these teams for their innovations as they work to shape their unique model of client-centered collaborative practice. The administration must also facilitate cross-departmental/service connectivity to ensure collaborative teams are able to respond quickly and comprehensively to their clients' care and treatment needs. Furthermore, the formalization dimension necessitates organizations working across institutional sectors to create the means (written and agreed-upon protocols, information sharing, and resource sharing) for teams to share responsibilities for clients' care and treatments and outcomes with others outside their respective institution. Thus, having health providers in their teams and managers of the teams rate the above governance and formalization indicators could provide a self-assessment of the organizational support for their teamwork.

The organizational support for teamwork rating along with team effectiveness ratings must be compared to accurately determine how supportive their organization is to interprofessional client-centered collaborative teams and their practice. When teams assess their organization to not be in support of teamwork, their ability to enact effective teamwork may be compromised.

Comparison of Instrument for Measurement to Interprofessional Teamwork by Focus of Measurement and Concepts Assessed

NAME OF INSTRUMENT	FOCUS OF MEASUREMENT	CONCEPTS ASSESSED	SOURCE
Attitudes Health Professionals (AHPQ)	Focus on the attitudes health professionals have about themselves and other professions.	Caring (13 items), internal consistency 40.91 Subservient (7 items), Internal consistency 40.91 Cronbach α 0.75	Lindqvist, Duncan, Shepstone, Watts, and Pearce (2005)
Attitude Toward Health Care Teams (ATHCT)	Focus on general attitudes health professionals have about teams.	Quality of Care/Process (14 items), Cronbach α 0.83 Physician Centrality (6 items) Cronbach α 0.75	Heinemann, Schmidtt, Farrell and Brallier (1999)
Interprofessional Socialization and Valuing Scale (ISVS)	Focus on individual's socialization towards working interprofessionally. Also focuses on client/family involvement in teamwork.	Comfort in working with others (6 items) Self-perceived Ability to work with others (9 items) Valuing working with others (9 items) Cronbach α 0.79 to 0.89.	King, Shaw, Orchard, and Miller (2010)
Team Climate Inventory	Focus on how team members rate their team environment.	Team participation (12-items) Cronbach α 0.92 Support for new ideas (8 items) Cronbach α 0.90 Team Objective (11 items) Cronbach α 0.91 Task Orientation (7 items) Cronbach α 0.91 Reviewing Processes (7 items) Cronbach α 0.84 Social Relationships (8 items) Cronbach α 0.26	Watts, Lindqvist, Pearce, Drachler, and Richardson (2007)Anderson and West (1998)
Readiness for Interprofessional Learning Scale (RIPLS)	Focus on willingness for learners to learn together interprofessionally.	Professional identity Team-working	
Interdisciplinary Education Perception Scale (IEPS)	Focus on learners' level of comfort in learning together.	Competency and Autonomy. Internal consistency = 0.823 Perceived needs for professional cooperation. Internal consistency 0.56 Perception of actual cooperation. Internal consistency 0.54 Scale reliability Cronbach α 0.87	Developed by Luecht et al. (1990) Refined by McFadyen, Maclaren, and Webster (2007)

NAME OF INSTRUMENT	FOCUS OF MEASUREMENT	CONCEPTS ASSESSED	SOURCE
Interprofessional Praxis Audit Framework (IPAF)	Focus on organization's enactment of interprofessional practice.	Concepts: Context, culture, organization constructs (conduct – behavior, integration and interaction; attitudes – beliefs, values and philosophies; information – identification, representation, and distribution) Qualitative use of action research approach	Greenfield, Nugus, Travaglia, and Braithwaite (2010)
Assessment of Interprofessional Team Collaboration Scale (AITCS)	Focus on how team members see their team collaborating with each other and with clients and families.	Partnership/shared decision making (19 items) Cooperation (11 items) Coordination (7 items) Cronbach α 0.98	Orchard, King, Khalili, and Bezzina (2012)

Hence, team assessments must be made in concert with the realities of support for their interprofessional client-centered collaborative practice. A team that is still effective despite limited organizational support is more likely to experience more frustrations with their teamwork, especially when trying to work across units. Hence, such assessments, when made, can also be used to assist managers to advocate for changes in teamwork support at the organizational level.

Measurement of Team Interprofessional Client-Centered Collaborative Practice

Organizations that have made a commitment to interprofessional client-centered collaborative practice across all service areas may choose to track changes in client care outcomes from pre- to post-change to gain a comprehensive perspective of teamwork effectiveness.

An ideal way to enact such an assessment is through the use of instruments that have undergone rigorous psychometric analyses for both their validity and reliability. A number of instruments are available for such use and are listed below.

The information provided above is not an exhaustive listing of instruments to measure collaboration in teams, but a set of instruments that have been used with practitioners in practice settings that might be of value to organizations seeking to gain an evaluation of institution-wide teamwork. It is recommended that the developers of these instruments be contacted prior to considering their use to ensure the measure will fit with the goal for this assessment.

CONCLUSION

In this chapter a variety of strategies and concepts have been shared that may be used to assist the CIPE facilitator in assessing performance of practitioners and teams to enhance their collaborative teamwork as an outcome of CIPE program learning. The discussion provided a cycle from learning achieved through a CIPE program, to the conversion of this learning into transferable knowledge to a team, followed by the choice of uptake of this new knowledge into practice or not.

A number of selected approaches and concepts to assess were provided for assessment of performance at both the individual team member and team level. A discussion of the use of both process (formative) and outcomes (summative) approaches to assessment was provided and how these may be combined. A case was also made for assessing not only a team and its effectiveness, but also the support provided by organizations for collaborative teamwork. Finally, a number of instruments were shared that may be used to provide an overall assessment of collaborative teamwork across an organization.

REFERENCES

Anderson, N.R., and West, M.A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. Journal of Organizational Behavior, 19, 235-258.

Attitudes toward Health Care Teams Scale. *Evaluation of Health Professionals*, 22(*1*), *123-142*.

Bleakley, A. (2006). Broadening conceptions of learning in medical education: The message from teamworking. *Medical Education, 40*, 150–157. http://dx.doi.org/10.1111/j.1365-2929.2005.02371.x.

Boud, D. (2000). Sustainable assessment: Rethinking assessment for the learning society. *Studies in Continuing Education, 22*, 151–167. http://dx.doi.org/10.1080/713695728.

Canadian Interprofessional Health Collaborative. (2010). *A national interprofessional competency framework.* Retrieved from http://www.cihc.ca/files/CIHC_ IPCompetencies_Feb1210.pdf.

Cohen, S.G., and Bailey, D.E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23*(3), 239-290. doi: 10.1177/014920639702300303.

D'Amour, D., Goulet, L., Labadie, J.-F., San Martín-Rodríguez, L., and Pineault, R. (2008). A model and typology of collaboration between professionals in healthcare organizations. *BMC Health Services Research, 8,* 188–202. http://dx.doi.org/10.1186/1472-6963-8-188.

Dowding, D., and Thompson, C. (2003). Measuring the quality of judgment and decision-making in nursing. *Journal of Advanced Nursing, 44*, 49–57. http://dx.doi.org/10.1046/j.1365-2648.2003.02770.x.

Field, R., and West, M. A. (1995). Teamwork in primary health care. 2. Perspectives form practices. *Journal of Interprofessional Care, 9,* 123–130. http://dx.doi.org/10.3109/13561829509047846.

Gittell, J. H., Godfrey, M., and Thistlethwaite, J. (2013). Interprofessional collaborative practice and relational coordination: Improving healthcare through relationships. *Journal of Interprofessional Care, 27*, 210–213. http://dx.doi.org/10.3109/13561820. 2012.730564.

Greenfield, D., Nugus, P., Travaglia, J., and Braithwaite, J. (2010). Auditing an organization's interprofessional learning and interprofessional practice: The interprofessional praxis audit framework (IPAF). *Journal of Interprofessional Care, 24*, 436–449. http://dx.doi.org/10.3109/13561820903163801

Heinemann, G.D., Schmidtt,M.H., Farrell, M.P., and Brallier, S.A. (1999). Development of an Interprofessional Education Collaborative. (2011). *Core competencies for interprofessional collaborative practice.* Retrieved from https://www.umassmed.edu/ Global/Office%20of%20Educational%20Affairs/IPEG/CollaborativePractice.pdf.pdf.

Janhonen, M., and Johanson, J.-E. (2011). Role of knowledge conversion and social networks in team performance. *International Journal of Information Management 31*, 217–225. http://dx.doi.org/10.1016/j.ijinfomgt.2010.06.007.

Jeffery, A. B., Maes, J. D., and Bratton-Jeffery, M. F. (2005). Improving team decision-making performance with collaborative modeling. *Team Performance Management: An International Journal, 11*(1/2), 40–50. http://dx.doi.org/10.1108/13527590510584311.

King, G., Shaw, L., and Orchard, C. A., and Miller, S. (2010). The interprofessional socialization and valuing scale: A tool for evaluating the shift toward collaborative care approaches in health care settings. *Work: Journal of Prevention, Assessment and Rehabilitation, 35*, 77–85. http://dx.doi.org/10.3233/WOR-2010-0959.

Kvarnström, S. (2008). Difficulties in collaboration: A critical incident study of interprofessional healthcare teamwork. *Journal of Interprofessional Care, 22*, 191–203. http://dx.doi.org/10.1080/13561820701760600.

Lamb, B. W., Wong, H. W. L., Vincent, C., Green, J. S. A., and Sevdalis, N. (2011). Teamwork and team performance in multidisciplinary cancer teams: Development and evaluation of an observational assessment tool. *BMJ Quality and Safety*, *20*, 849–856. http://dx.doi.org/10.1136/bmjqs.2010.048660.

Lavé, J. (2009). The practice of learning. In K. Illeris (Ed.), *Contemporary theories of learning: Leaning theorists in their own words* (pp. 200–208). London, United Kingdom: Routledge.

Légaré, F., Stacey, D., Pouliot, S., Gauvin, F.-P., Desroches, S., Kryworuchko, J., Graham, I. D. (2011). Interprofessionalism and shared decision-making in primary care: A stepwise approach towards a new model. *Journal of Interprofessional Care, 25*, 18–25. http://dx.doi.org/10.3109/13561820.2010.490502.

Lencioni, P. (2002). *The five dysfunctions of a team: A leadership fable*. San Francisco, CA: Jossey-Bass.

Lindqvist, S., Duncan, A., Shepstone, L., Watts, F., and Pearce, S. (2005). Development of the 'attitudes to health professionals questionnaire' (AHPQ): A measure to assess interprofessional attitudes. *Journal of Interprofessional Care, 19*(3), 269–279. http://dx.doi.org/10.1080/13561820400026071.

Luecht R, Madsen M, Taugher M, Petterson B. (1990). Assessing professional perceptions: design and validation of an interdisciplinary education perception scale. *J Allied Health. Spring*: 181–91.

Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., and Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology, 85*, 273–283. http://dx.doi.org/10.1037/0021-9010.85.2.273.

McFadyen, A. K., Maclaren, W. M., and Webster, V. S. (2007). The interdisciplinary education perception scale (IEPS): An alternative remodelled sub-scale structure and its reliability. *Journal of Interprofessional Care, 21*, 433–443. http://dx.doi.org/10.1080/13561820701352531.

Orchard, C. A., Anderson, E., Ford, J. and Moran, M. (2015). *Framework for the Interprofessional Collaboration Judgment Assessment Tool.* Unpublished work.

Orchard, C. A., King, G. A., Khalili, H., and Bezzina, M. B. (2012). Assessment of Interprofessional Collaborative Practice (AITCS): Development and testing of the instrument. *Journal of Continuing Education in the Health Professions, 32*, 58–67. http://dx.doi.org/10.1002/chp.21123.

Pearson, D., and Pandya, H. (2006). Shared learning in primary care: Participants' views of the benefits of this approach. *Journal of Interprofessional Care, 20*, 302–313. http://dx.doi.org/10.1080/13561820600649672.

Pollard, K. C. (2008). Non-formal learning and interprofessional collaboration in health and social care: The influence of the quality of staff interaction on student learning about collaborative behavior in practice placements. *Learning in Health and Social Care*, *7*, 12–26. http://dx.doi.org/10.1111/j.1473-6861.2008.00169.x.

Robinson, F. P., Gorman, G., Slimmer, L. W., and Yudkowsky, R. (2010). Perceptions of effective and ineffective nurse-physician communication in hospitals. *Nursing Forum, 45,* 206–216. http://dx.doi.org/10.1111/j.1744-6198.2010.00182.x.

Salas, E., Cooke, N. J., and Rosen, M. A. (2008). On teams, teamwork, and team performance: Discoveries and developments. *Human Factors, 50,* 540–547. http://dx.doi.org/10.1518/001872008X288457.

Salas, E., Rosen, M. A., Burke, C. S., Nicholson, D., and Howse, W. R. (2007). Markers for enhancing team cognition in complex environments: The power of team performance diagnosis. *Aviation, Space, and Environmental Medicine, 78*(Suppl. 5), B77–B85.

San Martín-Rodríguez, L., Beaulieu, M.-D., D'Amour, D., and Ferrada-Videla, M. (2005). The determinants of successful collaboration: A review of theoretical and empirical studies. *Journal of Interprofessional Care, 19*(Suppl. 1), 132–147. http://dx.doi.org/10.1080/13561820500082677.

Schön, D. A. (1991). *The reflective practitioner: How professionals think in action*. Aldershot, United Kingdom: Ashgate.

Watts, F., Lindqvist, S., Pearce, S., Drachler, M., and Richardson, B. (2007). Introducing a post-registration interprofessional learning programme for healthcare teams. *Medical Teacher, 29,* 443–449. http://dx.doi.org/10.1080/01421590701513706.

LCH