PROJECT REPORT

Developing a grounded theory for interprofessional collaboration acquisition using facilitator and actor perspectives in simulated wilderness medical emergencies

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A B S T R A C T

Context: Interprofessional collaboration is a complex process that has the potential to transform patient care for the better in urban, rural and remote healthcare settings. Simulation has been found to improve participants' interprofessional competencies, but the mechanisms by which interprofessionalism is learned have yet to be understood. A rural wilderness medicine conference (WildER Med) in northern Ontario, Canada with simulated medical scenarios has been demonstrated to be effective in improving participants' collaboration without formal interprofessional education (IPE) curriculum.

Issues: Interprofessionalism may be taught through rural and remote medical simulation, as done in WildER Med where participants' interprofessional competencies improved without any formal IPE curriculum. This learning may be attributed to the informal and hidden curriculum. Understanding the mechanism by which this rural educational experience contributed to participants' learning to collaborate requires insight into the events before, during and after the simulations. The authors drew upon feedback from facilitators and patient actors in one-on-one interviews to develop a grounded theory for how collaboration is taught and learned.

Lessons learned: Sharing emerged as the core concept of a grounded theory to explain how team members acquired interprofessional collaboration competencies. Sharing was enacted through the strategies of developing common goals, sharing leadership, and developing mutual respect and understanding. Further analysis of the data and literature suggests that the social

wilderness environment was foundational in enabling sharing to occur. Medical simulations in other rural and remote settings may offer an environment conducive to collaboration and be effective in teaching collaboration. When designing interprofessional education, health educators should consider using emergency response teams or rural community health teams to optimize the informal and hidden curriculum contributing to interprofessional learning.

Context

Effective team collaboration is critical to achieving patient-centered, safe, timely, effective, efficient and equitable care[1]. In the context of health care, collaboration refers to 'an interprofessional process of communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided'[2]. Interprofessional collaboration is a complex process that has the potential to transform patient care for the better in urban, rural and remote healthcare settings[1,3]. Teaching teams to collaborate is complex because it involves a shift in professionals' behaviors and attitudes determined by factors beyond the scope of formal interprofessional education (IPE) curricula[4]. Research on IPE predominantly focused on assessing learner outcomes using pre- and post-intervention surveys; however, few studies have used qualitative research methods to explore the process that led to improvements in interprofessional competence. Hean and Dickinson argue, 'there is a case for looking outside the box and developing theory that has originated from IPE experience specifically'[5]. To better capture the breadth of factors that influence IPE learning, Freeth and Reeves developed a Presage–Process–Product (3P) model of IPE learning and teaching[6]. In keeping with this proposition, this study drew from the perspective of facilitators and actors regarding the interprofessional collaboration that took place at a wilderness medicine conference because they offer critical insight into the presage, process and product of interprofessional learning. The conference, an annual 3-day wilderness medicine conference (WildER Med) on Manitoulin Island in Northern Ontario,

Canada, has been shown to improve participant collaboration without formal IPE curriculum[7]. This event uses workshops, didactic lectures and simulations to teach wilderness medicine knowledge and skills. In the first 2 days, participants camp together and learn wilderness medicine and orienteering in assigned teams. On the third day, the teams navigate through the woods to medical emergencies performed by patient-actors from a local Aboriginal theatre troupe, Debajehmujig Storytellers[8]. After completing the scenario, participants receive group feedback from the patient-actors and scenario facilitators.

Issues

Understanding how this learning occurred may enable the use of simulation in similar rural and remote settings to teach collaboration. Others have investigated the process of IPE such as Freeth and Reeves who found learning collaboration was influenced by factors beyond the formal curriculum. They suggest that understanding these factors would enable educators to develop more effective IPE opportunities[6]. When attempting to understand how interprofessionalism is learned at WildER Med, authors encountered several issues including the complexity of interprofessionalism acquisition, challenge of understanding why a wilderness medicine conference was effective IPE and the difficulty of drawing data on hidden and informal curriculum.

At WildER Med, Reade and colleagues used mixed methods to study participants' perceptions of their own interprofessional competencies. They found participants reported improvements in interprofessional competencies by participating in WildER Med[7]. This may be, in part, due to

the wilderness simulated scenarios. Robertson and Bandali suggest that visually and kinaesthetically realistic simulation cases support the psychological and cognitive aspects of interprofessional learning[9]. As such, rural and wilderness medicine conferences may provide the stimulation and intimacy required for interprofessional interactions. There has been widespread acceptance and uptake of simulation in interprofessional education but the teaching and learning processes that underpin the learning are not well understood[9,10].

To better understand how collaboration was taught and learned, the hidden and informal curriculum needs to be explored[11]. Freeth and Reeves describe interprofessionalism acquisition using a 3P model which includes elements of the hidden and informal curriculum that may not be adequately captured through participant surveys[6]. Facilitators and actors are critical players in the presage, process and product of interprofessional learning and may offer better insight into the mechanisms of interprofessional learning[5]. The authors used purposive sampling to include a range of facilitators, actors and faculty of the WildER Med conference. Of the 25 people approached, 11 agreed to participate. Six participants were male and five were female. Four were actors from Debajehmujig Storytellers. Seven were facilitators and included police officers, physicians, paramedics, nurses, nurse practitioners and health administrators. The authors used one-on-one semi-structured interviews to elicit WildER Med facilitators' and actors' perceptions of how the setting, scenarios, emergent group dynamics and other factors identified by Freeth and Reeves impacted group function. A grounded theory approach based in social constructivist theory was then used to study the phenomenon of the acquisition of interprofessional collaboration competencies in simulated wilderness medical emergencies.

Lessons learned

Theory of sharing

A basic social process of sharing occurred as the central phenomenon throughout WildER Med that provided the basis for a substantive theory to explain the collaborative approach used to complete the wilderness medical simulations. As demonstrated in Figure 1, the term sharing refers to this process whereby group members (including the actors, facilitators and care providers) contributed knowledge, skills and ideas to achieve a common task. Through sharing, groups established common goals, mutual respect and shared leadership to collaboratively respond to the wilderness scenarios.

Research participants attributed sharing to the small team size, extensive time spent together, common vision, enthusiasm for wilderness medicine, and diversity of professional backgrounds. Three determinants found to be most deeply and frequently associated with collaborative interaction were 'wilderness and social environment', 'collaborative leaders' and 'basic urgent task'. This report will focus on the association with the wilderness and social environment. The data, analysis and reviewed literature are incorporated into the authors' analysis in accordance with Glaser's approach to presenting grounded theory[12].

Facilitators, care providers and actors all engaged in sharing (Fig1). Care providers brainstormed together to assess and respond to the patients. Facilitators and actors worked together to set the scenario and give feedback to care providers afterwards. The term 'sharing' was used to describe these interactions and is often used by other researchers in describing collaboration such as sharing of power between partners, sharing of tasks, or being open to sharing information and learning from each other when entering into a collaborative process[13,14].

Figure 1 depicts the patient as an equal contributor to sharing. This emphasizes the integral contribution of the patient, who is both the primary recipient of group's efforts and active collaborator. An actor's description of his experiences emphasizes this:

> *You learn on both ends, for us performance-wise it's something new and it gives us [the ability] to create real vulnerability and be believable … and for them [the participants] it's like giving the real-life scenarios. (2, actor)*

The actor found that he taught participants how to deal with real-life scenarios, and their responses taught him how to portray vulnerability, enabling them to enhance their roles and abilities to complete the scenarios together. Another actor expanded on this in her comment:

> We learned that if we allow it to be more layered and complex it's a better experience for the medical practitioners. Not only more interesting for them, but there's more learning for them if we allow ourselves to be more human in the whole situation. (4, actor)

This demonstrates that sharing was a learning and teaching process similar to Oandasan and Reeves' definition of interprofessional learning: teaching each other and working in synergy[15].

By sharing, group members also enhanced their skills for collaborative practice: shared leadership, common goal development, and mutual understanding and respect, as demonstrated in Figure 1. One facilitator commented upon his observation of the sharing of leadership:

> There's no one person that takes the lead at every one of the scenarios, everybody takes their turn and gets the experience from being the lead person to being the deciding person, to being the navigating person. (11, facilitator)

Participants took turns leading the group in tasks such as orienteering, clinical assessment and evacuation planning. Interviewees also found that mutual understanding and respect developed not only between group members but also with facilitators over the weekend. For instance, one facilitator (10), a police officer, commented, 'It probably gives them [conference participants] a different look at the cop as opposed to someone who is just running the highway'. That facilitator felt that by learning orienteering from police officers and sharing time with them, participants gained a better appreciation for an officer's scope of practice. Respect for other professionals is foundational to collaboration and a skill that group members may be able to transfer to other interprofessional encounters.

The authors found their theory aligns with multiple researchers who also describe collaboration as a process[4]. For instance, Gittell and colleagues propose the relational coordination (RC) theory to describe interprofessional collaborative practice[14]. They defined RC as the use of optimal communication and relationships with shared goals, shared knowledge and mutual respect to achieve higher levels of quality and efficiency. Both RC and sharing theory show collaboration as a process that leads to improved interactions and outcomes. This reinforces the suggestion that collaboration may be a result of a complex process of interaction between all team members that may exist in hidden and informal curriculum.

Social wilderness environment

Interviewees gave rich descriptions of the environment of WildER Med and its importance to collaboration. One actor described the environment at WildER Med as pivotal to building awareness of self and others:

> There's something about that natural environment when we get out to engage with each other that a lot of the mask and the roles that we might play with each other naturally and automatically disappear. And that's very important when you're trying to learn something new, that you get out of your own conceptual boxes to see a different thing that was never visible to you before. (4, actor)

The connection between collaboration and the social and environmental context is well established in literature on interprofessionalism[15]. An awareness of self and others, like the one described by this actor, is a core component of collaboration and elementary to developing mutual respect and understanding. Further, this quote demonstrates that at WildER Med the wilderness is not simply a geographic setting but a concept to which people attach value and invest in. Kitto also found that the conceptual aspects of an environment contributes to all three levels of curriculum: formal, informal and hidden[16]. This section will elaborate on the environment's influence in these three levels with regards to IPE.
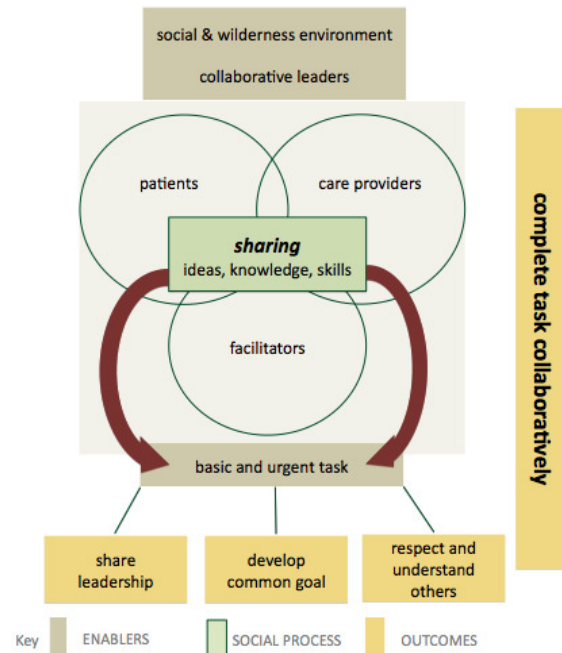
Figure 1: The theory of sharing

As part of the formal curriculum, the wilderness environment was used to teach participants to assess the patient in their surroundings and improvise together. With limited time and resources, participants relied on one another's skills, ideas and experiences to develop creative solutions. One facilitator summarized this well in saying 'it does take a team in a harsh environment to succeed. No one person can do it all.' (9, facilitator). Another facilitator expanded on this idea of the wilderness encouraging awareness and a collaborative effort in saying 'because we were in such a close space, I think we were sort of forced to work together … I think [it was] the actual physical geography …' (10, facilitator). These quotes demonstrate that wilderness medicine required groups to interact and work together. Similarly, Mariano argues that space sharing and physical proximity reduce professional territoriality and help develop interpersonal relationships[17]. Therefore, the wilderness medicine curriculum seems to have promoted interprofessionalism even though IPE was not an explicit part of the formal curriculum.

The environment also facilitated interaction during shared meals and around the fire in the evening. One facilitator commented:

[The outdoor environment] brings the group together more because it's informal, they eat together, they're in a tent maybe twenty feet from their partner … Even when our students are having their meal they are either talking with the instructors, asking them questions or they're working together. (6, facilitator)

People continued to share with one another in these informal social environments. This enhanced the cohesiveness of the group and their learning. Kitto describes this type of interaction as the informal curriculum occurring between health professionals in hospital hallways and cafeterias[16]. Kitto found that the 'unscripted, predominantly *ad hoc* and highly interpersonal form of teaching and learning' occurred in these environments. Similarly at WildER Med, the casual and intimate social environment enhanced this type of interaction and potentially contributed to learning collaboration.

The hidden curriculum encompasses the processes, pressures and constraints outside of or embedded within the formal curriculum[11]. Multiple interviewees alluded to such influences at WildER Med. For instance, one actor described how the culture of WildER Med motivated her to contribute:

> *This project [WildER Med] always has the culture of exploration with it, so it's not like you can fail at this (laughs), you can just get into it and do your best and see what happens.* (4, actor)

This comment demonstrates that the environment promotes exploration and learning by allowing space for trial and error. Similarly, Oandasan and Reeves found that for adults to learn, they need an environment where they feel psychologically safe to express themselves openly[15]. Furthermore, this quote depicts the environment as dynamic and dependent on the people acting in it: the environment shapes people's actions and people shape the environment. This suggests an interactive component to the environment's influence on participants' behavior and contribution to the hidden curriculum.

Conclusions

In a wilderness medicine conference, without formal interprofessional education curriculum, collaboration emerged as a process of sharing. Furthermore, the informal and hidden curriculum of a social and wilderness environment that encouraged participants and leaders to interact and explore enhanced sharing and ultimately their collaboration. Applying this sharing theory to IPE may enable educators to design more effective learning experiences in similar rural and remote contexts such as emergency response teams, search and rescue, or rural health teams. Rural healthcare teams also experience small teams, limited resources, urgent tasks, and overlap of professional and social interactions, so may provide an environment where simulation may be used to teach interprofessional competencies. Further research into the role of sharing across different types of rural teams and evidence regarding the long-term effect on collaboration may enable educators to consistently use simulation and rural wilderness medicine to teach interprofessionalism.

Acknowledgements

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