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Breaking Down Silos: Postsecondary Leaders Collaborating to Advance One Health in Education

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Abstract

This contribution describes how leaders from the University of Calgary Knowledge Engagement team, the manager of One Health at UCalgary and faculty members from Werklund School of Education came together to form a leadership team and plan a transdisciplinary initiative for future implementation in K-12 schools. The One Health initiative at the University of Calgary is committed to tackling complex problems at the convergence of people, animals, and the environment, and the underlying economic and social factors that determine the opportunities for health across all ecosystems. Systems thinking and inviting different perspectives into the conversation provided a greater understanding of the scope of global challenges and how our individual actions impact others and the environment we all share. The authors used a collaborative and dialogic approach to plan a knowledge engagement session with regional public-school educators to consider how inclusion of the One Health approach into existing curriculum could benefit students. In this chapter, the authors reflected on how matchmaking brought the team together as a boundary-spanning and transdisciplinary team and describe their collective actions and leadership in building collaboration and connections with community partners to lay the foundation for a robust outreach program. The reflections suggest that leaders in higher education can break down silos using a complexity paradigm for their leadership and work together across different departments to combine diverse expertise for community engagement.

Keywords: One Health, education, partnership, boundary-spanning, collaborative leadership, knowledge engagement

Introduction

One Health at the University of Calgary (OH@UC, research.ucalgary.ca/one-health) was founded in 2019 as an emerging cross-cutting research theme from the Office of the Vice-President, Research. The decision by the University leaders to support One Health scholarship and research was consistent with a global movement to take a holistic and collaborative approach to understanding and mitigating wellness challenges with the goal of improving the health of all ecosystems. Growing numbers of programs, research projects and discussions on the value of a One Health approach have been inspired by numerous complex global challenges such as emerging and re-emerging zoonoses, climate change, antimicrobial resistance, plastics pollution, climate change and biodiversity loss (MacKenzie & Jeggo, 2019; Schneider et al., 2019). Combining diverse expertise has great potential to yield innovative adaptations to address these complex scientific and social challenges. Lessons learned from the SARS-CoV-2 pandemic have further emphasized the importance of a new approach and the imperative of re-evaluating our relationships with each other, between and within the disciplines and sectors, and most importantly – nature (El Zowalaty & Järhult, 2020; Zinsstag et al., 2020).

One Health at UCalgary (OH@UC) is committed to tackling complex problems at the convergence of people, animals, and the environment and the underlying economic and social factors that determine the opportunities for health across all ecosystems. The concepts embraced by One Health date back thousands of years. In the fall of 2019, OH@UC hosted two One Health Strategy Town Halls with University faculty, staff, and students to help us define our strategic plan and priorities for research, training, and outreach. We asked the question, “How do we develop and maintain a One Health philosophy and approach at the center of our research, in practice and in policy development?” The overwhelming response was that we needed to start early to establish an informed basis for One Health and to learn the skills required for collaboration. Our participants clearly recognized that children are our future. If we aspire to live in a more collaborative and connected world in which One Health is commonly understood and operationalized, then, we must start educating children today about One Health.

On a similar timeline of the establishment of the One Health initiative, a team dedicated to supporting knowledge engagement was formed within the University of Calgary’s Research Services Office. Knowledge engagement (KE) is a dynamic and reciprocal process in which

multiple stakeholders come together to address mutually identified problems (Research at UCalgary, 2024). The term knowledge engagement is unique to the University of Calgary and was developed to reflect potential and to frame our focus in a forward-thinking way. The purpose of this deliberate engagement is for the co-creation, synthesis, and application of knowledge and evidence to benefit the community at large. The KE team was given a broad mandate to build capacity, facilitate the development of partnerships for research, and provide a robust support structure for those on campus and in community doing knowledge engagement. The KE team provides a diverse range of core service offerings which includes a matchmaking function primarily supported by the team's coordinator. Very early in its tenure, the KE team identified One Health and the Werklund School of Education as being KE-active and potentially important connections for the networking and nexus providing activities being rolled out by the team.

One Health was already working with the KE team to develop outreach programs to assist with actioning the commitment to bring One Health to the classroom. A request for support was extended to the KE team for further assistance in developing plans, making connections, and building relationships with school-based stakeholders. The KE team suggested that an internal collaboration with faculty members from the Werklund School of Education could be beneficial to realizing the goal of bringing One Health to the classroom. The KE team connected (matchmaking) the OH team with faculty members who were active in partnering with schools for research and knowledge mobilization purposes.

The Werklund School of Education has been partnering with school districts for research purposes through an initiative called Partner Research Schools and Communities and they were open to extending these school partnerships to include other faculties and initiatives at the university. Over the past decade, this partnership program has successfully supported education faculty in making connections with practitioners in schools and communities for leading innovation and research. Werklund School of Education provides support for partnerships and is also committed to be change leaders in education and to be responsible to individuals, partners, and future generations of learners. Werklund School's mission is to embrace diversity of identities and further the betterment of societies through scholarship that is mindful of wellness, social justice, and ecological sustainability. Werklund School of Education scholars offer an educational space for learning and bringing changes and transdisciplinary work that demonstrate examples of good practices in different disciplines (Alonso-Yanez et al., 2021; Takeuchi et al., 2020). In

addition to provide a space for diversity, the Werklund School has several Indigenous scholars to help curriculum and school leaders understand different ways of knowing and representing knowledge. Indigenous peoples have held the relationships between human beings, non-human animals, and the environment as central to health and wellbeing since time immemorial. These Indigenous worldviews and epistemologies precede and inform the origins of One Health as it is known today. Leaders from the One Health team, the Knowledge Engagement team, educators and Indigenous scholars from Werklund School of Education came together to work together and break silos in a postsecondary institution.

The goal of this chapter is to demonstrate how leaders from One Health, Knowledge Engagement and School of Education used reflection and collaboration to break down silos using a complexity paradigm for their leadership. Working together across different departments and combining diverse expertise in community engagement created a space for the creativity required to meaningfully engage and collaborate to advance a One Health approach. The next section will introduce and discuss complex problems and how matchmaking and leadership can bring about change.

Literature

Complex problems are intractable, open-ended, unpredictable, and costly. There are dozens of specialized disciplines that can effectively describe a component of the system, but complex problems exist where biology and ecology have become entangled with economics, social expectations, and politics. Hierarchical leadership that seeks simple solutions and paternalistic environmental management have made progress in some areas such as management of infectious diseases (Shuman & Malani, 2018) but the drivers of complex problems have worsened (Waltner-Toews, 2017). Economic inequities, loss of biodiversity, and ecological degradation are increasing, and ecosystems are showing signs of being unable to meet the needs of the lives (human and non-human) occupying them (Hassan et al., 2005). Transdisciplinary research, practice, and policy development that are applied to real-world problems require authentic collaboration and co-leadership of scientists, practitioners, and other stakeholders. One Health provides a basis for growing communities of learning and practice (Binot et al., 2015).

Collaboration has been identified as a useful method for advancing shared goals in many disciplines and sectors such as the social sciences, non-profit practitioners (Levine, 2020), industry

(Venghaus & Stummer, 2015), and biological sciences (Lewis, 2010). Successful collaborations require competent team members who have developed relationships built on trust and respect (Inkpen & Tsang, 2005). Identifying skilled team members from outside your disciplinary silo and who are curious and willing to engage in transdisciplinary projects can be challenging. Experienced researchers can rely on their professional networks developed over years to identify individuals with the desired skills (Anholt et al., 2012). Matchmaking can also assist with team building.

Institutions and individuals use a variety of tools or mechanisms for matchmaking. Lewis (2010) highlights the success of speed dating style events for matching scientists across disciplines. Levine (2020) describes a step-by-step approach for making connections between social sciences researchers and practitioners working in non-profit organizations. Other mechanisms rely on a digital tool such as a smartphone application (Kopplin, 2020) or a virtual platform such as Memorial University of Newfoundland's Yaffle web site (<https://mun.yaffle.ca/>).

There are many different names for the professionals who work in the spaces between disciplines and organizations: partnership broker, industry or community liaison, inter-cultural facilitator to name a few. Common across descriptions is the idea that these roles lead the connections and fill the spaces between previously (and traditionally) detached entities. Of knowledge brokers, Phipps and Morton (2013) describe that “[r]ather than walking a tightrope between two communities, they need to have the courage to step ahead and encourage others to follow” (p. 260). Lewis (2010) characterizes these roles as “the interdisciplinary project manager who uses exploratory leadership and management skills” and “interactional expertise” to lead collaborations across disciplines (p. 191). University faculty members are often uncertain about how to broker these types of relationships if there are limited supports within a faculty or institution to help navigate knowledge engagement and the development of partnerships.

Engaging in university-school partnership work requires a commitment and leadership among the partner organizations (Brown, 2021; Friesen & Brown, 2023). Collaborative approaches and shared leadership are often discussed in the research-practice partnerships literature (Coburn et al., 2013; Penuel & Gallagher, 2017). Terminology, such as distributed leadership is used in the literature to describe a shared approach to leadership (Harris, 2009). Leaders taking a distributed leadership approach can support communities of practitioners to

achieve a shared vision and work collaboratively in the service of a common goal (Fasso et al., 2016; Hartley, 2009; Torrance, 2013). Extending this beyond the local context requires transformative leadership (Bass, 1998; Riggio & Bass, 2006) and having an educational vision to bring changes to society. Transformational leaders empower school staff, students (and parents) to create a culture of innovation and improvement with shared purpose. Drawing on transformative leadership theory, these leaders use a critical approach grounded in the values of equity, inclusion, excellence, and social justice (Shields, 2010, 2019) and this can support a commitment to research-practice partnerships where all members are positioned as equal and valuable contributors (Snow, 2015). Partnerships in learning organizations have demonstrated positive results (Coburn & Penuel, 2016) particularly when supported by transformative leaders who embrace distributed leadership approaches and collaborative relationships (Stephens & Boldt, 2004).

Theoretical Framework

Our understanding of leadership, that grounded our interdependent interactions and transdisciplinary work, is underpinned by Davis et al.'s (2000) complexity lens in education and Uhl-Bien et al.'s (2007) Complexity Leadership Theory. We begin with the assumption that complex systems comprise a collection of individual actions and actors who create relationships and respond to events within a larger system. The relationships that are formed are more than a description of a combination of actions and become interconnected and entangled. Qualities commonly described when discussing complexity include emergence and self-organized forms and these “coherent collective behaviors and characters emerge in the activities and interactivities of individual agents” (Davis & Sumara, 2005, p. 455). Similarly, in Complex Leadership Theory, Uhl-Bien et al., (2007) described adaptive leadership as emergent and informal within an organization involving adaptive challenges that require innovative ways of working together, an openness to new possibilities, and the use of new or different repertoires of practices to solve a problem. For example, design thinking is an adaptive practice and can be described as “a set of tools applied to achieve human centered innovation” (Arena & Uhl-Bien, 2016, p. 26).

Complexity Leadership Theory identifies three intertwined leadership functions: (a) Adaptive leadership activity informally emerges from dynamic interactions; (b) Administrative leadership activity refers to actions accomplished by members of the team who might hold formal managerial or coordination roles; and (c) Enabling leadership activities that help navigate the

entanglement between the adaptive and administrative activity to promote innovation and creativity (Uhl-Bien et al., 2007). Davis et al. (2000) argued that “events of learning are about constant co-adaptations of interacting parts—an ongoing structural dance” (p. 58). Despite constant change and interacting parts, in education, research often focuses on events of learning within perceived boundaries. Some authors use terms such as boundary practices and boundary crossing to discuss intersections that go beyond a bounded domain (Akkerman & Bakker, 2011). Boundary practices can refer to the repertoire of routines or practices that can highlight different approaches and contexts among team members involved in a project (Penuel et al., 2015). Boundary crossing can refer to an individual’s role in navigating interactions and differences among members of teams and sites (Akkerman & Bakker, 2011). Another term used in the literature is boundary-spanning in reference to employees that work across departments, networking processes, and initiatives (Uhl-Bien & Arena, 2018). Our understanding of boundary-spanning is also multilayered and “not confined to an individual job description” (Weerts & Sandmann, 2010, p. 638). The four-part boundary-spanning model framework (Weerts & Sandmann, 2010; Weerts, 2019) provided a lens to explore the roles and approaches of the collaborative leadership team: (a) community-based problem solver, (b) technical expert, (c) engagement champion, and (d) internal engagement advocate.

Methodology

In our collaborative inquiry, we chose steps provided by Creswell and Guetterman (2019). We started by identifying a phenomenon to explore and to address an educational problem. We worked together to provide an understanding of the phenomenon and collected narrative reflections from our team. We collaborated to write about our experiences in forming a leadership team to engage later on in partnerships with K-12 schools. In that way, our reflections focused on identifying the experiences of several individuals:

A good narrative study reports the stories of lived experiences of an individual (or individuals: our emphasis), organizes them into a chronology, situates them within the setting or context, derives several themes that the stories will address, and demonstrates a close collaboration in the narrative project between the researcher and the participant. (p. 529)

We decided to come together as a group of leaders that were interested in looking at how we can plan a transdisciplinary initiative with One Health and Education and provide a knowledge engagement opportunity for teachers in schools. Two leaders from the UCalgary Knowledge Engagement team, a manager from One Health, and three faculty members in Education formed a team to explore introducing the One Health approach into the classroom.

Just as diverse practitioners come together to approach complex problems in innovative ways, our team reflects diverse background knowledge and expertise while holding common threads of interest in education and addressing issues relating to humans, animals, and the environment. While Michele has a managerial leadership role within One Health, we consider our leadership team as decentralized, and members share leadership. The leadership is dynamic, responsive, and emergent depending on the contexts and goals of the team at the time. Reflecting on our roles and engaging in dialogue about our work was an important part of the process we used to recognize how each of us influenced the work in pragmatic, organizational, or theoretical ways. Each member of our team reflected on the following questions:

- How did you come together as a boundary-spanning team?
- What are the successes and challenges of your boundary-spanning team?

Following this, we used the four boundary-spanning descriptions (see Table 1) as a lens to analyze our reflections and understand our interconnected roles, keep track of our procedures for collaboration, and to deepen our understanding about our collaborative leadership.

Table 1:
Boundary-Spanning Model Focus and Tasks

Boundary-Spanning Model (Weerts-Sandmann, 2010)	Focus	Tasks
Community-Based Problem Solver	Community	Technical and practical tasks Provides site-based problem-solving support, the acquisition of resources, and the development of partnerships Manages relationships between community and university
Technical Expert	Institution	Technical and practical tasks Emphasis on knowledge creation for applied purposes
Engagement Champion	Community	Socio-emotional and leadership tasks Build external political and intraorganizational support
Internal Engagement Advocate	Institution	Socio-emotional and leadership tasks at the institution

The boundary-spanning model in conjunction with the leadership functions (adaptive, administrative, enabling) in Complexity Leadership Theory (Uhl-Bien et al., 2007) provided a useful conceptual lens for our reflections, dialogue, and analysis of our roles and collaborative approach to leadership.

Reflective Practices

In this section we provide excerpts from each of our reflections outlining the unique roles as part of a leadership team. We will begin by introducing the One Health Project manager, followed by two members of the Knowledge Engagement (KE) team, and three faculty members from the Werklund School of Education comprising the leadership team for the project.

Michele, One Health Initiative

Prior to my role at University of Calgary, I provided epidemiological research consulting services. My favorite projects were those where I was part of a transdisciplinary team; a team that involved scientists from diverse academic disciplines and research partners from government,

industry, and the communities. They were not easy problems. They included questions such as, “How can we improve early detection of wild bird avian influenza?” or “How do we define a healthy wildlife population so that we understand when an intervention is necessary?” As individuals we brought our knowledge to the question but as a team, we could use everyone’s perspectives to better understand the problem and to find sustainable and effective solutions.

My role at the university is to support faculty and trainees as they develop the necessary relationships to build research teams to answer some of the world’s complex problems. So, I have been thinking about how researchers get good at One Health. Learning the skills necessary for transdisciplinary and cross sectoral research is a skill that will benefit learners in any field they choose. The skills or competencies important for One Health work (aside from disciplinary training) include a holistic understanding of health, systems thinking, problem solving, critical thinking, and the value of resilience. One Health practitioners will develop skills in leadership, collaboration, and an appreciation for examining a problem from different perspectives. Skills best taught early. However, I did not know how to connect with the schools nor what One Health resources teachers would find useful; I did not know how to move this idea across the boundaries.

MacKinley, Knowledge Engagement

As part of our core service offerings, the KE team provides partnership matchmaking support to a dual client base that includes both UCalgary researchers and community. For this initiative we began by focusing on making an internal, transdisciplinary match and our involvement and support has not stopped there. We have provided ongoing partnership brokering and facilitation support to help develop a strong foundation for these newly formed, transdisciplinary relationships. In terms of a case study for the KE team, this initiative has proved to be invaluable! We are a relatively new team, and this is one of the first initiatives that has allowed us to test out and refine our service offerings while monitoring a project as it moves through the knowledge engagement lifecycle. From my perspective, as the Manager of the Knowledge Engagement team, this initiative and the role that our team has played is a wonderful example of the benefit of having a centralized support department with a goal of supporting collaborative efforts to create knowledge with impact for the benefit of the community at large.

Alyse, Knowledge Engagement

As a large and complex organization, the University of Calgary already interacts with the wider local, provincial, national, and global communities around it in innumerable ways. I look for ways to make meaningful connections among those groups without duplicating efforts, undermining work already started, or stepping on any toes. I brought a background in partnerships with community organizations to my new role at the University of Calgary and was primarily focused on building connections between the University and community organizations. When I first consulted with the team in the One Health Office, they came to that meeting with an already clear sense of gaps which they wanted to fill. They knew that they wanted to create resources for teacher use in the classroom but needed guidance on how to do that. This presented an interesting new facet to my matchmaking role. I usually connect groups or individuals from the University directly to external organizations, but in this case, I knew there were people within the University better suited to facilitate this process. I made introductions to our Werklund School of Education team members; and at that point my role in the collaboration became one of facilitation and support.

Within a large institution a leader in the spaces between groups (a boundary-spanner) can activate collaborations which may never have come about otherwise. These advocates and champions take on accountability when faced with a need that can only be met through collaboration and partnership across disciplines or teams. This combination of (theoretical) location and responsibility leads to deliberately moving ideas forward by actively bringing collaborators together. The explicit and deliberate nature of the work is one of the defining characteristics of knowledge engagement work at the University of Calgary.

Jennifer, Education Faculty

As a Métis educator and researcher, I came to this role with community in mind. The OH@UC leadership team aimed to incorporate Indigenous perspectives into their planning, engagements, and resource creation, and wanted to ensure that they were taking up Indigenous perspectives in good ways. Recognizing that learning about and through Indigenous teachings is a lifelong endeavor, I come with the knowledge that I am not an expert (Markides, 2018, 2022). I can only offer what I know based on my experiences to this point. Being tasked with bringing an Indigenous lens and voice to the work, I do so with great humility and a sense of immense

responsibility. The insights and advice I offer have the potential to help or hinder the relationships with Indigenous community partners and people. Therefore, my boundary-spanning role as an Indigenous educator and researcher requires that I put community first in all aspects of my work. At times it has been tempting to take up the perspective of a K-12 teacher—with over a decade of experience as an elementary Montessori educator—it is a role that I slide into with the ease of familiarity. I hear the team’s enthusiasm for developing resources and partnerships with a critical problem-solving and student-centered focus, and I lean into that area of my expertise. With the knowledge that there are other engagement champions on the team, I remind myself to take a step back and prioritize: listening over speaking; the wholeness of the team’s vision over the individual parts it creates; and the fostering of relationships over the development of resources.

Barbara, Education Faculty

As the Associate Dean Teaching and Learning in the Werklund School of Education and previously Director of Partner Research Schools and Communities, I would describe myself as one of the engagement champions for the partnerships between the education faculty and K-12 schools. I provided intraorganizational support between researchers and practitioners. With experience as a classroom teacher and school district leader, I have a strong understanding of schools and classrooms. I view myself in a boundary-spanning role as a practitioner and researcher and provide a focus on school communities when meeting with the OH@UC leadership team. For example, I helped advise on the procedures for communicating with our school partners, selecting appropriate dates for scheduling stakeholder consultations, and offered feedback on the materials shared with school leaders and teachers.

Sylvie, Education Faculty

As the Associate Dean Research in Werklund School of Education, I was part of the initial conversation when the President (Vice President Research at the time) introduced the Cross Cutting themes at the University level. I understood quickly that Academic staff in Werklund School would have a lot to share working with other faculty members on the One Health initiative. Educational researchers work in different topics and their involvement is very important. At first, my role on this team was to help by suggesting and inviting key people in order to include all voices necessary for the success of this initiative. I am also able to suggest any grants or partners that we might need in the future. My personal interest grew while working with the team because,

personally, I think that One Health’s goals are what all educators are trying to achieve: making the world better for future generations.

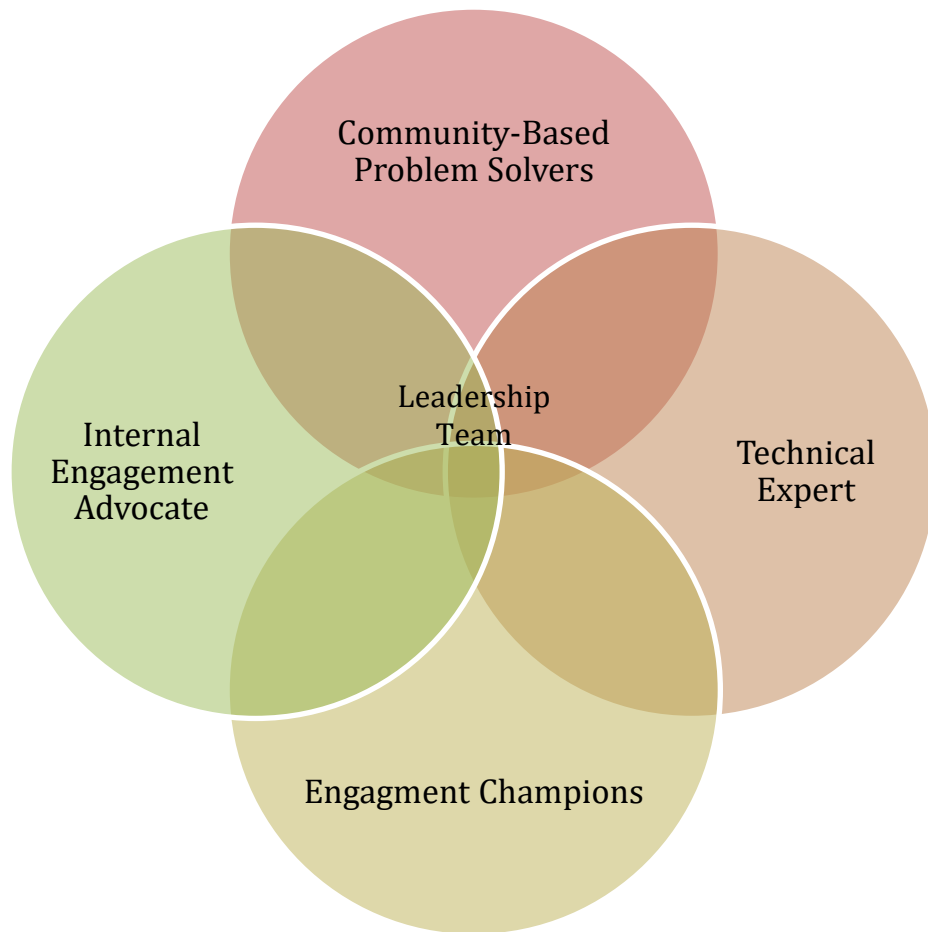
Through our reflections, dialogue, and collective analysis, we found it useful to use the boundary-spanning descriptions (Weerts-Sandmann Boundary Spanning Model, 2010) to help describe our roles. Table 2 summarizes the different roles and the names of the team members who situated themselves in these roles either through their reflections or through our OH@UC leadership team dialogue.

Table 2:
Boundary-Spanning Roles

Role	Team Members
Community-based Problem Solvers	Alyse, Jennifer, Michele
Technical Expert	Michele, Jennifer, Barbara, Sylvie
Engagement Champions	Barbara, Sylvie
Internal Engagement Advocate	MacKinley, Alyse

As we reviewed our reflections and discussed the roles, we noted that combining our diverse expertise and boundary-spanning roles provided the foundation for forming our leadership team. In other words, this model helped us collectively understand our individual and collaborative efforts that contributed to forming a leadership team. We noted the unique contributions that each person offered to our leadership team, as well as the overlap among the roles of our team members as shown in Figure 1.

Figure 1:
Leadership Team's Boundary-Spanning Roles



As a team, we also reflected and engaged in dialogue about our challenges. Next, we interweave insights about our collaboration and leadership roles and discuss our challenges.

Challenges

While it is desirable in many fields for practitioners to develop skills in leadership, collaboration, and an appreciation for examining problems from different perspectives, these skills need to be taught and fostered across diverse groups. For Michele, she came to this work not sure how to move the OH@UC transdisciplinary skill building across the boundaries and saw the need to form a boundary-spanning team to help lead the partnership work with teachers in K-12 schools. Looking in, questions one might ask are: What choices do you make when building a team? How do you choose who to invite? Who facilitates the formation of such groups? What support does

the group need? And, who leads the group? Through the KE team's matchmaking support and Sylvie and Barb's work to bring together the needed people representing diverse perspectives and skill sets from Werklund, our group was formed. Initially it can be daunting to take on a new role in a new organization and team. This is amplified when the work is part of a pilot project where the future of the initiative (and its funding) is uncertain. Alyse was conscious of making meaningful connections, without duplicating efforts, undermining work already started, or stepping on any toes. Having a shared goal or purpose is key to gaining the interest of potential team members, especially when they each have competing commitments and responsibilities vying for their time. Fortunately, members of the group were also interested in supporting K-12 school engagement, creating meaningful impact, and fostering respectful relationships with community partners.

Discussion

Using the four-part boundary-spanning model framework (Weerts & Sandmann, 2010; Weerts, 2019) as a lens to reflect on our leadership roles individually and collectively helped us recognize how we formed the leadership team and had overlapping roles: (a) community-based problem solver, (b) technical expert, (c) engagement champion, and (d) internal engagement advocate. Through analyzing our reflections and engaging in dialogue as a team, we recognized that combining our diverse expertise and boundary-spanning roles helped us with forming a team to embark on work that will eventually lead to community engagement activities and developing high quality educational resources with potential to impact learning experiences for K-12 students. Shifting away from the discussion of "leaders" and actions of individuals or university departments to "leadership" and interdependent actions, we also recognized our boundary-spanning team exhibited characteristics of Complexity Leadership Theory, such as adaptive leadership, administrative leadership and enabling leadership activities (Uhl-Bien et al., 2007).

Adaptive Leadership

Critical to the success of this collaboration was the ongoing involvement and interaction of multiple members from the University of Calgary's KE team and faculty from the Werklund School of Education working collaboratively with the manager from One Health. The key difference in the work of this team in comparison to other methods of "matchmaking" or sparking collaboration among different departments is the deliberate nature of their work. Having a

dedicated matchmaker on staff in a department, such as the KE team, gives someone the clear mandate to take the initiative on making introductions and connections with a clear purpose. However, this did not minimize the need for dynamic interactions and the ability to adapt to changes. Turnover for transdisciplinary and partnership work is common particularly for longitudinal projects and can cause disequilibrium among a leadership team (Brown, 2021). When new people joined the team, the history of the group was shared—from its inception to its shared vision. Our reflections and dialogue have become an important resource to support the ongoing work of the leadership team. For example, the recent addition of a student assistant researcher to the team has highlighted the ways that the team shared the organizational memory and vision, while welcoming new perspectives and approaches to the work. The group has adapted and evolved over time to include greater diversity as needed, while maintaining core beliefs and values in transdisciplinary, community-engagement, and education. Team members in boundary-spanning roles, by nature, embrace the learning that comes from having diversity and redundancy within the team to foster adaptive leadership.

Administrative Leadership

All of the members of the leadership team held roles with a specified focus and tasks due their administrative roles. However, the nature of their roles was different and the extent of decision-making power at the organizational level also differed. The KE team, for instance, held formal roles at the organizational level connected to the implementation of matchmaking activities across faculties in the institution. The Werklund School of Education team provided administrative leadership for Partner Research Schools and Communities and helped with formalizing partnerships with K-12 schools in addition to an Indigenous lens. Michele, the One Health manager was in a formal administrative role responsible for strategic planning, resources, implementation, and administration of the One Health activities. Although many of the members of the team held formal leadership roles responsible for implementation and administration of activities, the group discussed and made decisions collectively. One decision could simultaneously benefit one department and at the same time negatively impact another department (Uhl Bien et al., 2007). We recognized the value of having members in boundary-spanning roles provide their input and unique perspectives when making administrative decisions. For example, the leadership team discussed when to reach out to K-12 schools and invite teachers to a session to learn more about the One Health group. Even though the timing seemed suitable for some members of the organizing group,

we recognized other members in the group as well as the educators in schools might not be able to attend due to the increased pressures during the COVID-19 pandemic. As a result, we postponed our invitation to a later date. The unique expertise and perspectives shared by the boundary-spanning team helped the team make thoughtful administrative decisions.

Enabling Leadership Activities

Fostering interaction, interdependency, and injecting adaptive tension contribute to enabling leadership activities (Uhl-Bien et al., 2007). The leadership team self-organized and each member of the group had autonomy to determine if they wanted to be involved and the extent of their involvement and interaction among the group. The group remained connected with a shared commitment to yield innovative educational resources that address complex scientific and social challenges. At times different members of the group stepped forward to take lead on different activities. This required an adaptability among the group to adjust to the different ways each member of the team works and leads the work. Michele reflected that her original vision for the project had little resemblance to the shared vision that evolved through working with a leadership team. Initially, the vision was to develop worksheets that would be shared with teachers through a website. The newly formed vision was built on relationships and a commitment to understanding and integrating multiple perspectives from across disciplines and sectors. Instead of worksheets, teachers and students could be guided through a learning experience using essential questions to drive the inquiry, such as “Why is water worth protecting?” As noted by Weerts and Sandmann (2010) in their conceptualization of the boundary-spanning roles, is that the categories are fluid and dynamic and members “do not occupy blunt categories: rather, spanners may lean toward one direction or another” (p. 650). Furthermore, boundary-spanning “is not confined to an individual job description; rather it refers to the broader institutional strategies to engage with external partners” (p. 638). It was this broader goal of engagement with K-12 external partners that first brought our leadership team together and continued to enable the development of a stronger vision for community engagement in One Health activities.

Recommendations

We offer the following recommendations to other boundary-spanning teams for knowledge and community engagement activities:

- At large and dispersed institutions, creating collaborations between departments can break down silos. Boundary-spanning roles involving “matchmaking” can be useful to establish transdisciplinary leadership teams. Start local and when possible, ask people in your own organization to make introductions for you.
- Devote extra time to relationship building for the team and reflecting with members of the team. This information can be helpful for onboarding new members or as members transition to different positions.
- A shared leadership structure and commitment to collaboration developed from the early days of the project can help support shared and sustained interest in the project. Collaboration is an investment in both time and a commitment to continually strengthen the work. Different and unique expertise, perspectives, and members with boundary-spanning roles and a range of experiences can benefit the team and enable leadership activities.

Conclusion

The leadership team is committed to combining diverse expertise to address complex scientific and social challenges. Werklund School of Education leadership team and scholars are experienced in transdisciplinary teamwork in different disciplines and their continuous work with Partner Schools and Communities engagement. This approach for breaking down silos and working together in boundary-spanning roles using a complexity paradigm holds promise for transforming the way we look at postsecondary disciplines and has implications beyond academic, community engagement, and leadership. As we are commencing the second year of our collaboration, the challenge will be to continue to lead the project and outreach activities with K-12 schools, and to invite new partners in dialogue about ideas of One Health where animals, people and the environment are interconnected.

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