Integrating Knowledge and Action: Learnings from an implementation program for food security and food sovereignty with First Nations communities in Canada

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Research Article

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Abstract

**Background:** Collaborative approaches to knowledge translation (KT) are important for advancing community-engaged research. However, there is a need for examples of participatory approaches that have effectively supported public health research and program development with First Nations communities. To strengthen KT with communities, we proposed a set of guiding principles for participatory planning and action for local food system change. Principles emerged from a cross-community analysis of Learning Circles: Local Healthy Food to School (LC:LHF2S) a participatory program (2015-2019) for Indigenous food system action. The objective was to identify guiding principles for participatory planning from key learnings and successes on scaling-up the Learning Circle (LC) vertically in Haida Nation, British Columbia (BC) and horizontally in three distinct community contexts: Gitxsan Nation, Hazelton /Upper Skeena, BC; Ministikwan Lake. Application of these principles is discussed in the context of our ongoing partnership with Williams Treaties First Nations to support community planning to enhance food security and sovereignty.

**Methods:** A cross-community thematic analysis was conducted and guided by an implementation science framework, Foster-Fishman and Watson's (2012) ABLe Change Framework, to identify key learnings and successes from adapting the LC approach. Information gathered from community interviews (n=52), meeting summaries (n=44) and tracking sheets (n=39) was thematically analyzed to inform development of guiding principles. Community sense making of findings informed applicability in a new community context embarking on food systems work.

**Results:** Emergent guiding principles for participatory food system planning and action included: (1) Create safe and ethical spaces for dialogue by establishing trust and commitment from the ground up; (2) Understand context for change through community engagement; (3) Foster relationships to strengthen and sustain impact; and (4) Reflect and embrace program flexibility to integrate learnings.

**Conclusions:** Emergent principles offer guidance to supporting Indigenous community-led research and mobilization of knowledge into action. Principles are intended to support researchers and health system administrators with taking a collaborative approach that fosters relationships and integration of community leadership, knowledge, and action for food system change. Application of principles with implementation frameworks can strengthen KT in Indigenous contexts by incorporating community-protocols and perspectives in support of Indigenous self-determined priorities.

**Contributions To The Literature Include**

- The paper responds to growing interests in relational approaches to implementation at a community-level and calls made for Indigenous leadership in forging solutions and decision-making in program planning.
- Research findings advance participatory approaches to engage knowledge users in the process and application within Indigenous contexts. Further, we highlight synergies between participatory
research and implementation science, as well as opportunities to enhance multi-stakeholder partnerships.

- Application of emergent principles offer ways to strengthen collaboration and research partnerships with communities. Insights into supporting Indigenous-led efforts in program planning including KT in Indigenous contexts is another contribution of the work.

**Background**

Participatory processes that can enable effective knowledge translation (KT) have increasingly been recognized as fundamental to initiatives intended to promote health equity and Indigenous peoples’ self-determination in Canada [1-4]. As KT is an integral part of planning and implementation of programs and services, the broader research community plays an important role in generating knowledge and informing opportunities for application within practice [5-7]. The overall goal of KT or the “knowledge to action” process is to bridge the research-to-practice gap [5,8]. KT has been described as a “dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products, and strengthen the health care system” [9]. Within Indigenous health research contexts in Canada, KT is “Indigenously-led sharing of culturally relevant and useful health information and practices to improve Indigenous health status, policy, services and programs” [10, p.24-25].

Implementation science* models, frameworks, and theories have offered supports for advancing KT efforts, including opportunities to plan for sustainability and scale-up† of promising practices [7, 12, 14]. While interest in implementation science methods has grown [7, 15], its application within Indigenous contexts requires additional considerations to integrate Indigenous perspectives to inform KT practices [1, 16]. Use of decolonizing processes such as Indigenous methods and community-based participatory research (CBPR) approaches, for example, have proved to be promising in supporting both equitable engagement with all partners in the research process and community-led actions in knowledge generation and dissemination [1, 17-20]. However, there has been limited documentation and guidance on use of participatory approaches to enable community actions to drive change efforts of community-identified food-health related priorities. Further, while the literature on KT, including ways to engage knowledge users in the process, has advanced [8], there remains growing interest in continuing to improve collaborative approaches to support community-led actions [1,2, 18, 16].

In this paper, we offer guiding principles to facilitate participatory planning and action for local food system change derived from implementation learnings of the Learning Circles: Local Healthy Food to School (LC:LHF2S) initiative in four diverse First Nations community contexts [21-23]. The LC:LHF2S initiative utilized a participatory model ‘Learning Circles’ (LC) to enhance local and traditional healthy food access, knowledge and skills among four partnering First Nations contexts in Canada over 2015-2019: Haida Nation, Haida Gwaii, British Columbia (BC); Gitxsan Nation, Hazelton /Upper Skeena, BC; Ministikwan Lake Cree Nation, Saskatchewan; and Black River First Nation, Manitoba [21-23].
The LC convened a range of Indigenous and non-Indigenous food system actors and leaders, including Elders, traditional food harvesters (e.g., hunters, fishers, gatherers), farmers, food processors, students, parents and those who work in public health and education. Through community-led LC workshops, participants were involved in a collaborative process to create a vision for food system change, brainstorm and prioritize community needs, and participate in decision-making processes for project development and implementation. Further, the LC process offered the opportunity to adapt planning and monitor project activities. As such, learnings from the process of implementing the LC approach and how it supported integration of Indigenous knowledge and perspectives to drive actions are described.

We previously applied an implementation science framework, Foster-Fishman & Watson’s (2012) ABLe Change [24], to evaluate the process of scale-up of LC across four diverse contexts [25]. We now offer a set of guiding principles‡ based on learnings from LC:LHF2S to support a participatory, decolonizing approach that integrates Indigenous knowledges and leadership in program action. The objective of the current paper is to identify guiding principles derived from a thematic analysis of the learnings on scaling-up LC in four distinct community contexts. Considerations for how emergent principles foster synergies between CBPR and implementation frameworks are discussed. In addition, we offer reflections for how principles identified can be applied in scaling-up LC in other communities to plan and mobilize actions to strengthen local food security. This knowledge is discussed in the context of our ongoing partnership with Williams Treaties First Nations (Ontario, Canada) to support their planning and actions to advance food security and sovereignty [27].

Findings are intended to support researchers and those occupying positions in the health system (e.g., funders, decision-makers and non-governmental organizations) with strengthening partnerships with Indigenous communities and with taking a collaborative approach to integrating knowledge and action for food system changes. This can enable culturally meaningful responses in services, programs and policies aimed at supporting Indigenous health. While efforts are being undertaken to identify promising practices for Indigenous KT [1], this paper draws attention to how participatory approaches can be used to integrate Indigenous leadership, methods and protocols for knowledge generation and application within Indigenous contexts. Findings support broader calls made for implementation efforts aimed at promoting health equity to be guided by collaborative strategies that can support sustainability, cultural safety, and effective transfer of knowledge into practice [1,14, 16, 17, 28].

*Implementation science emerged as a field to bridge the research-to-practice gap and facilitate the spread of evidence-based practices [7]. Implementation research is the “scientific study of methods to promote the systematic uptake of clinical research findings and other evidence-based practices into routine practice and, hence, to improve the quality and effectiveness of health care” [11, pg.1].
†Scale-up has been described as efforts to expand the impact of an evaluated intervention. Horizontal scale-up includes replication in other settings; while vertical scale-up includes efforts to support institutionalization [12, 13].
‡Principles were defined as “a fundamental truth or proposition that serves as the foundation for a system of belief or behaviour or for a chain of reasoning” [26].
Methods

LC:LHF2S & Advisory Structure:

The LC:LHF2S initiative was developed to support communities with strengthening capacity to enhance local and traditional healthy food access, knowledge and skills among youth in community. The program was initially adapted for First Nations contexts in Haida Gwaii, British Columbia, based on the US Farm to School ‘Learning Labs’ [29] model as supported through Farm to Cafeteria Canada [29-31]. The ‘Learning Circle’, as it became known, used a participatory approach to bring together diverse stakeholders to plan and implement local and traditional school community food actions. Based on promising results in Haida Gwaii (2014-2015) [29-31], the LC model was scaled-up, over a three-year period (2016-2019) across four First Nations contexts within Canada: Haida Nation, Haida Gwaii, BC; Gitxsan Nation, Hazelton /Upper Skeena, BC; Ministikwan Lake Cree Nation, SK; and Black River First Nation, Manitoba MB. Scale-up in Haida Gwaii focused on increasing community leadership from the people of Haida Nation to support ongoing work in the community. Scale-up in three other community contexts focused on adapting the LC process to best meet the needs of each community. The communities were joined by a shared interest in enhancing local, healthy traditional food and food skills for youth, however, the food-related actions taken were specific to each community’s capacity and cultural and social context.

The work and partnerships established under the LC:LHF2S were guided by two advisory groups: Local LC Councils and a Project Stakeholder Advisory Council. The LC council in each community was responsible for hiring and supporting a LC facilitator and included representation by community leaders and partner organizations. The LC facilitator was either a community member or ally with strong connections to local food systems and school(s), that led planning with community members, workshop facilitation, communications and evaluation activities. The Project Stakeholder Advisory Council was responsible for managing the community-based participatory action research across communities and overseeing decisions on knowledge exchange activities. Members consisted of representatives from each community, including the LC facilitator, the University research team and partnering organizations (e.g., representation from Heart and Stroke Foundation and the partner in engagement and knowledge exchange [PEKE] identified through the funder [CIHR]). Ethics approval to pursue evaluation activities was obtained from the University Office of Research Ethics (ORE# 30819). The First Nations principles of Ownership, Control, Access and Possession [32] were applied in addition to specific protocols identified by the partnering community. For example, in Haida Gwaii, British Columbia a Spirit of Collaboration Agreement (Isda ad dii gii isda (S)- Isdaa 'sgyaan diiga isdii (M)) was established with the Haida Foods Committee to support collaborative leadership and decision making on use and application of project findings.

Implementation Framework to Guide Analysis:
An implementation science framework, Foster-Fishman & Watson’s ABLe Change Framework (2012), was used to guide an analysis of learnings from LC within and across the four contexts [24]. We now apply the strategic and conceptual elements of ABLe Change to inform development of guiding principles that can support a participatory approach to planning and implementation that promotes Indigenous values, perspectives and priorities for action. Specifically, the model addresses both components for understanding system change and components in local environments that facilitate readiness and capacity for change.

We selected ABLe Change given its emphasis on a strong relational and flexible approach which is important for community-based participatory research. In addition, the iterative, dynamic components built into ABLe Change, along with the emphasis on local engagement, was recognized to be relevant to work with Indigenous communities which requires relation-based approaches [33,34].

The implementation science framework guided analysis of the LC process across the four First Nation contexts with the expectation that key themes and emergent principles identified would support implementation within other Indigenous contexts. While we recognize there are Indigenous specific frameworks such as the First Nations Mental Wellness Continuum Framework and others based on the medicine wheel, these have been used specifically within Indigenous contexts to evaluate outcomes of health services or indicators of health and wellbeing, but not for implementation planning for food system change [35]. As such, the implementation framework used was fitting for identifying key learnings with respect to the preparing for implementation within Indigenous contexts. Emergent principles offer key considerations to strengthen a collaborative process for program or project planning and implementation efforts and respond to calls made for greater Indigenous leadership in research, program design, and evaluation processes [36].

**Thematic analysis:**

Data were collected from a range of sources including interviews, LC reports, meeting minutes, annual reports, and tracking sheets (Table 1). A qualitative convenience sample of participants from Annual Gatherings (n=8 per year; n= 16 attendees) was purposively sampled to provide a breadth of community members, learning circle facilitators, partners and research team members and community-led interviews of community participants in two communities [23].

Interview transcripts were coded deductively and thematically analysed according to the adapted version of the ABLe Change Framework using Nvivo software version 12 Pro (QSR International). Utilizing a structured phased-approach as outlined by Braun and Clarke (2012), data were thematically analyzed across all communities [37-39]. Themes arising from the coded data were organized inductively according to guiding principles for planning and implementing participatory projects with Indigenous communities. Principles and key considerations were identified to facilitate a collaborative process to understand context for change within the community that draws on the strengths, knowledge and values of community members (Table 2). Similarly, another element of the ABLe Change framework is focused on building a supportive environment for implementation.
Members of the team (AD, RH, JY, KS, KAC) critically reviewed and reflected on emergent themes. Indigenous voices were centred throughout community engagements as facilitated by the LC, and project team members reviewed analysis and interpretation of data collected to ensure representation of Indigenous voices. From the emergent principles, we worked with co-author and collaborator from WTFN to consider how communities entering into the process of food system change [27] might translate these principles based on the learnings from LC:LHF2S implementation to questions to support participatory planning and action.

[Table 1 - uploaded as a separate document]

**Results**

Four principles emerged from a cross-community analysis of the LC:LHF2S program processes and outcomes. These principles, support community-based participatory planning and implementation within First Nations contexts (Figure 1, Table 2). Each principle is described below and supporting illustrative quotes are presented in Table 2. In addition, Table 3 incorporates a set of questions that can be used by communities and those working with them to support application of the principles in participatory planning and action.

**Principle 1: Create safe and ethical spaces for dialogue by establishing trust and commitment from the ground up**

The process of co-developing an initiative with First Nation community members can be supported by establishing trust and commitment from all partners involved including community members and organizations (Indigenous and non-Indigenous). This was emphasized by participants as an important consideration to creating safe space for dialogue among a broad range of people that bring diverse perspectives and experiences. Key considerations to support principle 1 are outlined below as informed by community members.

“I think that any project with First Nations you know is contingent, is having relationships with those nations, and those relationships are strengthened through the practical integration of those OCAP principles. Especially when it comes to research projects in particular.” [Learning circle participant 19]

[Figure 1. uploaded as a separate document]

1.1 **Recognize and respect community governance, leadership and protocols:** This awareness can support collaboration to create safe and ethical spaces for engagement and dialogue in decision making processes. For example, engaging with a trusted member of the community (e.g., Elder, knowledge holder, community champion) as well as a member of the community’s band or tribal council could help to identify specific guidelines to consider with respect to land use and management practices, engagement with broad members of the community, information sharing and use, and well as other mechanisms to establish a formal partnership with people or organizations outside of the community.
Building this initial awareness of governance, leadership and protocols can foster better ways of working with communities.

“[LCF] feels that we are transitioning into a more collaboration with the [First Nation community] and there is a need to develop a better understanding of how we will work together with other partners in this project; protocol rather than agreement” [Learning circle facilitator 1]

1.2 Establish project advisory structures to guide and champion community-driven actions, leadership and partnerships: This process can be facilitated by identifying key people who have deep knowledge of community priorities and who have a strong influence in how decisions are made. Identifying who can inform and provide guidance throughout a project can also support fostering trust and commitment from community leadership and drive project activities as informed by community. For example, each community had established advisory structures to help ensure project scope, objectives and activities were reflective of community values. Some communities also felt that having a committee involved helped to ensure ethical engagement and integration of community leadership in strategic planning.

Principle 2: Understand context for change through community engagement

Working within the LC process to support project planning and implementation, it was clear that enhancing a community’s level of readiness and capacity for change required a deep understanding of community context. Doing so can enable impactful change efforts that are responsive to community priorities, preferences and Indigenous worldviews.

2.1 Build a shared understanding of values, priorities and opportunities: This was critical to understanding what changes communities would like to see with respect to their local food systems. LC provided a process to facilitate community engagement and brainstorming of current challenges, strengths and key people to engage in project planning. This process helped to build awareness and understanding of community identified priorities which enabled communities to see themselves in programs and services. Within the context of LHF2S, this meant convening a range of people to facilitate multi-sector collaboration to identify what gaps exists, what supports and programs are available or are needed, and opportunities for change within the local food system.

“So learning how to enjoy foods in a way that’s accessible I think is part of it. How do you make healthy food attractive and delicious and I think that’s a skillset that some, um, many people have lost. And so even in the learning circle there was a cool opportunity to share some of that knowledge back and forth. Where it was like ideas about “oh this is how you can get kids to eat this”. [Learning circle participant 23]

[Table 2. Learnings from scaling up LC as a participatory approach for action planning in four First Nations contexts: Principles to support community-based action planning and implementation uploaded as a separate document]
2.2 Work within a community’s social, political and historical context: This meant reflecting on the ongoing impacts of colonization and how it has shaped present day challenges within the community. In all communities, people shared the importance of understanding and recognizing the link between colonization and land use practices for food, including farming and loss of land. Indigenous community members identified that racism within off-reserve school communities can be a barrier to the participation of Indigenous people in school-based initiatives to promote food security and food sovereignty. Taking the time to engage deeply with community members to understand and work within the specific context of a community can help to ensure programs developed and delivered are grounded in community values.

“It’s about exploring voice and oppression, and how are all sort of, most of our – our ways of being and working in this world is, it’s a – it’s a racialized world, it’s a racialized structure, and that is kind of ingrained and embedded throughout everything. Even here in the [community] where our population is 85 to 90 percent Indigenous.” [Learning circle participant 11]

2.3 Identify and build on community supports: An awareness of community strengths can help to accelerate project planning and action by identifying opportunities to build and expand existing work taking place or where relevant to expand a project to reach more people within the community. For example, one community adopted a wellness model to guide planning efforts and conversations with community members as a way to ensure projects were reflective of community values and perspectives. In addition, understanding what supports exist can help facilitate discussion on what other programs are needed including the resources and people required to inform program development.

“there was some work between the [wellness committee] hereditary chiefs. Then the learning circle got involved to help the school apply for some funding and stuff like that….he gave me this model about how this community is approaching food security and how it’s not just based in the school, but based in the school and health, and fisheries and all these other pieces that are going on in their community and how for them it can’t just be based in the school otherwise there is nothing to support it. So that was a really good perspective.” [Learning circle facilitator 5]

Principle 3: Foster relationships to strengthen and sustain impact

Relationships are fundamental to Indigenous ways of knowing and working. Having strong relationships within and outside of the community can help to identify opportunities for partnerships, collective actions and ways to maintain activities to maximize impact as shared by one LC facilitator:

“Connecting with other partners and sharing information, and – and just being able to access additional resources, whether they’re financial or otherwise, I feel like we can – we can do that much better collectively. And with strong leadership from [Indigenous community leadership] because then there’s – there’s a great deal more trust.” [Learning circle facilitator 1]
3.1 Make connections between people, programs and processes: This can be facilitated through meetings and workshops that bring together a range of people with shared interests and distinct roles within the food system, like the LC. This can enable communities to identify synergies in work and opportunities to strengthen coordination of services.

“it’s taking lots of players and bringing them together. And then they all have their own networks and it’s a really good way to make connections in the food world, or any kind of thing that you’re working on. But it gets people out of their silos and gives an opportunity to work towards common goals.” [Learning circle facilitator 1]

3.2 Integrate Indigenous worldviews, perspectives and values: Emphasized by all communities was the importance of ensuring project activities and programs intended to serve the community were grounded within Indigenous worldviews. Where Indigenous and non-Indigenous peoples are engaged in community level conversations, this can be supported by creating space to centre Indigenous voices and perspectives in discussions and decision-making. For example, the LC process was facilitated by a trusted member by the community who would bring people from the community together to plan, share ideas, priorities and engage in decision-making on food activities. Where Indigenous leadership had a strong presence, the relevance of the LC plans and activities was enhanced.

“Making sure First Nations voice is heard. When [non-Indigenous] teachers and principals are part of the LC it may be important to find ways to make sure that voices of community members are heard; perhaps have a co-facilitator who is from the community; also break into smaller groups. In terms of using a talking piece, while there is value in listening to one person speak at a time at some points during the day, there is also a place for dynamic group discussion.” [Learning circle facilitator 4]

Principle 4: Reflect and embrace program flexibility to integrate learnings

4.1 Create space for reflection and mutual learnings: This was recognized as an important consideration to identify successes, challenges and opportunities to improve project planning and action. This can allow for learnings to be integrated that can strengthen a program and enhance its benefit to communities. Identifying key learnings can inform opportunities to scale-up efforts to relevant contexts and where changes may be required to best meet community priorities.

Recognizing the importance of sharing stories of experiences within Indigenous culture and traditions, actively shaping opportunities to reflect and identify learnings can strengthen a program to better meet the needs of those for which it is intended to serve. Utilizing approaches that are iterative and dynamic such as LC can help support this process. LC’s are designed so that actions prioritized through a previous LC are discussed and plans can be modified according to ongoing relevance and what worked well (or didn't).

“…in terms of, you know, recognizing, I think things like historical impacts on communities and things like that. Nutrition and what that means and how it can sometimes be a trigger for people in communities.
Discussion

In this paper, we propose guiding principles for participatory planning from the context of action for local food system transformation. These principles included the following: (1) Create safe and ethical spaces for dialogue by establishing trust and commitment from the ground up; (2) Understand context for change through community engagement; (3) Foster relationships to strengthen and sustain impact; and (4) Reflect and embrace program flexibility to integrate learnings. In addition, we outlined questions within each principle to support their application to facilitate participatory planning and action (Table 3). The guiding principles described are based on a cross-community analysis of LC:LHF2S, a program that was scaled up as a participatory approach for actions to strengthen local food systems. The principles are intended to support community-engaged research and implementation with and by Indigenous communities. When applied together, they support a collaborative, iterative and dynamic process for action planning that welcomes integration of Indigenous leadership, knowledge and values.

These principles have their historical roots in action research [40] and community health development [41, 42]. The term “action research” was coined by Lewin [40] who linked community engagement for social planning and action throughout the research process [40]. In addition, the work of Steuart (1969) in the field of community health development has also been recognized to have initiated considerations for evaluation and integration of research with practice. These two streams of thought have made significant contributions to informing approaches to co-productions of knowledge between communities and researchers, and application of research in practice [41, 8].

The commitment to working in partnership with communities is now widely recognized as community-based participatory research (CBPR), which has been used as an umbrella term for such approaches and is employed as a methodology for collaborative and equitable engagement with partners in the research process [43–45, 8]. While CBPR has played a significant role in implementation research, its methodology is distinct from implementation models to support KT practices [8]. As such, we briefly consider points of convergence and divergence between CBPR and implementations frameworks, to illustrate the ways in which the proposed guiding principles, when taken together, support a participatory approach to knowledge generation and action within Indigenous contexts.

CBPR has been a long-standing source of guidance on approaches that emphasize collaboration and co-production of knowledge. Principles for CBPR as offered by Isarael, Shulz, Parker, & Becker (1998) emphasize the importance of prioritizing community needs, building on existing strengths, restoring power and control, and reciprocity [45]. Their points of convergence with KT practices can be found within its emphasis of collaboration between knowledge producers and users. For example, the ABLe Change Framework (2012) used in this study encourages collaboration to understand context and opportunities to co-shape implementation [24]. Other frameworks such as knowledge to action (KTA) (2006) emphasize
a collaborative process between researchers and knowledge users [5]. The KTA cycle is frequently cited in the implementation science scholarship as a model for advancing KT by providing a conceptual overview of knowledge generation, dissemination and implementation [5, 46, 47]. While frameworks such as KTA emphasize partnerships, the goal is to improve the effectiveness of bridging the knowledge-to-practice gap. This highlights a point of divergence between approaches to KT and CBPR, specifically, its rationale for research partnerships and collaboration. Further, approaches to KT within Indigenous contexts often requires integration of decolonizing approaches to prioritize community interests, address power imbalances, and strengthen research partnerships.

Approaches to KT as supported by implementation frameworks emphasize a collaborative approach with the goal of improving the effectiveness of knowledge application or program implementation [8, 21, 44]. Contrastingly, the rationale behind the collaborative emphasis in CBPR is tied to redressing power imbalances between researchers and project participants to promote equitable partnerships. CBPR prioritizes collaborative efforts with the goal of building capacity among community participants to drive social change and justice [24; 48–50]. The principles brought forth therefore present opportunities to action synergies between CBPR and implementations frameworks.

The proposed principles offer guidance to promoting Indigenous community-driven participatory research and mobilization of knowledge to action that draw on strengths offered by implementation science and CBPR. They present opportunities to advance KT through a participatory process between communities and researchers to plan and implement community priorities for action that promote capacity building and equitable partnerships. These principles offer guidance on decolonizing research practices by promoting relationships, centring self-determination, prioritizing integration of community knowledge, and embracing reflexivity (1,3, 51–54). In addition, the proposed principles can be used in conjunction with implementation models or frameworks such as ABLe Change and the KTA cycle [5, 24] to support considerations for centring Indigenous voices in iterative planning and can strengthen collaborative action. In doing so, this could strengthen implementation within Indigenous contexts by increasing awareness of opportunities for integration of community-specific protocols, knowledge and preferences throughout the KT process.

When applied within Indigenous contexts, these principles can enable research partners to be guided by community knowledge and welcome opportunities for use of a variety of techniques and processes as relevant to the communities they are working with. This can help to prioritize community needs and ensure steps are taken to produce and mobilize knowledge into actions that are representative of community values and perspectives. As such, the relational accountability components emphasized in these principles may support broad application within research aimed at promoting health equity within Indigenous contexts.

In Canada, where food security represents a challenge for many First Nations households in rural and remote communities, protecting traditional and local food systems as a source for healthy food and holistic wellness remains imperative [55–57]. Recognizing the principles outlined in this paper derived
from a program specific to advancing food system transformation, we briefly share reflections on the potential for these principles to be applied in expanding the LC approach to drive actions on food sovereignty and food security. Use of the principles described in this study in new initiatives may help promote Indigenous rights, self-determination, values and culture. The principles outlined here can be used by those working with communities to support a process that centres community voices and perspectives to drive actions on food security.

For example, in applying principle 1. *Create safe and ethical spaces for dialogue by establishing trust and commitment from the ground-up,* in working with a community, one may ask the question “what protocols, principles and guidelines should be followed?” This could enable opportunities to honour community-specific protocols or integration of Indigenous ways of working and doing to can strengthen collaboration, trust, and relationships (e.g., two eyed-seeing; two row wampum belt; Reconciliation Pole). For example, in considering LC as a possible model to inform food system planning with Williams Treaties First Nations (WTFN), alignment with the Seven Grandfather Teachings is important. Accordingly, humility, bravery, honesty, wisdom, truth, respect and love must guide the collaboration and programs [58]. Application of the proposed four principles in this context could embrace alignment with the Seven Grandfather Teachings to strengthen meaningful engagement and promote Indigenous ways of working in project planning.

Partnering WTFN communities are currently in the process of utilizing a community developed tool to inventory strengths and assets (e.g., wild rice beds, fish, market gardens) in the community to support project planning. Findings from the tool will be used by communities to inform ways to improve access to and availability of traditional and local food within their community. As research partners working to support community-based planning, principles outlined in the current study may be applied to facilitate a decolonizing research process for mobilizing change efforts with WTFN communities. Application of guiding principles may also support an exploration of community interests in a range of approaches such as the LC to accelerate project planning and build capacity for implementation and food system transformation. Hence, LC as a model that both supports flexible adaptation in advancing access to local healthy and traditional foods, supports principles of participatory, decolonizing knowledge to action in program implementation and evaluation. The co-developed guiding questions (Table 3) may be used to support ongoing work and strengthen current processes in place to embed community leadership in planning, build on community strengths, foster strategic linkages between programs and partnerships, and engage communities in decision-making of strategies identified to drive actions on food security and food sovereignty.

**Conclusion**

Based on learnings from the LC:LHF2S program, we offer insights to facilitate participatory planning and action for Indigenous community-based food system transformation. We propose guiding principles intended to support the integration of knowledge and action in community-based research which draw on strengths from CBPR and implementation science. Application of the proposed principles in conjunction
with implementation frameworks such as ABLe Change and KTA can strengthen KT processes by promoting awareness of community-protocols and ways to centre community perspectives and values. This can enhance program responsiveness to community-identified priorities. Findings are intended to support a range of partners working with Indigenous communities in taking a decolonizing approach to centre and integrate community knowledge and experiences for local actions on food sovereignty and food security. Such an approach can facilitate responses to provide culturally relevant services, programs and policies aimed at promoting Indigenous health equity and holistic wellness.

Declarations

Ethics approval and consent to participate: The work was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained through the Office of Research Ethics at the University of Waterloo (ORE # 30819).

Consent for publication: Informed consent was obtained from all participants involved in the study.

Availability of data and materials: The data that support the findings of this study are available but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of partnering communities.

Competing interests: The authors declare that they have no competing interests

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Authors’ contributions: A.D., J.Y., K.S., K.C., and R.M.H. designed research scope; A.D., analyzed data; and A.D. and R.M.H. wrote the paper. A.D. had primary responsibility for final content. All authors have read and agreed to the published version of the manuscript.

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References


54. McIvor O. I am my subject: Blending Indigenous research methodology and autoethnography through integrity-based, spirit-based research.


58. The 7 grandfathers teachings [Internet]. Unitingthreeresagainstviolence.org [cited 2022 Jan 23]. Available from: https://unitingthreeresagainstviolence.org/the-7-grandfathers-teachin/
### Table 1: Data sources reviewed and thematically analyzed

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<th>Data Source</th>
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<td>Learning Circle Meeting Summary Reports&lt;sup&gt;a&lt;/sup&gt;</td>
<td>44</td>
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<tr>
<td>Interviews&lt;sup&gt;b&lt;/sup&gt; with LC participants</td>
<td>52</td>
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</table>

A brief description of each type of data source is described.

<sup>a</sup>Following each Learning Circle, the LCF developed a report describing key takeaways and action items from meetings. Written documentation included notes taken during conference calls between project partners, and emails, which took place and were exchanged throughout the duration of the LHF2S initiative.

<sup>b</sup>Annual interviews (four sets in total conducted between 2015 - 2018) were conducted with LCFs, community members and other key partners using a semi-structured interview script. Questions focused on the experiences of participants at the Annual Gatherings where appropriate, the goals of the Learning Circle, experiences of participants connected to the Learning Circle and associated activities (challenges, things that are working well), local foods and food systems in their respective communities, and developments in the community as a result of the Learning Circle. A cross-community gathering took place in each community with project advisory members to build relationships, share project stories, engagement experiences, and evaluation activities. The first was in Haida Gwaii B.C. in 2015 followed by gatherings in Hazelton/Upper Skeena B.C. in 2016, Ministikwan Lake S.K. in 2017, and Black River M.B. in 2018.
### Table 2. Learnings from scaling up LC: Principles to support community-based action planning and implementation

<table>
<thead>
<tr>
<th>Guiding Principle</th>
<th>Key considerations and supporting illustrative quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principle 1:</strong> Create safe and ethical spaces for dialogue by establishing trust and commitment from the ground up</td>
<td><strong>1.1 Recognize and respect community governance, leadership and protocols</strong></td>
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<tr>
<td></td>
<td>“Right to land, right to harvest, protocol, how does that work, like one of the circles I remember asking the question- you know teachers were talking about going out and picking soap berries... so then I posed the question, who do you ask to go? How do [you] get out there? Who do you have to ask and what do you have to put into place to take your class and go do that?” [Learning circle participant 11]</td>
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<td>“I think there were lots of things that did happen, like, you know, the land recognition at the beginning, and engaging an Elder. I think those pieces, you know, were done well. We did learn from that, but I think in the broadest sense, um, and maybe that's kind of an impossible expectation on my part…” [Learning circle participant 17]</td>
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<td></td>
<td>“…the importance of including teachings around protocol if we are going to include traditional foods in a school food program. Food is not just food but also medicine. Chiefs are responsible for managing territories.” [Learning circle facilitator 4]</td>
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<td></td>
<td><strong>1.2 Establish project advisory structures to guide and champion community-driven actions, leadership and partnerships</strong></td>
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<td>“So, I think it's just, um, for me personally, really reinforced, the fact that we need to do a really good job, I think, from the very outset of, of projects in really letting the community guide the process, I guess. And be part of the development and I think we think we're doing better at that, but I think we can all do so much better” [Learning circle participant 19]</td>
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<td>“communities need to be “on board” perhaps bring together an ethics committee” [Learning circle facilitator 1]</td>
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<td>“I've been familiar with the [tribal council] for a number of years now, and you know their goals are, you know definitely community benefit oriented. They have a plethora of individuals employed through the [tribal council] that help out with health, education, finance um, and they're a very large – a corporation. I think the structure mechanism of the [tribal council] is definitely appreciated.” [Learning circle facilitator 3]</td>
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| | “So that would be like one sort of helpful thing. I think um, where I have sort of learned the most in this work is working with local [community] Elders and traditional um, [community] connections –
**Guiding Principle** | **Key considerations and supporting illustrative quotes**
---|---
Principle 2: Understand context for change through community engagement | 2.1 Build a shared understanding of values, priorities and opportunities

"Food is medicine, is tied to the land, is tied to every aspect of the relations. So, you can’t measure it in terms of like its’ health unless the whole like system is changing to foster a deep, healthy vibrancy on sovereign land.” [Learning circle facilitator 4]

2.2 Work within a community’s social, political and historical context

"Acknowledge the history of appropriation of Indigenous lands for agriculture. All lands that agriculture takes place on [tradition] territory takes place on lands that were appropriated by the Canadian or BC government and reallocated or sold to agriculturalists. Furthermore, agriculture in the form that um’shu’wa use is a new introduction in [community], and is seen as more of an um’shu’wa practice.” [Learning circle facilitator 4]

And so, for some of the older generation, the connection to farming is like immediately… traumatizing and brings up these memories of this other time. And so, that is a bit of a barrier there, too because there’s like resistance to engage with it because, um, of that history…” [Learning circle participant 13]

2.3 Identify and build on community supports

"the Gitxsan Wellness Model and the relationship of lax yip (of that land, Gitxsan knowledge) and otsin (spirit) to the work of connecting young people to their wellbeing through their relationships with culture, relations, food and land. The Wellness Model encompasses a holistic worldview in which the wilp (mother and relations) and the wilksawitx (father and relations) intersect and overlap with the lax yip and the otsin.” [Learning circle facilitator 24]

"Each other, share successes and some challenges. We looked at some barriers that we needed to overcome and share, we had a workshop on traditional foods. And what’s really important to keep in mind.” [Learning circle facilitator 1]

Guiding Principle | Key considerations and supporting illustrative quotes
---|---
Principle 3: Foster relationships to strengthen and sustain impact | 3.1 Make connections between people, programs and processes

"so I think, I think what's worked really well is having some kind of core people involved right from the start” [Learning circle facilitator 5]

“when we did our community planning, parents and community members suggested we have more traditional foods and more
healthy foods. And more local people working to prepare the foods”  
[Learning circle participant 2]

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<tr>
<th>3.2 Integrate Indigenous worldviews, perspectives and values</th>
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| “there’s a fear piece about how to talk about current effects of colonialism without sending non-Indigenous people into this fear reactive, defensive place when it’s maybe something somebody hasn’t talked about. And from other work [community organization] is doing from around the work of internal reflection and dialogue that I feel non-Indigenous people need to do...I really feel like, with reconciliation, there is work that both Indigenous and non-Indigenous people need to do.” [Learning circle participant 11]

“There is still a necessity to sort of unpack, for non-indigenous people to kind of like explore those different narrative and unpack that in the sort of messiness of relationships that some of which have sort of existed between Indigenous and non-indigenous people here for hundreds of years.” [Learning circle facilitator 4]

“She’s an Elder within the community who will often come and just keep an eye on things. She used to work in the schools as a teacher for a number of years but I remember her coming in and just kind of sitting, she came in halfway, just kind of sat, watching, and you know someone said oh, “we should ask [Name] about this topic on getting kids to eat healthy” and she just said “a potato is a potato. That doesn’t really matter. Get those kids out of school and on the land. That’s what they need to learn.” [Learning circle facilitator 5]

“Recognize that self-determination is an important or central goal of reconciliation between First Nations and Canadian government. We need to work together to demonstrate that projects need to be centered around Indigenous ways of knowing and adequately support First Nations health and well-being.”[Annual gathering participant]

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<tr>
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<tr>
<td>Principle 4: Reflect and embrace program flexibility to integrate learnings</td>
<td>4.1 Create space for reflection and mutual learnings</td>
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<td>“I think what I’ve learned through this project, that the main barrier is getting everybody to come together and actually just figure out the details.” [Community participant 25]</td>
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<td>“Just to get their experiences- things that worked well, things that didn't work well when they were engaging with their students. Just to see how much other people are doing. So there is a little bit of solidarity from that to know that like other people are interested in these things and working to do more education around food in schools. So that was really encouraging. So that useful in itself to just have encouragement.” [Learning circle participant 23]</td>
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“You know, their own community supports and where their community's at in terms of being able to keep the project sustainable and continue that work, you know, once funding process is done” [LC participant 19]
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<thead>
<tr>
<th>Guiding Principles</th>
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<th>Questions to support participatory planning and action</th>
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</thead>
<tbody>
<tr>
<td><strong>Principle 1: Create safe and ethical spaces for dialogue by establishing trust and commitment from the ground up</strong></td>
<td>1.1 Recognize and respect community governance, leadership and protocols</td>
<td>How will community members be engaged?</td>
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<td>How will leadership and decision-making processes be engaged?</td>
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<td>Is a formal partnership agreement required?</td>
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<td>Is there a mechanism(s) to facilitate trust and commitment between local organizations and partners involved?</td>
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<td>What principles and guidelines should be followed?</td>
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<td>What mechanism(s) need to be in place to manage conflict?</td>
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<td></td>
<td>1.2 Establish project advisory structures to guide and champion community-driven actions, leadership and partnerships</td>
<td>How will local knowledge, values and preferences be integrated?</td>
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<td>What perspectives, knowledge and skills will be helpful?</td>
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<tr>
<td><strong>Guiding Principles</strong></td>
<td><strong>Key considerations</strong></td>
<td><strong>Questions to support participatory planning and action</strong></td>
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<tr>
<td><strong>Principle 2: Understand context for change through community engagement</strong></td>
<td>2.1 Build a shared understanding of values, priorities and opportunities</td>
<td>What areas can be strengthened within your local food system?</td>
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<tr>
<td>Guiding Principle</td>
<td>Key considerations</td>
<td>Questions to support participatory planning and action</td>
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<tr>
<td>Principle 3: Foster relationships to strengthen and sustain impact</td>
<td>3.1 Make connections between people, programs and processes</td>
<td>Who needs to be engaged?</td>
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<td>Who are key decision makers? How will they be engaged?</td>
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<tr>
<td>Guiding Principle</td>
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<tr>
<td><strong>3.2 Integrate Indigenous worldviews, perspectives and values</strong></td>
<td>Who are key actors to support on the ground activities? How will they be engaged?</td>
<td>Who will be impacted by the change? How will they be engaged?</td>
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<td>Who can support the maintenance of project activities and change efforts?</td>
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<tr>
<td><strong>Principle 4: Reflect and embrace program flexibility to integrate learnings</strong></td>
<td>What perspectives and knowledge are needed to support change efforts?</td>
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<tr>
<td><strong>4.1 Create space for reflection and mutual learnings</strong></td>
<td>How are principles and values guiding partnerships?</td>
<td>What is working well?</td>
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<td>What can be done differently?</td>
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<td>What areas can be improved?</td>
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**Figures**
Figure 1

Principles and key considerations for community-based action planning and implementation

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- StaRlchecklistKTLCLHF2S.docx