NAMING ELEPHANTS AND SITUATING DRAGONS:
APPRECIATING DESIGNERLY WAYS OF KNOWING ACROSS
ECOSYSTEMS

by

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The following individuals certify that they have read, and recommend to the College of Graduate Studies for acceptance, a thesis/dissertation entitled:

NAMING ELEPHANTS AND SITUATING DRAGONS: APPRECIATING DESIGNERLY WAYS OF KNOWING ACROSS ECOSYSTEMS

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Abstract

This intrinsic case study explores retrospective narratives with living stories of an organization’s team assigned a task requiring ecosystem leadership. Ecosystem leaders refer to centralized organizations recognized by the broader ecosystem membership as capable of addressing identified disruptions (Moore, 1996/2016). The identified disruption introduces a provincial curricular redesign of a grade 6 to 9 elective course using an inquiry-based approach to explore trades and technologies careers. The assigned task involves formulating and facilitating an organization-based resolution across the ecosystem. A resolution emerges as a result of applying Dewey’s (1910) experiential inquiry model to a problematic situation. The team adapts organization practices and integrates task-related workflows. They explore, discover, and examine the disruption as a problematic situation with other ecosystem members. The team makes sense of their individual and team experiences. Through ways of knowing, the team transfers and mobilizes new knowledge, skills, competencies, and social connections. Designerly ways of knowing illustrate the aggregation of the team’s explicit and implicit professional practices and workflows applied to model a new order across an adaptive, complex ecosystem (Cross, 1982). They accumulate extraneous factors during the formulation and confounding factors during the facilitation fostering workflow barriers. Metaphorically, naming elephants refers to how the team discovers implicit barriers from extraneous factors. Situating dragons refers to how the team identifies visible barriers from confounding factors. The research design uses a storytelling lens and an appreciative inquiry (AI) approach to gather data from the organization’s website, participant interviews, a 5D AI Cycle, and the researcher’s field notes. Synthesizing the data creates graphics illustrating the team’s journey. The findings inform the guiding question: how might a team working adjacent to a kindergarten to post-secondary education (K-20) system and with associated workplaces within an ecosystem retrospectively describe the impact on organizational learning (OL) as they generate appreciative professional stories, individually and collectively, of their daily practices and workflows after formulating and facilitating a resolution? The final chapter offers a step-back-to-step-forward process emerging from the study for researchers, teams, and organizations to consider before embarking on similar journeys.
Lay Summary

Professionals and practitioners across all walks of life participate in teams. Team members face unfamiliar situations as they work to resolve complex problems. Through these situations of designing solutions they find many ways of knowing how best to represent their organizations and serve the shared purpose of the team. Designerly ways of knowing show how the team makes sense of the new knowledge, skills, competencies, and social interactions they encounter along the way. Other workers, teams, and organizations appreciate and value the team’s results. Teams face challenges like chronic burnout unless they find ways to capture the ideas and memories. This case study illustrates, explores, and examines how a team successfully completed their assigned task of creating new practices and workflows for educators, workplace associates, partners, experts, and sponsors. Together, they formulated and facilitated an organization-based resolution preparing teachers and students in-class to participate in a collaborative learning space.
Preface

This dissertation is original, unpublished, independent work by the author, D. Carter. This dissertation is covered by UBC Ethics Certificate number H14-02081 issued by the UBC (Okanagan) Behavioral Research Ethics Board (BREB).
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Research Literature Glossary

Terms serve as a reader’s guide to choices of definitions and sources across research fields.

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<tbody>
<tr>
<td><strong>Appreciative Inquiry (AI)</strong></td>
<td>The intent of the AI approach comes from the understanding of its two-word title. <em>Appreciative</em> refers to valuing and recognizing the best work and efforts in individuals, teams, and their organizations. <em>Inquiry</em> refers to the act of exploration, discovery, and examination.</td>
<td>Cooperrider &amp; Srivastva, 1987</td>
<td>AI emphasizes collaboration and participation of multiple voices within an existing organization or community to manage change (Barrett &amp; Fry, 2005).</td>
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</table>
| **Business Ecosystem**        | A social ecosystem defined by an economic community supported by a foundation of interacting organizations and individuals – the member units defining the business world.  
The economic community produces goods and services of value to customers, who are themselves members of the ecosystem.  
The membership includes suppliers, lead producers, competitors, and other stakeholders.                                                                                                           | Moore, 1996/2016, p. 26                                                  | Within the ecosystem, two groups identified as participating in the shared purpose:  
*Investors*: member units *invested and involved* with the assigned task and *participating* in the organization-based resolution.  
*Advocators*: member units *invested and involved* with the core programming and events of the organization. Not participating in the assigned task or organization-based resolution. |                               |
<p>| <strong>Communication</strong>             | Process in which participants create and share information with one another to reach mutual understandings and order within an experience, event, or situation.                                                                                                               | Rogers, 2003, p. 5                                                        | As two or more individuals exchange information, convergence (move toward) and divergence (move apart) appear as individuals bring meaning(s) to information about certain experiences, events, situations, or understanding of order. |                               |</p>
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<tr>
<td>Competence</td>
<td>An individual’s capacity to interact effectively with its environment. … in mammals and especially [humans], with their highly plastic nervous systems, fitness to interact with an environment slowly attained through prolonged feats of learning.</td>
<td>White, 1959, p. 297</td>
<td></td>
<td>White studied personality by integrating the domains of culture, psychology and biology. He proposed that directed persistent behavior of an individual leads to prolong feats of learning and develops competence. He introduced the necessity to treat competence using a motivational aspect to differentiate it from other conceptual sources, such as drives or instincts (“R. W. White, personality psychologist, dies at 96,” 2001).</td>
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<td>Result of capacity to interact effectively with an environment … prolonged feats of learning with appropriate technologies – User Competence: the user’s potential to apply technology to its fullest possible extent so as to maximize performance of specific job tasks</td>
<td>Marcolin, Compeau, Munro, &amp; Huff, 2000, p. 38</td>
<td></td>
<td>Marcolin et al. (2000) studied the potential of User Competence, the result of effective interactions to maximize performance with technologies introduced to roles and responsibilities across an organization or system.</td>
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<td>Competencies are the result of integrative learning experiences in which knowledge, skills, and abilities interact to form learning bundles that have currency in relation to the task for which they are assembled.</td>
<td>Voorhees, 2001, p. 9</td>
<td></td>
<td>Competencies denote the individual’s adaptable capabilities of developing and learning amongst the situations presented by the team, the organization, and across the ecosystem as they complete the assigned task and their organizational roles and responsibilities.</td>
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<td>Complexity</td>
<td>The degree to which individual(s) perceive any change in a familiar situation or an environment as difficult to understand or use. The innovation becomes complex with many relevant independent parts that are interconnected and interactive.</td>
<td>Rogers, 2003, p. 16</td>
<td>Rogers’ (2003) model focus is the diffusion of innovation. Individuals perceive difficulty as a single factor (i.e., changes in knowledge, skills, competencies, social interactions) or how many connected parts come together.</td>
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<td>Confounding Factors</td>
<td>In research, called confounding variables. Sometimes called the third variable or mediator variable in a scientific method. Confounding is not a statistical nor analytic concept. It is a concept that has to do with the logic of scientific reasoning. In particular, the logic of inferring causality from observations. Confounding factors may create barriers and affect well-meaning designs, analysis, decisions, or interpretations.</td>
<td>Vandenbroucke, 2002, p. 216</td>
<td>A confounding factor or variable may exist without individuals in their assigned roles (researchers, leaders, decision-makers, team members) being aware of its existence in a situation until after an event or have little control over. When team members discover and make visible confounding factors, they <em>situate the dragons</em>.</td>
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<tr>
<td>Current</td>
<td>Current refers to successfully modelling a new order in the ecosystem in this cycle. Always an iterative process and has the potential to fail when extended too far beyond context of social messes it is intended to address.</td>
<td>Ackoff, 1974.</td>
<td></td>
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<td>Diffusion</td>
<td>Communication of an innovation through certain channels over time among the members of a social system Special type of communication as it contains the messages concerning new ideas, practices, or objects.</td>
<td>Rogers, 2003, p. 5.</td>
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<td>Ecosystem Leader</td>
<td>Over time, the member units in a social ecosystem, defined by an economic community, coevolves their capabilities and roles. They tend towards aligning themselves with the directions set by one or more central organizations, called <em>ecosystem leaders</em>. Organizations holding leadership roles change over time depending on how disruptions are identified by the ecosystem membership.</td>
<td>Moore, 1996/2016, p. 26</td>
<td></td>
<td>The value and function of an <em>ecosystem leader</em> in the economic community is enabling members to move toward shared visions while aligning investments, resources, and discover mutually supportive roles. The team responsible for the assigned task represent their organization’s <em>ecosystem leadership</em>. This role weaves its way through their current roles and responsibilities.</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Effectiveness converts individual contributions into team-based or organization-based results. Being effective is the job of knowledge workers. Effectiveness refers to a complex set of practices across eight dimensions learned and adapted while making a transition from individual contributions of knowledge, skills, competencies, and social interactions to team-based results as knowledge workers.</td>
<td>Drucker, 2001, pp. 204-205</td>
<td></td>
<td>Eight dimensions of team effectiveness (Rubin &amp; Plovnick, 1981): 1) clear, shared goals or purpose, 2) clear, shared roles/responsibilities, 3) supportive, empowering relationships, 4) clear, shared procedures, 5) nurturing, challenging leadership, 6) evolving energy and spirit, 7) productivity and performance, and 8) complete, purposeful, and uplifting communication.</td>
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| Evolutionary Stages of Business Ecosystem | Pioneering, Expansion, Authority, Renewal  
Pioneering: the ability of a team to discover ways to strive thrive on new terrain  
Expansion: increasing volume and scale AND diversifying the members that come together.  
Authority: Leadership at a level of success recognized by members of economic community  
Renewal: disruptions beyond the ecosystem causing disorder | Moore, 1996/2016 | As an economic community, the evolutionary stages blur. Regardless of how the business ecosystem is defined, subsets of ecosystems exist as turbulent social systems containing social messes.  
Pinar (2011), an educational theorist, states “no one works from a blank slate” (p. 123). |
| Experience | Although *Experience* is designated as the subject side of a meeting with the world, an individual experiences and experiments as a transactive whole, not a passive receptacle of senses and data.  
For example, Dewey’s (1925/1977) work describes the active, engaged, practical, and artistic senses of an individual while experiencing and experimenting. | Definition: Fesmire, 2015, p. 61.  
Additional Notes: Dewey, 1910. | In a chapter on *mind* in *Experience and Nature*, Dewey (1925/1977) wrote: “the foregoing discussion is both too technical and not elaborately technical enough for adequate comprehension. It may be conceived as an attempt to contribute to what has come to be called an ‘emergent’ theory of mind. But every word that we can use, organism, feeling, psycho-physical, sensation, sense, ‘emergence’ itself, is infected in the associations of old theories, whose import is opposite to that here stated” (p. 207). |
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<td>Extraneous Factors</td>
<td>In research terms, called extraneous variables. Individuals consider extraneous factors as either controlled at the time of design or uncontrollable by the individuals or team formulating a resolution or an innovation.</td>
<td>Vandenbroucke, 2002, p. 216</td>
<td>Unlike confounding factors, extraneous factors or variables are known. They may or may not be considered by the individuals or team as part of their decision-making or sensemaking. When the team recognizes and acknowledges these extraneous factors through a process, they name the elephants as part of their work.</td>
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<td>Federation</td>
<td>Canadian organization model: affiliated organizations (AO) agree to relinquish control over certain activities to the federation’s management. In return, AOs expect the federation’s management to minimize the complexity of the linkage network and reduce environment uncertainty.</td>
<td>Provan, 1983, p. 79</td>
<td>Identified by a participant during an interview, the organization in the case study is a federated model structured with a governance board. The organization team is the federation’s management.</td>
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<td>Formulate</td>
<td>Individuals in social systems conceptualize strategy and purpose by thinking of potential to overall game to find fruitful ways to play in and change with social systems. i.e., Natural scientists and cognitive scientists integrate research considering conscious choice of organisms and shared imagination of humans.</td>
<td>Moore, 1996/2016, pp. 17-18</td>
<td>Moore’s reasoning: Conditions and challenges in fast-moving global economic sectors spreading to all sectors Economic competitors – technologies, communications, media, retail, health/social care – devising fresh approaches to strategy and leadership. Propagation of first two reasons across general business landscape have dramatic and irreversible impact how business happens.</td>
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<tr>
<td>Information</td>
<td>Difference(s) between individuals where a choice exists between a set of alternatives that affects uncertainty in a situation. Think of information like books on a bookshelf you have not read. The information you have consists of their titles and whatever is on their covers or bindings.</td>
<td>Rogers, 2003, p. xx.</td>
<td>Example: Without criteria, when asked about their comfort level in a situation, some participants may consider room temperature (hot or cold); others express emotional factors (anxiety or curiosity). Several supply a judgment (good or bad). All the statements supply different information about the participants’ experiences.</td>
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<td>Innovation</td>
<td>One kind of uncertainty generated when individual or other unit of adoption perceives an idea, practice, or object as new.Probability that new idea, practice, or object is superior to previous practice is not initially known with certainty. The innovation include complexity with many relevant independent parts that are interconnected and interactive.</td>
<td>Rogers, 2003, p. xx</td>
<td></td>
<td>An innovation presents an individual, team, or organization with a new alternative(s) as well as new ways of solving problems. Individual motivation to see further information, to resolve uncertainty of innovation, and to return order, usually start as peer information exchanges</td>
</tr>
<tr>
<td>Inquiry-based approach</td>
<td>Inquiry refers to the act of exploration, discovery, and examination of an object, concept, or place. Generally, participant(s) search an unfamiliar or problematic situation for relevant information. Potential of structured, informal, guided, or independent acts of individuals involved. The acts depend on the reason for an inquiry-based approach and the participants, guidance (outcomes, questions, prompts, processes) from experts or others become part of the approach.</td>
<td>UNESCO, 2013, p. 60.</td>
<td></td>
<td>The provincial curricular redesign includes an inquiry-based approach. As an approach to learning, inquiry-based learning is considered essential for adapting to an increasingly global world. It starts with respecting the differences between each student and draws on both formal and non-formal learning, including a variety of activities to supplement the curriculum. Students learn to prepare for future changes and strive to create a better quality of life.</td>
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| Knowledge    | Knowledge, especially advanced knowledge, is specialized. By itself it produces nothing. Knowledge occurs when an individual learns of an innovation’s existence and gains additional understanding of how it functions.                                                                                                                                                                                                                                                                                  | Drucker, 2001, p. 5.  
Rogers, 2003, p. | Think of knowledge like books on your bookshelf that you have read and remember their contents without opening the book. Continuum: Endpoint: instilled, ingrained, and used daily, you never replace; deep learning, advanced knowledge Endpoint: layers of dust; assorted factors, not often used, no motivation to throw them away. |
<p>| Learning Worker | Workers having the learning skills. As they go, they adapt their skill sets and knowledge domains, and apply their learning to new situations and issues effectively.                                                                                                                                                                                                                                                                                                                                                     | Morgan, 2014                                                                                                                                                                                                                                     | Individually: Learning workers apply their learning skills to make sense of unfamiliar situations through UNESCO’s four pillars of education: Learning to do; Learning to be; Learning to know; Learning to live together Collectively as a team: Socially construction results of individual learning with team through filter processes. |
| Knowledge Worker | Intelligence, imagination and knowledge are essential resources for knowledge workers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Drucker, 2001, p. 191-192 | Individually: Every team member illustrates Shulman’s (2005) habits of hands, hearts, and heads through personal practices addressing roles and responsibilities. Collectively: Participatory Development with team and ecosystem converts personal practices to team practice applying Rubin &amp; Plovnick’s (1981) eight Dimensions of Effective Teams. |</p>
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<tr>
<td>Landscape of Professional Practices</td>
<td>Developed by social learning theorists and practitioners, a model of practice-based social learning recognizing the diversity of workflows and practices adjacent to a social system. Maintaining engagement in complex workplace contexts involves teams and communities, leaders and organizers might be involved a dual process of social learning - the notion of a network of communities of practices involved: practicing the occupation, research, teaching, management, regulation, associations, and many other relevant dimensions.</td>
<td>Wenger-Trayner Fenton-O’Creevy, Hutchinson, Kubiak, &amp; Wenger-Trayner, 2014, p. 14</td>
<td>Individuals and organizations identify with their histories, knowledge, skills, competence, and social connections.</td>
<td>A landscape of professional practices illustrates the dynamics of social connections arising, disappearing, evolving, merging, splitting, competing with, or complementing each other, ignoring or engaging in social system of the ecosystem.</td>
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<td><strong>Narrative</strong></td>
<td>A single, simplified, linear-structure form of storytelling with beginning, middle, and end with six elements: plot, characters, theme, dialogue, rhythm, and spectacle. Narratives abstract and generalize experiences and gloss over individualized everyday living story (LS) experiences</td>
<td>Boje, 2014, p. 349.</td>
<td>Sometimes called BME Narrative</td>
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| **Pragmatic**        | Dewey’s theory of truth.                                                                                                           | Fesmire, 2015, p. 105 |                  | Dewey’s theory of truth debated with two Theories of Truth:  
Correspondence Theory (Russell, 1905/1994)  
Mathematically underpinned description of mind-independent reality.  
Coherence Theory (Quine & Ullian, 1970) The assertion (sentences, beliefs, propositions) agrees with a specified set of other propositions. The set forms a coherent set or several variations of themes. |
Dewey recognized as the chief twentieth-century exponent of pragmatic theory that truths are those transactive understandings we can trustingly act upon. We call an assertion or theory true at least in large measure because it leads to reliable predictions and for the time being resolves problematic situations. |                      |                  |                                                                  |
| **Problematic**      | Something recognized as questionable in the situation. Encompasses “features that are designated by such adjectives as confusing, perplexing, disturbed, unsettled, indecisive; and by nouns as jars, hitches, breaks, blocks.”  
The disorder or difficulty is “spread throughout the entire situation, infecting it as a whole” (Dewey, The Later Works, Volume 16, p. 282). | Fesmire, 2015, pp. 86-87 |                  | Problematic features interrupt forward motion and deflect plans and tasks into an inquiry.  
Problematic situations destabilize, engage, intensify, and stimulate deliberate readjustments to meet the surprises of a “world resetting” (McGoff, 2012, Introduction, para. 1). |
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<tr>
<td>Resilience</td>
<td>When pertaining to teams: Team’s capacity for positive adaptation refers to a collective potential to change to meet the demands of a problematic situation. Psycho-social process where positive adaptation occurs gradually and often with shifts in knowledge, skill, competence, and social connections.</td>
<td>Bowers, Kreutzer, Cannon-Bowers, &amp; Lamb, 2017</td>
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<td>Resolution</td>
<td>A product of applying Dewey’s inquiry model to a problematic situation through a cognitive presence and process (i.e., critical thinking, design thinking) with reflective phases. The method of inquiry is based upon experience. It emerges through practice and shapes practice.</td>
<td>Dewey, 1910. Garrison, Anderson, &amp; Archer, 2000, pp. 98-101.</td>
<td>Closes a problematic situation for a defined amount of time to create a unified or resolved situation. A second product of the practical inquiry model is knowledge as the team applies the resolution to the situation.</td>
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<td><strong>Skill</strong></td>
<td>Ability and capacity acquired through deliberate, systematic, and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas (cognitive skills), things (technical skills), and people (interpersonal skills).</td>
<td>Gini-Newman &amp; Case, 2015, pp. 21-23</td>
<td>Rote practice (Drill – Dewey, 1910): prescriptions students follow verbatim</td>
<td>Thoughtful repetition (Intelligence plays a part in skill acquisition – Dewey, 1910): a platform from which students include exploration of variations and options; imagining possibilities; observing effects of trial and error; and making further adjustments as required</td>
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<tr>
<td><strong>Systemic</strong></td>
<td>Interdisciplinary studies of systems. A system is a cohesive map of elements that are interrelated and interdependent; create either in nature or man-made. A system bounded spatially, temporally or both; refers to as open or closed system; surrounded and influenced by another system or environment, described by its structure, purpose or nature; expressed in its functioning.</td>
<td>Bertalanffy, L. (1955).</td>
<td>Bertalanffy’s General Systems Theory: considered a more holistic and humanistic approach to knowledge and practice. Three categories of systems thinking: technology, science, philosophy. <em>Ways of knowing, narratives, living stories, or emergent stories</em> refer to system thinking categories as synthesis, not analysis.</td>
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<tr>
<td><strong>Team</strong></td>
<td>A group of individuals who work interdependently to accomplish a goal with recognized authority to act independently (term sometimes used, empowered) Individuals work on a variety of teams – long term (organizational team) or short-term (ad hoc or special) project team.</td>
<td>Levi, 2017</td>
<td>During storytelling, complexity and uncertainty happen when team’s modifiers missing, modifiers replaced by an indefinite article (a team or the team) or possessive pronouns, such as our team or my team. Participants: member of a team with goal: formulate and facilitate resolution</td>
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<tr>
<td>Uncertainty</td>
<td>The degree to which various alternatives considered with respect to the occurrence of an event and the relative probabilities of these alternatives</td>
<td>Rogers, 2003, p. xx</td>
<td></td>
<td>When uncertainty becomes apparent to individual, it is an uncomfortable state and motivates individuals to seek information or potentially leave situation.</td>
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<tr>
<td>Unfamiliar Situation</td>
<td>When introduced to new social interactions, individuals unconsciously mimic postures, mannerisms, gestures, and words to gain acceptance. This unconscious mimicry serves as a signal of social competence that inaugurates trust and is consistent with good citizenry. As trust and citizenry grows, members in the situation begin to respond with familiar actions than the imitative behavior. When the situation is unfamiliar to everyone involved, conventional collaboration or mimicry does not find the order required to move forward. A willingness to try out new behaviors and actions. By acting with curiosity, openness, and reflection the members observe the impact of behaviors and actions.</td>
<td>Churchland, 2011, p. 411</td>
<td>Kahane, 2017, p. 54</td>
<td>Two team outcomes of fostering trust, citizenry, and order in unfamiliar situations across the ecosystem are social cohesion and collaboration. Unfamiliar situations contain problematic features that interrupt forward motion and deflect plans and tasks into an inquiry.</td>
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Intrinsic Case Study Glossary

Terms situated in the study.

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<tr>
<th>Term</th>
<th>Source from</th>
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<th>Notes</th>
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<tbody>
<tr>
<td><strong>Assigned Task</strong></td>
<td>Research Data Sources: Website and Participant Data</td>
<td>Task assigned from: Advisory Board (governance board) Advisory Board accepts request from members of the ecosystem. Advisory Board bounds and directs the team.</td>
<td>Task assigned to: Team while completing their daily job functions Team adapts their organizational roles and responsibilities to address unfamiliar situations of assigned task. Formulation: Four cycles – design, develop, prototype, evaluate Facilitation: Completed with Investors category of ecosystem Blueprints for future: Using current organization-based resolution finding mutually supportive roles 1. On-wheels to travel to rural communities 2. Regional Skills Towns Next Organizational Cycle (after study): Advisory Board adds assigned task into Organization Cycle of Programming and Events Scheduling until member of ecosystem ready to move forward with future resolutions.</td>
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<tr>
<td>Current Organization-based Resolution</td>
<td>Website and Participant Data:</td>
<td>a distributed learning model including an in-class design challenge process for teachers and students in preparation for a collaborative learning space event.</td>
<td>Delivered by Team in two parts:</td>
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<td>Resolution developed through processes of self-organization, the emergence of patterns, and coevolution. Applying processes effect adaptability, uncertainty, and complexity within social ecosystems regardless of assigned function (Mitleton-Kelly, 2003).</td>
<td>First, the Education Team supports an in-class design challenge and design thinking process with teachers and students producing prototype sketches.</td>
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<td>Research Literature:</td>
<td>Second, the teachers and students attend a collaborative learning space event organized by the Logistics and Partners Teams. Students participate in learn-a-trade activities with volunteers from the Category Specialists Committees and then use the skills they acquired to build prototypes from their sketches.</td>
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<td>Hanson (2013), neuro-psychologist, refers to self as compounded, changing, interdependent, interconnected, and impermanent. As soon as a resolution from applying ecosystem processes discovered, our brains continually remodel the resolution as we learn from experiences.</td>
<td>Consulted a Change Agent to learn and develop an in-class design challenge process. Adapted concepts of exploration booths from competitive events as part of collaborative learning space event.</td>
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<td>Like a unicorn, we agree based on mental images that no one has seen. When resolved, not quite the unicorn anyone imagines.</td>
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<tr>
<td><strong>Ecosystem</strong></td>
<td>Website and Participant Data: Ecosystem membership include individuals, small business ventures, vast collections of enterprises, and education systems. An individual may have one or more ecosystem memberships (Moore, 1996/2016). The ecosystem represents a hybrid model:</td>
<td>Executive and Management Teams interplay between business ecosystem and landscape of professional practices.</td>
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</table>
|                             |             | • a **business ecosystem** (Moore, 1996/2016) situating the work of the Logistics and Partners Teams in an economic community | Advisors situated outside the Ecosystem with influential factors:  
|                             |             | • a **landscape of professional practices** (Wenger-Trayner et al., 2014.) situating the work of the Education Team in a kindergarten to post-secondary (K-20) education social system | • Advisory Board of the organization (direct and bound assigned task)  
|                             |             | | • Category Specialists Committees (direct and bound collaborative learning stations for event) |  
|                             |             | | Four categories within the Ecosystem: |  
|                             |             | • Investors |  
|                             |             | • Advocators |  
|                             |             | • Alternatives |  
|                             |             | • Opposites |  
| **Problematic situation across the ecosystem** | Members of Ecosystem: How to introduce a provincial curricular redesign of a grade 6 to 9 elective course. The redesign includes an inquiry-based approach to explore trades and technology careers. | From the problematic situation, team identified four unfamiliar situations extending the team’s context:  
<p>|                             |             | | • New Youth Group: Grades 6 to 9 students |<br />
|                             |             | | • In-Class Preparation for Event |<br />
|                             |             | | • Group Work during event |<br />
|                             |             | | • Collaborative Learning Space Event |<br />
|                             |             | | Addressing the unfamiliar situations, team identified potential barriers before beginning assigned task. |</p>
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<tr>
<th>Acronym</th>
<th>Stands for</th>
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<tr>
<td>5D AI Cycle</td>
<td>5 Phases (Define, Discover, Dream, Design, Delivery</td>
<td>One facilitation model of an appreciative inquiry to foster change through a coevolutionary search from current representation of their people, their organizations, and the relevant world around them to potential next steps</td>
<td>Barrett &amp; Fry, 2005</td>
</tr>
<tr>
<td>AI</td>
<td>Appreciative Inquiry</td>
<td>See Research Literature Glossary</td>
<td>Cooperrider &amp; Avital, 2004</td>
</tr>
<tr>
<td>DBR</td>
<td>Design-Based Research</td>
<td>A systematic and flexible research methodology aimed to improve educational practice through iterative analysis of design, development and implementation, based on collaboration between researchers and practitioners in real-world settings, and leading to contextually sensitive design principles and theories</td>
<td>Wang &amp; Hannafin, 2005, pp. 5-6</td>
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<tr>
<td>ELS</td>
<td>Emerging Living Story</td>
<td>Lived experiences that are unusual, potential to change either BME Narrative or living story (LS). ELS is often unpredicted, still unfolding as to meaning, without an end, often without beginning. Most times, informational rather than knowledge.</td>
<td>Boje, 2014, p. 156</td>
</tr>
<tr>
<td>IPD/IPL</td>
<td>Interprofessional Development / Interprofessional Learning</td>
<td>Any event when two or more professions learn with, from, and about each other to improve the quality of care through interprofessional collaboration</td>
<td>Centre for the Advancement of Interprofessional Education [CAIPE], 2002</td>
</tr>
<tr>
<td>LS</td>
<td>Living Story</td>
<td>Everyday experiences based on personal and professional practice, a mode of knowledge that in Dewey’s terms is fragmentary, casual, irregular. Full of emotions: excitement of achievement, frustrations with barriers, overwhelming, or oppressive. Individual, factual, fated, interpretive accounts of events that aspire at objectivity rather than emotional effect.</td>
<td>Boje, 2014, p. 160</td>
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<td>OD/OL</td>
<td>Organizational Development / Organizational Learning</td>
<td>Organizational development (OD) identifies organizational change management involving practitioners’ practices, workflows, or procedures. Organizational learning (OL) involves processes in which team members learn to create order in unfamiliar or problematic situations through the detection and the correction of an error after an applied action strategy to a situation.</td>
<td>Argyris &amp; Schön, 1974</td>
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<tr>
<td>PD/PL</td>
<td>Professional Development / Professional Learning</td>
<td>Formal and informal learning experiences designed to potentially enhance an individual’s growth throughout a changing professional life cycle Professional development (PD) identifies a strategic process across a system while Professional Learning (PL) identifies grassroot or individual processes to professional growth.</td>
<td>Champion, 2003; DuFour, 2004</td>
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<td>RIPL Model</td>
<td>Research Informed Professional Learning Model</td>
<td>Launched in 2013, the RIPL model supports local organizers to formulate a scenario-based design challenge and facilitate new ways of engaging their constituent groups through sustained, effective, and efficient professional learning events including four phases with immersive learning activities: design, tinker, thinker, and reflect.</td>
<td>Crichton &amp; Carter, 2017b</td>
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<tr>
<td>SHA</td>
<td>Shorthand Abstractions</td>
<td>Concepts drawn from [natural or social] science have become part of the [common] language and make people smarter by providing widely applicable templates … the idea the abstraction is available as a single cognitive chunk, which can be used as an element in thinking or debate … Here, the term “scientific” is to be understood in a broad sense – as the most reliable way of gaining knowledge about anything.</td>
<td>Brockman, 2012, p. xxx</td>
</tr>
<tr>
<td>WoK</td>
<td>Way of Knowing</td>
<td>The evidence or additional support humans discover, perceive, express, or justify as influential factors while they develop and learn to make sense of new experiences in unfamiliar or problematic situations.</td>
<td>Cross, 1982; Dewey, 1910, 1937/1967, 1925/1977; Weick, 1995</td>
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Acknowledgements

With Gratitude

Throughout this journey, I have been blessed with people to share the joys, the sorrows, the rabbit holes, and the successes. I have had my share of missteps and falls along the way. I owe a huge debt to everyone who patiently mediated my path with dialogues, inquiries, and pauses. Together, they provided good orderly directions once I was up and moving forward again. I could not have completed what I have without all of you. I continually seek opportunities to pay forward your generosity, kindness, and wisdom.

To my supervisor, Dr. Philip Balcaen, thank you for being my guide throughout this journey. Philip, your patience and understanding underpins my entire journey. Start to finish, you have been my go-to whenever my internal or external hums turned into annoying buzz, static, or noise from my mental chatter. Thank you for the deep listening and subsequent tuning to refine my journey.

To my committee members, Dr. Susan Crichton and Dr. Barbara Marcolin, thank you both for stepping up when others had to step down from my supervisory committee. Susan, I have enjoyed every collaboration you have provided me during our time together. Your work and efforts inspire me. Barbara, I have enjoyed every unique opportunity you have provided me to grow and to develop. Your work and efforts aspire me. Thank you both for your honest, open, and beautiful questions.

To the external members from my defense, Dr. Janet Groen and Dr. Eric Li, thank you both for providing me light and depth after reading my dissertation and listening to my presentation. I am grateful for the oversights, insights, and foresights you offered.

To the participants in my study, thank you for sharing your wondrous adventures through your narratives and stories. They continue to brighten my heart and my mind multiple times daily. Please know I am still in awe of your team contributions and your personal dedication to the youth you serve.

To my family and friends, thank you for your care and support along the way. Without hesitation, you gave me the needed places and spaces to find restful awareness when I had no idea how to complete my journey.

To everyone who has had the misfortune of casually asking me what have you been up to lately, thanks. I will catch you up soon and share my emergent living stories without feeling the need to include relevant journal articles into our discussions.
Dedication

To Wayne,
two souls, one heart.
Throughout this journey,
you always knew which one of
life’s two most purposeful questions
to ask me.

Why?
Why not?
Chapter 1 Introduction

Introducing the concept of wicked problems, Churchman (1967) discusses the moral responsibilities of researchers and systems thinkers to inform managers that “solutions have failed to tame [the manager’s] wicked problems” (p. 142). Wicked – as opposed to the term evil – refers to the resistant nature of ill-formed complex problems within systems to a general, replicated solution. While planning and implementing solutions with such wickedness in social systems, Ackoff’s (1974) concept of social messes introduces sets “of interrelated [wicked problems that create] … interconnections … that make social messes so resistant to analysis and to solutions” (Horn & Weber, 2007, p. 1). For example, highly competitive global leaders and workers rapidly emerge across systems to harness the ubiquitous flows of information and interconnectivity through rapid technological innovations and various linkages to broader social systems (Kania & Kramer, 2011). As they apply their adaptations across economic systems, they impact the desired outcomes of countless economic communities (Friedman, 2005; Gladwell, 2008). Disruptions in practices and workflows occur changing the landscape of professional practices (Wenger-Trayner, Fenton-O’Creevy, Hutchinson, Kubiak, & Wenger-Trayner, 2014).

Several theorists describe the landscapes of social systems as ever-changing or turbulent (Ramírez, Selsky, & van der Heijden, 2010). While managing change within turbulent social systems containing social messes, teams experience disruptions appearing without warning. They describe the situations surfacing from disruptions as if the “world is resetting … [and no one] is quite sure where things are going to end up” (McGoff, 2012, p. 1).

Several researchers and practitioners study the adaptability, complexity, and uncertainty of solutions to disruptions across turbulent social systems containing social messes (Moore 1996/2016; Peltoniemi & Vuori, 2004). Through their studies, they discover theoretical and conceptual frameworks. From the emerging findings, they apply analogies from biological or
other natural science ecosystems. The frameworks and analogies illustrate how living entities (i.e., individuals, teams, networks of professional practices, organizations) within social ecosystems make sense of disruptions to order by applying iterative processes like self-organization, the emergence of patterns, and coevolution. The results of these processes bring order to identified disruptions by aligning the practices and workflows through good orderly directions (Mitleton-Kelly, 2003).

For example, business ecosystems represent a sub-set of social ecosystems. Researchers and practitioners discover a theoretical framework with four distinct evolutionary stages of business ecosystems: pioneering, expansion, authority, and renewal (Moore 1996/2016). When applying the theoretical framework, “stages blur, and the managerial challenges of one stage often recur in another” due to the consistent “interplay between competitive and cooperative business strategies” (p. 21). Briefly, once an economic community establishes as a business ecosystem, members of authority determine a problematic situation disrupting the order across the ecosystem. They choose ecosystem leaders to function as pioneers to discover a resolution that activates renewal and instills good orderly directions for expansion. Ecosystem leaders refer to a centralized organization recognized by the members of authority as having cooperative associations with a representative subset of the economic community. The function of ecosystem leaders “is valued in the community because it enables members to move toward shared visions to align their investments, and to find mutually supportive roles” (p. 26).

While serving as ecosystem leaders representing their organization, a team encounters unfamiliar situations like external networked communities of practice influencing the practices and workflows of members within the business ecosystem. At this point, team members discover a competitive strategy within their cooperative renewal disrupts the expansion. The discovery
illustrates to the team that “all problems have the character of wicked problems … [and when] wickedness is the norm … [then] it is the tame formulations of professional analysis that stand out as the deviation” (Coyne, 2005). In other words, the unfamiliar situation experienced by the team as ecosystem leaders holds problematic features that tend to interrupt cooperative alignment, to deflect proposed solutions, and to involve sensemaking (Weick, 1995).

Sensemaking as a process is “grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focused on and by extracted cues, and driven by plausibility rather than accuracy” (p. 17). As team members make sense of their ecosystem leadership experiences, the team accumulates potential barriers from extraneous and confounding factors. Metaphorically, naming elephants refers to addressing any extraneous factors of social issues that everyone knows exist; however, no one chooses to discuss the issue until prompted to do so through some process (Hammond & Mayfield, 2004). Elephants become visible through socially constructed learning processes like collaboration or diagnostic processes like social reasoning. Situating dragons refers to how a team discovers and evaluates confounding factors like potential inter-organizational boundaries of business units that impede an implementation to move forward due to unknown organizational practices and processes while planning (Lave & Wenger, 1991; Wenger-Trayner et al., 2014). Dragons become visible through processes of participatory development during the planning stages.

Naming elephants and situating dragons in unfamiliar or problematic situations, the team members make sense of the barriers through ways of knowing. A way of knowing refers to the evidence, or additional supports, the team discovers, perceives, reports, or justifies as influential factors while they develop and learn through their sensemaking process (Cross, 1982; Dewey, 1910, 1937/1967, 1925/1977; Weick, 1969, 1993, 1995). Team sensemaking aggregates these
ways of knowing impacting team reports, processes, and roles. Cross' (1982) concept of 
*designerly ways of knowing* identifies how the team processes and aggregates the team members’
explicit and implicit professional thinking and subsequent actions. Concurrently, the team
determines the multiple pathways through the ecosystem to complete an assigned task as
representatives of their organization in the role of ecosystem leaders. In these ways, while
completing the assigned task using sensemaking processes, the team creates a resolution through
iterative processes of formulation and facilitation. Thus, while members of an ecosystem value
the function of ecosystem leaders, members following a team’s organization-based resolution
appreciate the designerly ways of knowing across ecosystems.

What has not been clarified in the literature exploring the applications of ecosystem
frameworks within organizations, education, and health care/social development is the impact to
a team tasked with representing an organization as ecosystem leaders as they apply sensemaking
processes to unfamiliar situations and continue with their daily job functions. Using a storytelling
lens (Boje, 2014) and an appreciative inquiry (AI) approach (Cooperrider & Avital, 2004), this
intrinsic case study (Stake, 2005) explores the retrospective organization’s narratives and team
members’ living stories of experiences and contributions after successfully completing an
assigned task as ecosystem leaders. The overarching question guiding the research is *how might
a team working adjacent to a kindergarten to post-secondary education (K-20) system and with
associated workplaces within an ecosystem retrospectively describe the impact on organizational
learning (OL) as they generate appreciative professional stories, individually and collectively, of
their daily practices and workflows after formulating and facilitating a resolution?* Resolutions
refer to the products when applying Dewey’s (1910) experiential inquiry model to a problematic
situation. Products emerge as the team explores, discovers, and examines their experiences as
ecosystem leaders.
The synthesized graphics illustrate the team’s sensemaking processes throughout the assigned task. Between the descriptions of graphics, memos answer a series of sub-questions to generate and illustrate my sensemaking amongst the graphics, my field notes, the literature review, participatory observations, coding, bracketing, and analysis. The four stages of the resolution-driven task situate the team’s contexts: beginning, middle, end, and imagining the future. The synthesized graphics, memos, and team’s contexts inform the findings emerging from the study. The findings include three filtering processes of the team: aggregating designerly ways of knowing, expanding the team’s contexts, and maintaining a team habitat. While engaged in filtering processes, team members apply higher-order cognitive functioning to make sense of the interplay between the assigned role of ecosystem leader and the daily job functions. The final chapter discusses fostering cognitive and social refreshment for a team representing an organization as ecosystem leaders. The discussion includes refreshment stands and refreshment inquiries as a way to “organizationally amplifies the knowledge created by the individuals and crystalizes it as a part of the knowledge network of the organization” (Nonaka, 1994, p. 17). In summary, by exploring, discovering, and examining the retrospective narratives and stories, this intrinsic case study illustrates two landscapes of professional practices of a team whose members successfully completed a task in the role of ecosystem leaders and maintained their daily job functions. The next section describes the background of the case study including answers to three potential questions readers may be considering.

1.1 Background of the Case Study

The background of the case study presents a narrative with a beginning, a middle, and an end. In the beginning, an organization’s advisory board assigned a team a task in a role of ecosystem leaders. The task assigned included how to formulate and to facilitate a resolution within the team’s practices and workflows of the organization. In the middle, the team made
sense of their unfamiliar and problematic situations to formulate an organization-based resolution. The team facilitated the resolution to the category of investors in the ecosystem. In the end, the team completed the task to the satisfaction of their advisory board. The case study offers the retrospectives views of the team members including their contributions, development, and learning through their living stories and emerging living stories adding depth to the narrative journey. Before the overview, rationale, contexts, and positionality of the study, a brief disruption to guide the reader by answering two why questions and one why not question.

1.1.1 Why study this team and this case?

I chose the team and the case guided by its complexity, contexts, and direct interpretations (Stake, 2005). The literature supports the adaptability, complexity, and uncertainty of a team working to expand the cooperative alignments with members across multiple contexts within an ecosystem (Moore 1996/2016). The complexity and contexts of the case develop from the adaptability and uncertainty of applying solutions to disruption across ecosystems. I accept the evaluative judgment and standards of quality from two external groups that I never met: the members of authority in the ecosystem and the organization’s advisory board. They view the team as effective and their contributions as successful. Direct interpretations refer to my interest in making better sense of the case itself, even when some readers initially consider it ordinary.

Fullan (2015), a Canadian educational researcher, observes there is little doubt that educators experience many disruptive professional changes due to ever-changing economic, environmental, and social realities. Further, Fullan states to develop innovative responses to current educational challenges, an integration of “deep learning goals, new pedagogies, and technology” result in “more radical change in the next five years than has occurred in the past 50 years” (p. 23). The team’s choice of becoming ecosystem leaders and formulating an
organization-based resolution provides two radical changes from my professional experiences. First, with the team situated on the peripheral of the education system within an ecosystem, they progress through unfamiliar situations that impact further disruptions to the practices and workflows of in-class educators. Second, in choosing an experiential inquiry approach to complete the assigned task, the team brings a unique perspective to the case involving their sensemaking of unfamiliar and problematic situations (Dewey, 1910; Weick, 1993). Finally, the following narrative describes my professional connections with the chosen team and the case.

Why I chose this case to study begins with my work as a research project coordinator at a Canadian university research centre. At the beginning of the team’s assigned task, the organization hired my director and me as change agents with a consultancy model (Caldwell, 2003). The team approached my director because of the successes of our research-informed professional learning (RIPL) consultancy with outward-looking schools in K-9 education social systems. Briefly, an outward-looking school refers to a model of participatory development between schools and an adjacent ecosystem where “all stakeholders of education are consciously or unconsciously involved in a collaborative learning process” (Mueller & Toutain, 2015, p. 6) and develop the process through “collaborative learning spaces to facilitate exchange across the diversity of learners” (p. 15, italics added for emphasis). Local organizers determined the collaborative learning process for their community. They asked us to facilitate a research-informed professional learning (RIPL) model as a common experience to spark discussions of a complex and uncertain change in provincial curricular design. Our collaborative learning space facilitated a one-day event as an information exchange with teachers, librarians, administrators, and other community stakeholders. In turn, the participants of the one-day events determined how to adapt or to integrate the RIPL model for their students, schools, or communities.

During our initial work together, I was curious to know more about how this dynamic and
highly respected team worked together across their ecosystem. There was something with this team and potentially its organization that was unique from other teams that I had worked with to develop localized RIPL events. My director and I completed our consultancy roles with the team.

My curiosity about the team persisted. When the team scheduled the final facilitation of the organization-based resolution, I contacted the team to ask if I could use their narratives and stories about their work and efforts to formulate and to facilitate an *emerging resolution* as a case study. They were surprised that I chose their team and situations to study. On my first site visit to discuss my research intentions, the first question the team asked was “Why us?” In my mind, I thought “Why not you?” In our discussions, I described some of the many little moments where I observed them effectively working and collaboratively playing as a team. I could not make sense of what was happening unless they shared their retrospective stories.

One of those many little moments happened at the end of the first day they facilitated their prototype. After 12 hours of serving the needs of over 200 funders, participants, and special guests at the event, every team member stayed to clean-up. During clean-up, everyone chatted about the great parts of the day including a little something special that another team member had done. After clean-up, team members left intermittently. Before crossing the venue’s threshold, I observed each team member turn and smile. As a team, they appeared present and aware from the start of the day until the moment they walked across the threshold of the venue. At the end of the second day, I observed those same team dynamics. The intrinsic question that underpins, focuses, and clarifies my sensemaking is *when formulating and facilitating a resolution for an ecosystem, what is it that makes this team feel unique to me?* Among the findings emerging from this study, the ways a team remains effective, present, and aware amid the chaos and uncertainty continues as a curiosity to me.
1.1.2 Why assigned task?

Reviewing the interviews, not one participant aptly describes the complete history with every member’s specific contributions. As every participant describes several historical pieces of the assigned task and their specific contributions, a complete story unfolds. In these ways, the restructure of organizational roles and responsibilities illustrates how the assigned task becomes shared by the entire organizational team. Further, the organization-based resolution resulting from the work and efforts of the team continues to coevolve across the organization and the ecosystem through existing team reports, team processes, and team roles. Therefore, as I apply the term assigned task, I consider two reasons within the data sources.

First, when the organization accepted the request from the members of the business ecosystem, the organizational structure included a role of an Operational Manager (OM) with responsibilities to report to the Executive Director, to oversee project management, and to assign tasks to other team members as required. The OM assigned the task to team members before leaving the organization. During the structured interviews, participants did not consider the assigned task as part of their organizational team goals or thought to include the assigned task in their answers to questions about their organizational roles and responsibilities. The participants referred to the assigned task without determining a beginning, middle, and end in their living stories. The narrative of the assigned task became a composition from all the participants.

Second, across the data gathering, participants describe how being part of the assigned task brought the idea of change beyond the tenets of change management. At times, participants identified their contributions. Other times, they identified pauses between tasks that illustrated how they continued to feel part of the assigned task. The participants apply the organizational lexicon as ways of knowing the investors and advocators as the subsets of the ecosystem. However, the participants designed two blueprints for mutually supportive roles in the ecosystem.
that did not depend on any ownership by the team or organization. They considered the
blueprints in a broader concept of a skills movement.

1.1.3 Why not innovation?
In recent times, researchers and practitioners explore and discover ways of assigning
meaning based on core interests across research domains within their fields of studies. For
researchers, their formative and final reports take the form of journal articles describing research
designs or books explaining research trajectories (i.e., Ackoff, 1974; Argyris & Schön, 1974,
1978, 1996; Banathy, 1996; Cross, 1982; Dewey, 1938/1967; Dougherty & Hardy, 1996; Dweck,
2006; Turkle, 2015). Before submitting the publications, the researchers and practitioners told
stories and considered how best to represent research designs, their participants, and the findings
along with their research trajectories to their potential readership (Boje, 2014; Rogers, 2003).
Researchers and practitioners require methods to transfer and mobilize knowledge depending on
their audiences. Concurrently, readers of journal articles and research books become familiar
with the authors’ forms and structures.

Researchers apply methods, like bracketing, during the data collection “to protect the
researcher from the cumulative effects of examining what may be emotionally challenging
material … and to facilitate the researcher reaching deeper levels of reflection … and analysis”
(Tufford & Newman, 2010, p. 81). I chose a bracketing method to separate my professional
curiosity of the case and the data gathered during the study. While synthesizing the data sources,
the participants’ living stories appear as often as possible. When crafting and curating the
memos, my living stories appear as often as possible. In this way, the readers sense the
designerly ways of the team and my observations as a researcher. When blending the words
together, the findings emerge from the study. The following narrative illustrates how before the
study I discovered some familiarities and some differences between our professional practices and workflows.

With my director, I professionally consulted with the team in my role as a research project coordinator. At that time, several of my responsibilities included *diffusion of innovations*. *Diffusion of innovations* refers to a “process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 4). As the research project coordinator, I coordinated a model of research-informed immersive professional learning (RIPL) events with local organizers providing professional development to educators, administrators, and stakeholders across school districts. In my practice and context, *innovation* refers to “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. xx). The innovation is the RIPL model designed by my director and developed through our work, efforts, and research over five years (Crichton & Carter, 2017a, 2017b). Thus, my part of the *diffusion of innovation* was through organizing and facilitating RIPL events with local organizers representing provincial educators in their communities. My role and responsibilities included working with local organizers through participatory development and social construction (Gergen, 2015; Papert & Harel, 1991) to impact purposeful discussions about changes to classroom practices due to provincial curricular redesign.

While consulting with the team, I shared several common terms when describing our practices – contexts, situations, participatory development, and social construction (Gergen, 2015; Papert & Harel, 1991). However, the team do not describe their work and efforts within their business ecosystem as diffusion of innovations, individually or collectively. The term *organization-based resolution* reflects the team’s practices, stories, and narratives. Therefore, in my journals and field notes, I chose to bracket terms familiar in my professional practice like *innovation*. During their interviews, participants answered with the term *resolve situations* rather
than diffuse an innovation. Other participants answered with terms *resolve* or *resolution* rather than *innovation* when describing contributions to the assigned task. During the site visits, I took time to create field notes with participatory observations and bracketing. In this way, I determined my ways of knowing and the participants’ ways of knowing while gathering data. The team’s *designerly ways of knowing* evolved through synthesizing the data sources while the memos offer my sensemaking through my observations and literature review.

### 1.2 Overview

Generally, as individuals begin interacting with one another in unfamiliar situations, the disorder prevails from various perspectives such as individually, collectively, internally, or externally (Rogers, 2003). An individual may lessen the disorder by interacting with other individuals who have experienced similar situations, either socially (Bandura, 1986a, 1986b) or organizationally (Argyris, & Schön, 1974, 1978, 1996). In similar ways, the process of self-organization begins in complex, adaptive social systems like ecosystems. Self-organization, either spur-of-the-moment or planned, refers to the abilities to construct some order and social cohesion (Peltoniemi & Vuori, 2004).

Through information exchanges, individuals identify a moment from their experiences when something emerges that brings order through a new design: a reminder, an alert, a pattern, a decision, a structure, or a change in direction (Cross, 1982, 2001, 2011). Individuals continually experience many types of disorder when facilitating an event that applies a design involving purposeful formulations including reflection, prioritizations, and preparation (Dewey, 1938/1967). Through retrospective information exchanges, individuals discover additional pieces within unfamiliar situations to inform the risk, the complexity, and the uncertainty when formulating and facilitating resolutions (Argyris & Schön, 1974, 1978, 1996). In these ways, individuals develop and learn a “capacity to interact effectively with [an] environment” (White,
In ecosystems, these processes illustrate emergence [of new patterns]. Although closely linked to adaptability, emergence and its properties are “the results of self-organization, while adaptation links these properties to the environment, and evolution concerns their long-term achievements” (Peltoniemi & Vuori, 2004, p. 277). As an ecosystem process, coevolution appears as the evolution of a member-unit affecting the impact of other members in their evolution from disorder and disruption. For example, when the environment refers to an organization and the individuals identify as professionals in unfamiliar situations, professionals experience organizational learning to develop and to learn new knowledge through the “flow of information, anchored on the commitment and beliefs of its holder” (Nonaka, 1994, p. 15).

Alternatively, individuals experience risk, complexity, and uncertainty as they develop and learn in problematic situations with or without individuals from their social or organizational connections (Arntz, Gregory, & Zierahn, 2016; Dweck, 2006). Researchers study reflective practice as a key component for change, learning, and development (Argyris & Schön, 1974; Brookfield, 1995; Dewey, 1938/1967; Lewin, 1948, 1951, 1958; Marzano, 2003; Mezirow & Taylor, 2009; Reeves, 2004; Vygotsky, 1978). Problematic situations encompass several “features that are designated by such adjectives as confusing, perplexing, disturbed, unsettled, indecisive; and by nouns, such as jars, hitches, breaks, and blocks” (Fesmire, 2015, pp. 86-87). The disorder of a problematic situation becomes difficult for individuals to overcome through reflective practices as it “spreads throughout the entire situation, infecting it as a whole” (Dewey, 1925/1977, p. 282). Professionals and practitioners seeking transformative change consider cycles of inquiry surface and challenge deeply held assumptions or beliefs (Cranton, 2006).

As team members begin directing their professional practices to the work and efforts of teams and organizations across social systems, they collectively experience the risk, the
complexity and the uncertainty of developing a team-based or an organization-based resolution to an assigned problematic situation (Cross, 1982). A team refers to a group of individuals who work interdependently to accomplish a goal with recognized authority to act independently within a broader organization or social system (Levi, 2017). A team-based or an organization-based resolution refers to a resolution bounded by the context determined by the team or organization assigned to the resolution development (Dougherty & Hardy, 1996). Within a business ecosystem (Moore, 1996/2016), members of the ecosystem identify ecosystem leaders as central organizations within the identified disruption. A team of professionals represent the organization’s goals as they manage organizational learning. The team chooses processes to develop and to learn new organizational knowledge creation. In these ways, the team bounds and structures the interactions of social learning and participatory development across the ecosystem.

1.3 Rationale

Gathering participants’ voices and perspectives as emergent living stories is a salient characteristic of case study methodology compared to other traditional and current methodologies to explore organizational change management and development (Boje, 2014; Stake, 2005; Yin, 2008). This case study extends the exploration of organizational change management to a business ecosystem defined as:

an economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world. The economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders. Over time, they coevolve their capabilities and roles. They tend to align themselves with the directions set by one or more central companies. These companies holding leadership roles change over time (Moore, 1996/2016, p. 26).
Technically, storytelling is “a subdomain of conversation, discourse, dramaturgy, and communication, and happens in many media: oral, print, gesture, digital, and material practices” (Boje, 2014, p. 342). Teams create, craft, and curate maps, forms, or structures as ways of making sense of problematic situations. These representations include individual or collective experiences, team-based or organization-based resolutions, and associated events. When sharing final reports effectively across an organization, these maps or other artifacts represent components of the organizational learning (OL), development (OD), and systems (OS) (Compeau, Olfman, Sein, & Webster, 1995).

Alternatively, the teams or organizations distribute a series of formative and final reports inconsistently. For example, regardless of the approach to change management, the teams or organizations may not collect the emergent, generative, and summative experiences in every situated context (Cooperrider & Avital, 2004), identify the internal needs of individuals (Turkle, 2015), or address the external demands of other professional practices (Wenger-Trayner et al., 2014). The impact of incremental perspectives of or benefits to the individuals, the teams, and the organizations become unclear without the contextual details of the processes and roles along the way.

1.4 Case Framework

Members of an ecosystem identify a problematic situation disrupting the membership’s practices and workflows. They ask an advisory board of a central organization to address the problematic situation as ecosystem leaders. For the first time since its inception over 25 years ago, the advisory board accepts the role. Members of the advisory board assign the task to a team representing the organization across the ecosystem. The team proposes to formulate and to facilitate an organization-based resolution. The team completes the task to the evaluative judgment and standards of quality amongst their organizational roles and daily responsibilities.
The result of four cycles of formulation is an organization-based resolution addressing a provincial redesign of a grade 6 to 9 elective course applying an inquiry-based approach to explore trades and technologies careers. The current organization-based resolution offers a distributed learning model including an in-class design challenge process for teachers and students in preparation for a collaborative learning space event. During the facilitation, the team expands their social connections and interactions with partners, sponsors, committee specialists, grade 6 to 9 teachers and their students, and post-secondary institutions offering trades and technologies career education. The study explores the retrospective narrative of the organization and the living stories of the team members of how they “create order and make retrospective sense of what occurs” (Weick, 1993, p. 635).

The storytelling of the team’s journey includes three components identified in North American research literature as contributing to the adaptability, complexity, and uncertainty of translating, mobilizing, and transferring practices and workflows across ecosystems. First, team reports become socially constructed (Gergen, 2015) storytelling methods. They illustrate, explore, and examine unfamiliar or problematic situations involving narrative coherence and emergent living stories (Boje, 2014; Smith, 1999; Turkle, 2015). Second, team processes become context-based and resolution-driven participatory development, rather than solution-driven distribution. They create unfamiliar or problematic situations while converging towards or diverging from an organization-based resolution (Cross, 1982; Lave & Wenger, 1991; Weick, 1969, 1993, 1995). Finally, team roles become the responsibilities of the team members to bring some purposeful workflow to unfamiliar or problematic situations while being accountable to an organization and ecosystem requiring mobilization and distribution of new knowledge (Drucker, 1959) and learning (Morgan, 2014).
Individually, the components illustrate how the team aligned and completed the assigned task within the organization and across the ecosystem (Dougherty, 2012, 2013, 2016; Moore, 1996/2016). Collectively, these components illustrate how the team chose to make sense of the learning and to develop the translations, mobilizations, and transfers of knowledge, skills, competencies and social connections from the team members before distribution to the organization or the ecosystem (Drucker, 1959; Morgan, 2014; Wenger-Trayner et al., 2014).

1.5 Positionality

Crawford (2010) proposes a contemporary lens of work “cannot and should not separate thinking from doing by creating a binary of working with one’s hands and working with one’s mind” (as cited in Crichton & Carter, 2017b, p. 16). My work and practice as a community-minded formulator and facilitator of collaborative events illustrate Crawford’s proposal. I consider the chosen team’s practices and workflows illustrate how a purposeful team in society takes up Crawford’s proposal. While completing the assigned task, I imagine the team doing events including collaborative activities involving dialogues and inquiries across the ecosystem to address the adaptability, complexity, and uncertainty. A collaborative activity with a community includes social construction and participatory development of new knowledge, skills, competencies, and social connections. Collaborative activities result in discovering influential factors with teams and communities. Collaborating with communities across the ecosystem elevates the importance of two kinds of collaboration that we might think of as the product of teams, and the product of communities … We have so much to learn, and so much of it is learning from each other and combining our individual talents in productive new ways. (Dougherty, 2016, p. 231, italics added)
Team collaboration is an internal process described as “tight, intense, directed, and closely managed” (Dougherty, 2016, p. 231). Alternatively, community collaboration is an external process described as an open and self-organizing way [that] is not necessarily easy to do. Learning this new form of collaboration within a community is essential to tap into new sources of creativity and innovation that can expand what individuals as well as organizations can do (p. 231).

In my practice, I witness how individuals chose to engage with a group through dialogues, inquiries, and pauses when assigned a task. Over time, the representations of the assigned task illustrate how the group interplays between the assigned task and the individuals. Although called a team for convenience, not every group requires the shared purpose, roles, and responsibilities that define a team. In other words, the individuals chose how to make sense of problematic features in unfamiliar situations involving tasks and people. Sensemaking as a process is “grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focused on and by extracted cues, and driven by plausibility rather than accuracy” (Weick, 1995, p. 17). I wonder how individuals and groups discover a team approach in the chaos of applying thinking processes, developing mental maps, assigning additional tasks, and negotiating shared values to complete the representation of the assigned task.

The representations created by individuals and groups do not illustrate the products of team collaboration nor the products of community collaboration. I discover those products through individuals’ retrospective stories of the experiences followed by dialogues, inquiries, and pauses. In these ways, the findings of the study emerge with an enlightened eye what the group developed by making sense of an assigned task (Eisner, 1979/2017). Applying bracketing throughout the study, the readers hear how the contributions of participants through the whole
experience moved from bounding tasks and aligning team members to a spiral of products from team and the community collaborations across the ecosystem (Cooperrider & Avital, 2004).

What happens next for me involves forms of feedback and a debrief with the team. What happens next for the team depends on their influential factors, individually, collectively, or situationally. As a reflective practitioner, I consider how my experience with the individuals and teams impact my thinking and doing in the future. I choose particularization rather than generalization (Stake, 2005, 2010). I pause to explore, discover, and examine interpretive, experiential, situational, and personalistic ways to express my experiences. I apply retrospective stories during dialogues and inquiries while sensemaking. At the start of this case study, I am curious how this team explores, discovers, and examines the contributions of team members while making sense of unfamiliar team experiences and continuing in their daily job functions.

1.6 Summary

In recent years, managing change involves working in turbulent social systems containing social messes due to rapid technological innovations, global socio-economic factors, and innumerable linkages to other social systems (Kania & Kramer, 2011). Researchers and practitioners adopt the analogies of social ecosystems by adapting the theories and concepts of biological or other natural sciences ecosystems (Moore 1996/2016; Peltoniemi & Vuori, 2004). While studying the adaptability, complexity, and uncertainty of social ecosystems addressing change as disruptions across social systems, researchers identify processes like self-organization, the emergence of patterns, and coevolution (Mitleton-Kelly, 2003). When tasked with bringing order to these disruptions, teams encounter unfamiliar or problematic situations across turbulent social systems containing social messes that require sensemaking (Weick, 1995). Sensemaking as a process is “grounded in identity construction, retrospective, enactive of sensible
environments, social, ongoing, focused on and by extracted cues, and driven by plausibility rather than accuracy” (p. 17).

When an economic community establishes a business ecosystem, ecosystem leaders address identified disruptions by the broader membership (Moore 1996/2016). When a team represents their organization as ecosystem leaders, the team members experience a myriad of policies, processes, and practices due to the variant nature of professional knowledge, skills, competencies, and social connections. Team members make sense of experiences by considering various ways of knowing (Cross, 1982). The team develops designerly ways of knowing and adapts their reports, processes, and roles as they make sense of their unique experiences and contexts. Naming elephants and situating dragons inform the team’s designerly ways of knowing (Cross, 1982). Using a storytelling lens and an AI approach, this intrinsic case study describes and explores the contributions and retrospective views of team members assigned a task as ecosystem leaders to formulate and to facilitate an organization-based resolution across an ecosystem.
Chapter 2 Literature Review

When the work of a team includes formulation and facilitation across ecosystems, team members encounter unique problematic features within unfamiliar situations that jeopardize the sustainability of a resolution (Coyne, 2005). Teams working to formulate or to facilitate an organization-based resolution across ecosystems encounter high degrees of adaptability, complexity, and uncertainty (Moore 1996/2016; Peltoniemi & Vuori, 2004). As a team formulates a resolution involving ill-defined issues, team members encounter individual factors influencing the team functions based on experiences within personal, professional, and organizational contexts. Concurrently, the team encounters situational factors such as shifts within budgets, resources, or directions within the team context. As team members facilitate a resolution, the team identifies influential factors driven by experiences within expanding contexts. When a team’s assigned task involves both formulation and facilitation of a resolution, the influential factors of the team functions become context-based and resolution-driven.

While moving forward to complete the assigned task, a team encounters intermittent changes to experiences from context-based and resolution-driven factors. The team represents the influences of the changes through team reports, processes, and roles. Concurrently, as individuals, team members synthesize the knowledge, skills, competencies, and social connections from these experiences through their daily job functions. The literature review begins with three team functions contributing to how team members make sense of influential factors across ecosystems: team reports, team processes, and team roles. The final section overviews how ways of knowing become part of team members sensemaking in unfamiliar or problematic situations (Cross, 1982; Dewey, 1910, 1937/1967, 1925/1977; Weick, 1995).
2.1 Team Reports: Storytelling

Team reports illustrate the results of team members’ progress of an assigned task determined by team processes and experiences. At certain points, a team crafts and curates a purposeful report for distribution to targeted audiences. The report’s content includes the results of the team efforts to translate, mobilize, and transfer knowledge, skills, competencies, and social connections. The scope of team reports depends on the team’s interpretive process to represent shared purpose and current situations. Although a less frequently applied term in organizations, storytelling occurs through interpretive processes including sensemaking.

Storytelling involves combinations of methods: narratives, past interpretations, living stories, ways of knowing, and emergent living stories (Boje, 2014). In other words, a team report illustrates the results from explorations, discoveries, and examinations of problematic situations encountered by the team (Boje, 2014). Socially constructing team reports requires ways to craft the storytelling of team members’ experiences within social complexity and to curate the sensemaking processes into a one-narrative report. Explanations of each component follow: social constructionism, storytelling, social complexity, and one-narrative reports.

2.1.1 Social constructionism.

Social construction as a learning theory refers to constructing knowledge and understanding through the collaborative construction of something shareable outside of the learner’s head (Papert & Harel, 1991). Built on the work of Piaget (1973) and Bruner (1961), Papert and Harel (1991) explore how to construct effective learning environments with technology. When students interact with technology, understanding what they have learned requires making their learning visible, outside the technology. Papert (2005) suggests that as learners apply creative and critical thinking processes in social constructionism, they work collaboratively through various tasks. As learners explore materials and apply appropriate tools,
they design and build a resolution. As learners develop their thinking processes (i.e., creative, critical, design), they learn in unique and exciting ways. As learners communicate the merits of their work and efforts, they develop their evaluative judgment by applying standards of quality (Tai, Ajjawi, Boud, Dawson, & Panadero, 2018).

Team members applying social constructionism to reports craft and curate oral or visual artifacts from stories that capture the mental maps of decision-making or other processes applied to formulate an organization-based resolution (Argyris & Schön, 1974, 1978, 1996). Social learning processes involving collaboration and organizational processes involving social reasoning serve the team members to construct knowledge, skills, competencies, and social connections (Bruner, 1961; Piaget, 1973). This way of socially constructing knowledge and processes contributes significantly to organization-based resolutions (Dougherty & Hardy, 1996). As team members develop organizational pathways for knowledge translations, mobilizations, and transfers through social construction, they foster social connections through storytelling that expand the contexts for their organization-based resolution.

2.1.2 Storytelling.

In organizations, narratives provide the team’s oversights of their journey. Narratives structure retrospective forms of storytelling with three parts of a plot with few, if any, deviations: a beginning, a middle and an end (Boje, 2014). For example, a narrative illustrates the summative, or final, product and assessment of changes-in-practice and workflows. Living stories (LSs) provide the team’s insights. They hold the descriptions from individuals, groups, or an entire team about what happens in an experience or along the way (Boje, 2014). LSs are not set in stone like a beginning, middle, end (BME) narrative. Sometimes, LSs follow a plot with a beginning, middle, or end. Many LSs provide openings for sensemaking as reinterpretations or affirmations. Professional knowledge includes LSs involving preferred practices of team
members. Emerging living stories (ELSs) provide the team’s oversights along the journey. They come from lived experiences that are unusual and have the potential to change either the current BME narrative or LS. An ELS is often unpredicted, still unfolding as to what makes sense, without an end, and often without beginning. Most times, ELSs begin as information exchanges rather than knowledge exchanges (Boje, 2014).

When immersed in work with a team or organization, team members experience levels of accepted interpretation between BME narratives, LSs, and ELSs similar to conceptual or theoretical frameworks in research. James Flynn, an intelligence researcher, coined the levels of interpretations as shorthand abstractions (SHAs) where concepts drawn from [natural or social] science have become part of the [common] language and make people smarter by providing widely applicable templates … the idea the abstraction is available as a single cognitive chunk, which can be used as an element in thinking or debate … Here, the term “scientific” is to be understood in a broad sense – as the most reliable way of gaining knowledge about anything. (Brockman, 2012, p. xxx)

One example of an SHA from the literature is business ecosystem describing an economic community as a specific type of human ecosystem (Moore 1996/2016). In general, the SHA of ecosystems offers social scientists a way to bound a situation while studying people interacting in their complex and uncertain social systems. The theoretical framework of social ecosystems includes knowledge, skills, competencies, and connections from the natural sciences such as geography, ecology, technology, economics, politics, and history. Social system studies provide the three processes of social systems: self-organization, the emergence of patterns, and coevolution. The conceptual framework of business ecosystem offers an instance of a social ecosystem involving an economic community and includes the social ecosystem processes.
In turn, researchers or teams apply SHAs to team members’ LSs, ELSs, and BMEs. Without dialogue, inquiry, or pause; team members interpret and relate the storytelling to the team member (Johnston, 2013). Concurrently, teams apply SHAs from specialized lexicons, conceptual frameworks, or theoretical frameworks. At times, team members may not see or hear the entire story or complete team members’ stories. SHAs represent experiences or events that seem to happen continually in every office, in every hallway, and in every field location across ecosystems. Without dialogue, inquiry, or pause, an individual reinterprets or misinterprets SHAs of teams. Team members do not recognize or acknowledge the subtle bits of influential factors from knowledge, skills, competencies, or social connections in the LS or ELS (Turkle, 2015). In these ways, teams or team members co-author or edit parts of an organization’s BME narrative (i.e., governing variables, goals, values, plans, or rules).

During a team meeting, a team member interprets a team member’s stories about their experiences across the ecosystem with filters from BME narratives, LSs, ELSs, or SHAs. By choosing incorrect filters, a team member misses an ELS intended as an information exchange (Rogers, 2003). Alternatively, storytelling of pasts, presents, and futures without filters are endless sources of learning, inspiration, and interpretation (Boje, 2014). They become like the endless interpretive possibilities within a poem or a literary text (Johnson, 2013). Without processes in place to consider what and when stories and narratives change, these experiences often lead to confusion or isolation. Where confusion or isolation persist, individual performance reduces resulting in the potential of team members dropping out of conversations or tasks (Turkle, 2015). Recent studies of chronic burnout suggest individuals using higher-order cognitive processing involved in sensemaking leads to chronic job burnout (Bakker & Costa, 2014). Identified characteristics include lackadaisical attitudes, cynicism, and a lack of job achievement. Continually working independently within unfamiliar or problematic situations,
team members participating in a dual social learning processes involve these higher-order
cognitive functioning: cognitive presence, cognitive processing, and reflecting. The literature
suggests pauses from the assigned task to routine roles and responsibilities and applying iterative
team filtering processes to create appropriate SHAs that translate, mobilize, and transfer
knowledge, skills, competencies, and social connections.

When individuals, teams, and organizations consider an assigned task, they apply filters
to team communications including reports. At times, filtering processes disregard unique
the system thinkers studying optimal experiences, flow represents the actions and behaviors that
impact the desired outcomes guided by governing variables. Governing variables refer to shared
values or principles that inform a decision-making process for individuals and teams (Argyris &
represents a mental state representing intentions. Intentions involve mental activities such as
personal planning and forethought (Bratman, 1987) before committing to an action or actions in
the future. Flow is a “way people describe their state of mind when consciousness is
harmoniously ordered, and they want to pursue whatever they are doing for its own sake”
(Csikszentmihalyi, 1990/2008, p. 6, italics added for emphasis). Both descriptions and examples
of flow represent potential experiences embedded within the task, the context, and the culture.

The stories of their experiences uncover some differences in their ways of knowing flow.
Only when a team considers filtering processes with cognitive spaces and social places to
dialogue and inquire do team members discover the thinking and practices behind the different
stories of flow. Thus, determining an optimal experience in workflow filters understandings,
experiences, and memories across the experiences of individuals, teams, and organizations
(Argyris & Schön, 1974, 1978, 1996; Csikszentmihalyi, 1990/2008). In these ways, like most
systems with information ubiquity and interconnectivity (Ramírez et al., 2010), teams experience turbulence with high degrees of risk, complexity, and uncertainty based on the interpretations of a single word.

Storytelling in all its forms is one of the most powerful tools humans have for making sense of the world. Like many powerful tools, storytelling may be dangerous amid an argument or a struggle. Struggle happens in unfamiliar or problematic situations (Dewey, 1938/1967). During a struggle; leaders, teams, communities, and social systems cling to a single story, abandoning all past stories, to create what they consider a completely new story for the situation. The danger of a single story is “stereotypes that limit and shape our thinking” (Ngozi Adichie, 2015, p. 3). In this context, the challenge with stereotypes has little to do with the truth of the story. The stories become incomplete without additional stories representing past, present, and potential future experiences. While working across an ecosystem, team members continually struggle with what to report, internally and externally. Two potential factors underpinning these struggles are social complexity and one-narrative reports.

2.1.3 Social complexity.
Social complexity refers to “the number and diversity of players involved … a fragmenting force of social complexity can make effective communication very difficult” (Conklin, 2006, p. 6). A scenario illustrates how a group applies brainstorming, a social learning method, to gather relevant individual stories (Seidel & Fixson, 2013). A group determines to guide their discussions through an unfamiliar or problematic situation. Individuals chose to share their prior knowledge, skills, competencies, and social connections from familiar situations to make sense of the unfamiliar or problematic situation. As the group socially constructs learning from the individual stories, the individuals socially construct learning from the brainstorming activity through social interactions (Gergen, 2015). One type of socially constructed learning
refers to situated learning (Lave & Wenger, 1991). Situated learning includes many trajectories of learning beyond group representations and individual representations. The following three scenarios offer a glimpse of potential trajectories.

First, while working with professionals and practitioners from different disciplines or organizations across the ecosystem, situated learning happens through pro-social informal interactions involving dialogue and inquiry (i.e., coffee breaks, small working groups). From informal dialogue and inquiry, team members generate a collective story through sensemaking reporting authentic daily activities and professional practices. Situating the learning within team reports offers additional opportunities for sensemaking processes to develop awareness of new knowledge, skills, competencies, and social connections (Wenger-Trayner et al., 2014).

Next, in an educational situation, several K-20 educators connect their prior professional studies of Dewey’s (1938/1967) social constructivist learning perspective to their learning activities in classroom contexts. Choosing Dewey’s perspective as their learning approach, they introduce 21st century curricular descriptors including authentic, collaborative, internal motivation, innovative mental maps with physical models, multiple intelligences, and social (Trilling & Fadel, 2009). They consider collaboration as a learning method for students to gather and distribute knowledge in informal social learning experiences with other students (Papert, 2005). By introducing experiential learning activities to their students, the educators apply a design thinking process to encourage curiosity and imaginative before as their learners explore and discover new knowledge or question justified beliefs (Cross, 2011).

Finally, while observing students learning in K-20 educators’ classrooms, team members unfamiliar with the educators’ practices may or may not recognize and acknowledge how the educators crafted and curated parts of the learning activities by applying collaboration and social
interactions. The intentions of applying a design thinking process may not be apparent. Alternatively, a team member holding the specialist category of designer knows design thinking processes. In this situation, the K-20 educators may not recognize, acknowledge, nor replicate the professional practices of the designer. Cross (1982) observes taking design education to enter a corporate design culture as a credentialed professional differs from a more general educational setting since:

- design teachers have been practicing designers who pass on their knowledge, skills and values through a process of apprenticeship. Design students ‘act out’ the role of designer in small projects and are tutored in the process by more experienced designers. These design teachers are firstly designers, and only secondly and incidentally teachers. This model may be defensible for specialist education, but in general education, all teachers are (or should be) firstly teachers, and only secondly, if at all, specialists in any field (p. 222).

The three scenarios illustrate how social constructionism interplays between social development (Gergen, 2015) and learning (Papert & Harel, 1991). Despite the effectiveness of a team or the dynamics of the processes, team members struggle to make sense due to the lack of experience to recognize wicked problems contained in social messes.

Some of the struggles originate in the team’s abilities to translate, to mobilize, or to transfer knowledge across wicked problems. In comparison, a tame problem exists when team members formulate and replicate a system-wide solution through some combination of known knowledge domains, current skills and/or technologies, competencies and social connections. Referencing the unpublished work of Horst Rittel, Churchman (1967) describes wicked problems as
a class of social problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications [of a solution] in the whole system are thoroughly confusing. (, p. 141).

Once identified by a team, team members need to treat a wicked problem as complex adaptive systems embodying multiple realities and requiring holistic iterative management rather than depending on a singular solution (Rittel & Webber, 1973). *Taming a wicked problem*, or finding a tame formulation, refers to the knowledge and processes applied by team members to formulate the problem in a situated context as they consider resolutions. Such problems necessitate creative resolutions that seem incomplete, contradictory, or consider a series of iterative processes due to rapid changes in individuals or environments across the system. Three examples follow from three different fields of studies.

First, in the educational field, K–12 curriculum holds a complex and diverse complement of skill sets and learning competencies developed by provincial policymakers in hopes of engaging students in lifelong learning and global citizenship. Considered blueprints of curricular design, educators implement these frameworks and move towards a learner-centered practice. Their administrators ask them to develop and to design personalized *just-in-time* learning activities and authentic explorations. Alternatively, educators recognize the potential benefits of new theories (Bryk, 2015; Darling-Hammond & Rothman, 2015; Ellis, 2005). They choose to continue their classroom practices with familiar patterns to what they have always done (Bereiter, 2014; Jacobsen, Lock, & Freisen, 2013; Reilly & Literat, 2012). Concurrently, due to the significant changes to educators’ workflows and practices; educators may require new tools, strategies, and technologies to capture and assess this individualized learning.
Next, in the field of health/social care development, researchers explore how professionals and practitioners provide integrated programs to patients and clients by applying theoretical frameworks involving interprofessional competency and collaboration (D’Amour & Oandasna, 2005). Many contemporary practitioners across professions and practices have popularized design thinking processes with end-user interviews (Conklin, 2006; Kelley & Littman, 2006; Pfeffer & Sutton, 1999). Leaders, and researchers report that despite their best efforts to conceptualize and to implement theoretical frameworks, persistent knowing-doing gaps appear when “turning knowledge about how to enhance organizational performance [theory] into actions consistent with that knowledge [practice]” (Pfeffer & Sutton, 1999, p. 4).

Finally, in the field of organizational studies, one phenomenon is the mission statement problem. In a similar fashion to SHAs, several researchers describe how when workers report “[h]aving said something and even repeated it, the organizations believe they were living their mission statements” (Pfeffer, 2015, p. 56). The best efforts of teams to formulate or to facilitate organizational development and learning (OD/OL) pathways may misinterpret or miscommunicate the naming of elephants or the situating of dragons due to storytelling approaches. Reporting all possible scenarios and discussions among individuals, teams, organizations, and social systems across ecosystem becomes too labor-intensive to develop or time-consuming to read. Alternatively, artfully designed and developed team report offer a one-narrative solution. The team crafts and curates “a common thread for understanding human experience, a thread that connects events into words … [and they represent] different elements of the journey including place, concept, people, or action” (Johnson Coffin & Young, 2017, p. 1). During the processes of creating, curating, and weaving the threads, a one-narrative report “empties out the living stories – leaving a shell” (Boje, 2014, p. 14).
2.1.4 One-narrative reports.

Team reports represent multiple human experiences and overlaps identities across complex and uncertain ages, phases, and spaces. In this way, a team’s stories become storylines. The repetition of storylines creates representations of identities (Boje, 2014). Team members weaving their threads of stories while representing experiences, events, and situations (Cross, 1982; Lave & Wenger, 1991; Weick, 1969, 1993). Before or during the weaving of threads, the team choose how to prune several threads or discard threads completely. From the remaining woven thread, other forms and structures of storytelling may become formed or structured. The result becomes a one-narrative report. During these processes, teams may consider their reports as a distillation or synthesis of living stories into a single narrative in a similar fashion to authoring processes involving journal articles or annual reports. These types of reports consider several, but not all, situations or participants involved to end of a phase, a cycle, a task, a study, or a year. In contexts where the intent is to replicate and sustain new practices and workflows, the one-narrative report may become designated as a reliable map for others to take up and follow. One-narrative reports shine a light on the results of the team’s work and efforts.

When a team applies storytelling methods to team reports, the content represents the interplay between the social constructions of team learning (Papert & Harel, 1991) situated in the social constructions of participatory development (Gergen, 2015). The necessity to apply evaluative judgment on what stays and what goes develops standards of quality from external influential factors such as the purpose of the report, team members’ ways of knowing, the intended audience, or the form of the report. Once crafted and curated, the standards of quality infuse other communication channels forming the team’s narratives, stories, and SHAs of wicked problems and social messes. Fostering ways to sustain the team’s internal reports of works-in-progress returns balance to the team’s internal and external sensemaking processes.
2.1.5 Summary.

Team members situate their sensemaking within their team experiences. As they grow and develop in their team roles as ecosystem leaders, they expand the situations across professional borders, (Gergen, 2015). Team members continually reinforce or change their reality through the past, present, and potential future influential factors they encounter (Boje, 2014). Concurrently, the team reports represent how they make sense of their situated learning through dialogues and inquiries. Throughout these processes and experiences, they craft and curate their reports from the narratives, stories, and shorthand abstractions (SHAs) within their team and across the ecosystem.

Throughout the team reports, processes, and roles involved with formulation and facilitation, team members translate, mobilize, and transfer knowledge, skills, competencies, and social connections. Socially constructed team reports using storytelling methods evolve from relevant narratives, stories, and SHAs that situate the team’s work and then weave the team members’ experiences within the unfamiliar and problematic situations. Socially constructing the beginning, middle, and end of a one-narrative report, team members consider the interplay between the narrative coherence of the team and the living stories of the team members (Smith, 1999; Turkle, 2015). One-narrative reports illustrate how a team weaves through the situations as a cohesive narrative. The process of narrative coherence minimizes the variances of experiences illustrated by the living stories of sensemaking across the ecosystem.

2.2 Team Processes: Context-based and Resolution-Driven

Team processes refer to context-based and resolution-driven participatory development, rather than solution-driven distribution, as team members formulate a resolution within unfamiliar or problematic situations (Cross, 1982). Context-based resolutions address unfamiliar
or problematic situations identified by the team members’ sensemaking (Weick, 1969, 1993). Concurrently, as team members facilitate their context-based resolution, they identify additional unfamiliar or problematic situations within contexts of the ecosystem membership (Lave & Wenger, 1991). Participatory development offers opportunities for team members and ecosystem members to address convergent and divergent practices or workflows when tasked with formulating and facilitating an organization-based resolution (Jennings, 2000).

Unlike analytical evidence-based approaches within professionally designated disciplines or research, team members may approach wicked problems within social messes with context-base and resolution-driven processes (Cross, 2001). On the one hand, within their organizations, team members may engage and communicate through their daily activities, conversations, reflections, and other forms of personal participation. On the other hand, as their activities move from familiar situations to unfamiliar situations across an ecosystem, individuals become subjected to a myriad of policies and practices due to the variant nature of practices, terminologies, appropriate tools, concepts, methods, stories, documents, events, or resource linkages (Moore, 1996/2016).

To orient the readers to team processes and frameworks involving context-based approaches and resolution-driven processes, design thinking processes and collective impact frameworks provide exemplars followed by general discussions of problem finding and then, divergence and convergence. The next section describes participatory development including an ecosystem model of outward-looking schools. The model outlines a template to create opportunities for professionals, practitioners, educators, and students to create resolutions that allow individual reflection and collective dialogue concerning social issues and associated buzzwords.
2.2.1 Participatory development.

Since its emergence in the early 1970s, to engage local populations in development projects, participatory development has taken many forms and criticisms (Cornwall, 2011; Mohan & Stokke, 2000). Rather than creating a result, advocates of participatory development focus on the process of empowerment for marginalized individuals or populations. Theoretically, participatory development involving technologies or learning cultures tends to disrupt personal and professional practices (Jennings, 2000). Practically, participatory resolutions, unlike an institutional or industry solution, disrupt the predictive qualities of bounded linear processes and outcomes. In a similar fashion to events on social media, participatory resolutions may occur at just the right time providing flexible, fast, and fluid strategies to situations or events that rarely repeat in the exact same circumstances (Bonk, 2009; Jennings, 2000). Participatory development illustrates how a team functions with creative-thinking-in-action. Creative-thinking-in-action refers to “people who can think creatively, communicate and work in teams: people who are flexible and quick to adapt” (Robinson, 2017, p. 2). Applying diagnostic tools like social reasoning to artifacts from creative-thinking-in-action promotes creativity that “is not about a lack of constraints; it is about working within them and overcoming them” (p. 49).

In collaboration with local economies and governments, The Organization for Economic Co-operation and Development (OECD) asserts that a model of outward-looking schools may provide opportunities for professionals, practitioners, and educators to create resolutions that allow individual reflection and collective dialogue concerning social issues and associated buzzwords. Outward-looking schools refer to the ecosystem where the schools are situated with “all stakeholders of education are consciously or unconsciously involved in a collaborative learning process” (Mueller & Toutain, 2015, p. 6) and develop the process through “collaborative learning spaces to facilitate exchange across the diversity of learners.” (p. 15,
italics added for emphasis). This approach as an ecosystem balances the demands of a local or community economy on the local schools with the needs of an intergenerational population of learners. Taking up this approach, individuals and teams within organizations face the uncertainties of learning by problem finding, rather than problem solving, to address the social, career and technology issues within its immediate situated contexts.

2.2.2 Problem finding.

Problem finding refers to the sensemaking processes a team applies to identify current influential factors within a problematic situation across a bounded context. Iterative processes involving problem finding take considerable time, work, and efforts from the team members. As a team learns through iterative processes, they develop a tame formulation that combines an empathetic approach to the interplay between end-users and the multiple social connections across the bounded context (Seidel & Fixson, 2013). Over time and space, a team formulates an ontological dimension “to distinguish several levels of social interaction at which the knowledge created by an individual is transformed and legitimized” (Nonaka, 1994, p. 17). They facilitate the resolution with critical friends to solve the problems associated with naming elephants and situating dragons. The team collectively defines a disruption across an ecosystem representing multiple contexts. As they explore and discover the current situations, team members become clearer about the interplay between the influential factors and the disruption. Three examples of iterative group processes include need-finding of end users, stimulating creative and productive discussions through brainstorming, and forming socially cohesive resolutions through prototyping (Cross, 2001).

Problem finding benefits the novices and experts on a team through critically and creatively addressing wicked problems while designing an organization-based resolution. These team processes consider a holistic iterative change management approach across an ecosystem
(Cooperrider & Avital, 2004). The team learns and develops a resolution with networks of professional communities, complex adaptive systems, and multiple realities through various iterative processes (Rittel & Webber, 1973). Given the time and effort to effectively consider problem-finding across a social system, middle-out approaches offer an alternative approach to conceptualizing top-down or bottom-up implementations. Two examples of middle-out approaches follow.

First, chosen by their ecosystem membership, the team may suggest an upgrade to their immediate social systems using an organization-based resolution as a middle-out approach. Systems engineers refer to a middle-out approach as a significant upgrade to extend the life cycle of an existing system while problem-finding the system-in-place before proposing top-down or bottom-up approaches (Leite, Hadad, Doorn, & Kaplan, 2000). From the previous section on collective impact, practitioners and researchers addressing leadership and decision-making across social systems diagnose or debrief system-wide knowing-doing gaps through a collective impact approach (Kania & Kramer, 2011).

Second, from the educational leadership literature, the potential of leadership from the middle (LftM) model (Fullan, 2015, p. 203) bridges or ladders the knowing-doing gaps through a continuous middle-out approach of PD/PL (Borko, 2004, Drago-Severson, Roy, & Von Frank, 2014; Fullan, 2004). For example, during a project, the community leaders in the LftM model, may implement the three iterative processes in problem-finding of wicked problems. At the end of the project, the team leaders produce new knowledge to the tame formulation and the community leaders situate their knowledge of the wicked problems in social messes. Before the next project starts, the leaders and community leaders determine the next system upgrade guided by the results of the team leaders and community leaders. In theory, this middle-out approach
invites everyone “concerned with a given social mess to re-learn, re-evaluate, and re-solve the wicked problem at hand … [then] creating consensus, choosing specific actions, and determining responsibilities for implementation” (Horn & Weber, 2007, p. 27, italics added for emphasis). Resolving wicked problems in these ways, a community collaboratively contextualizes representations of combined knowledge domains, skill sets, competencies, and/or technologies. Community collaborations may inform wicked problems across the social system.

Throughout their chosen career path, professionals and practitioners may choose to enhance their skill sets formally or grow their competency informally through professional, organizational, and practice-based learning (Argyris & Schön, 1974, 1978, 1996; Markauskaite & Goodyear, 2014). Team leaders and community leaders might introduce a significant Professional Development / Professional Learning (PD/PL) upgrade during a project across their social system. During the project, teams collaboratively implement the tame formulation of the wicked problem in their daily workflows and practices. This collaboration builds knowledge and reports that remain with the team, community, or members of authority. In general terms, team members may apply their ways of knowing to reach organizational targets while expanding the collective impact through interactions with their team, organization, and clientele.

2.2.3 Collective impact.

Collective impact frameworks may be a more familiar method for team organizers to inform the building and distributing of new knowledge, skills, competencies, and social interactions to others in the ecosystem (Kania & Kramer, 2011). In recent years, large-scale global social ecosystems have grown with leaders, researchers, and practitioners diagnosing and addressing problematic situations with a shared purpose including shared values and fostering a collective impact framework. In this framework, members create a social ecosystem with shared values involves five elements: a common agenda, a shared measurement system, mutually
reinforcing activities, constant communication, and dedicated backbone support (Kramer & Pfitzer, 2016). For large-scale global projects, the dedicated backbone support describes “a separate, independently funded staff dedicated to the initiative – the backbone of the project” (p. 87, italics in original text). For example, a large-scale global project across an ecosystem involving thousands of networked business ecosystems that achieves shared purpose with interdependent backbone supports the Internet of Things (Moore, 2013). For smaller-scale localized projects, ecosystem leaders are centralized organizations recognized by members of the ecosystem to address the disruption and to model a new order.

In networks of organization, professionals and practitioners may benefit from synthesizing information exchanges through a collective impact framework before an analysis of a resolution. The participants may socially construct feedback for a current resolution and feed forward how the next iteration might improve based on context-based experiences (Kania & Kramer, 2011). For smaller-scale projects, teams and communities become the backbone support as members of authority. In the place of staffing, ecosystem leaders facilitate processes that provide the necessary social connections and documentation. To determine collective impact, some leaders, practitioners, and researchers discuss diagnosing system-wide knowing-doing gaps and the potential of leadership from the middle (LftM) (Fullan, 2015).

By 2025, some experts imagine “people will tap into [the Internet] so easily [information] will flow through their life ‘like electricity’ does now… [with] the most useful impact [being] the ability to connect people” (Anderson, Rainie, & Duggan, 2014, p. 5). Concurrently, local studies with mobile technologies and social connections find “face-to-face conversations are routinely interrupted by incoming calls and text messages … [and] when someone holds a [mobile device], it can be hard to know if you have that person’s attention” (Turkle, 2011, p. 161). Additionally, several researchers and practitioners suggest that regardless of being situated
globally or locally “seemingly small features of social situations can have massive effects on people’s behavior” (Thaler & Sunstein, 2009, p. 255). Researchers and practitioners draw on their theoretical and conceptual frameworks of social systems and ecosystems to develop a global conceptual model to address these statements.

With a shared purpose, teams learn with a localized workforce affected by these developments through a collaborative learning process (Mueller & Toutain, 2015). Alternatively, when assigned a task to address problematic situations across an ecosystem, a team requires ways to make sense of learning and processes brought about by complex, adaptive problems with issues like knowledge transfer and mobilization, disruptive social interactions, and changes to practices and workflows affecting people’s behavior. For example, the team leaders collaboratively facilitate a resolution they have formulated to tame their wicked problems in social messes. The community leaders across a social system collaboratively find and resolve the unforeseen problematic situations throughout the facilitation of the resolution. When a resolution becomes impossible to facilitate, they agree to formulate the closest result to tame the wicked PD/PL problems (here be the dragons). Facilitating an organization-based resolution results in unforeseen problematic situations, like persistent theory-to-practice gaps. Considering the numbers of potential organizations associated within an ecosystem, direct social connections involving dialogue or inquiry may not be available nor possible. If social connections are not available, then employing several strategies involving social applications of thinking processes (i.e., design, critical, inquiry) serve as a guide to team members.

2.2.4 Design thinking processes.

Design as a way of thinking maps back to the natural sciences (Simon, 1969) and systems thinking. Although Archer (1979), Cross (1982), and Schön (1983) allude to thinking differently through design, processes, and practices; the first significant use of the term design thinking is
attributed to Rowe (1987), a professor at Harvard Graduate School of Design. Traditionally, designers focused on enhancing the look and functionality of products (Norman, 2013). During the 1960s, some operational researchers and management decision-makers in the newly formed field of computer sciences challenged conventional ideas of design. They advocated for systematic scientific methods to assess design problems with pressing social issues. Through these challenges and assessments, they developed soft systems approaches to wicked problems and social messes (Alexander, 1964; Archer, 1979; Asimow, 1962; Jones, 1992).

Design problems are typically wicked because they seem ill-defined (no prescribed way forward), involve interested participants with differing worldviews, and have no optimal generalized solution (Conklin, 2006). Koberg and Bagnall (1981) proposed a circular seven-step process to problem-solving linearly and then return in feedback loops. Stanford d.School (2015) developed an updated five-stage design thinking process completed in ten steps. In between the circular seven-step process and Stanford d.School’s five-stage design thinking process, a three-step simplified triangular process (or the six-part, less simplified pyramid) by Lawson (2005) and a book of the processes documented by Dubberly (2005) exist. Systems thinkers apply systems mapping and scenario planning as tools to address wicked problems. Both tools require specialized skills, resources and facilitation. However, as system thinkers attempt to resolve social messes, far-reaching institutional policies and procedures may derail any progress. To illustrate this point, Oxford Scenarios Programme provides an analytical tool and process enabling organizations to explore strategic thinking and planning about their future context and actions. These explorations include possible and improbable futures in situations characterized by high degrees of risk and uncertainty (Ramírez et al., 2010). A prominent example of a long-term approach using the Oxford tradition of systems mapping and scenario planning is the ‘Shell

From the roots of the natural science methods and systems thinking, social applications of human-centered design thinking processes broaden and build a team’s sensemaking of community perspectives and collective impact. As ideas of organizational learning in the 1980s promoted the ‘quick and nimble’ culture of business, three industrial design companies combined and became IDEO. As one of the first design companies to showcase their human-centered design process, IDEO draws heavily on the Stanford’s design curriculum (Koppel, 1999; Stanford d.School, 2015). Once a team chooses a design thinking process, the success of facilitation requires the concerns “with a given Social Mess to re-learn, re-evaluate, and re-solve the Wicked Problem at hand … [through] creating consensus, choosing specific actions, and determining responsibilities for implementation” (Horn & Weber, 2007, p. 27).

2.2.5 Summary.

When a team accepts the role of ecosystem leaders, other centralized organizations within the ecosystem may introduce their modifications (i.e., governing policies, action strategies) to the problematic situation (Argyris & Schön, 1974). These independent modifications may represent varying perspectives of the disruption in the ecosystem and guided by the team’s BME narratives. These variances between individuals, teams, and organizations across an ecosystem represent the many lenses and approaches filtered through narratives and stories (LSs, ELSs, SHAs, or BMEs). Systems thinkers conceptualize social messes (Ackoff, 1974). Ecosystem researchers identify modifications through processes ((Mitleton-Kelly, 2003). As ecosystem leaders, the organization must convey to the team doing the work that their assigned task has no
definitive formulation; no stopping rule — that is to say, no rule by which one knows the problem solves; no enumerable set of solutions; and no singular way to test a proposed solution (Cross, 2011, pp. 8-20).

In recent years, teams apply design techniques to tackle more complex social problems by adding a human-centered approach to group processes (Kelley & Kelley, 2013). Design thinking is a human-centered, solution-based approach to address these wicked problems. In industry, companies that integrate the principles of design thinking in their team processes often share a certain mindset or are striving to cultivate a more creative and human-centered company culture. As a profession, educators hold similar perspectives of innovative processes, certain mindsets, and ways of knowing while striving to cultivate a more creative and human-centered learning culture. When team members experience similar new contexts in the ecosystem, they consider processes or practices to see our [the team’s] seeing (Senge et al., 2005, p. 29) and then seeing from the whole (p. 42). As the team formulates and facilitates, team members take on the roles of knowledge workers (Drucker, 1959) and learning workers (Morgan, 2014).

2.3 Team Roles: Knowledge and Learning

Team roles refer to the responsibilities of the individuals and team members that bring some order (i.e., professional, interprofessional, organizational) to unfamiliar or problematic situations while being accountable to multiple social systems (i.e., organization, education, health/social care, ecosystem) requiring workers to mobilize and to distribute new knowledge (Drucker, 1959) and learning (Morgan, 2014) across an ecosystem. From the perspectives of developing and learning, debates of researchers and practitioners across research fields ebb and flow across a continuum from systemic development to pragmatic design of authentic social activities (Brown, 1996; Dweck, 2006; Nonaka & Toyoma, 2007; Thomas & Seely Brown, 2011).
A group of researchers and practitioners debate how workers may share knowledge across multiple intelligences to create personalized internally-motivated mental maps and collective externally-situated physical models encapsulated by a project, team, or organization (Argyris & Schön, 1974, 1978, 1996; Cross, 1982, 2001, 2011; Lave & Wenger, 1991; Thomas & Seely Brown, 2011). Another group focuses on the merits of teams training versus learning to develop a 21st century workforce that translates, mobilizes, and transfers knowledge and skills (Compeau, & Higgins, 1995; Sein et al., 1987). Several researchers and practitioners discuss the current shift of lifelong learning (Elfert, 2015; Lindeman, 1926/1989; Yeaxlee, 1929) from formal training/learning designs and developments to the impacts of informal learning opportunities involving rapid technological changes and global interconnectivity (Groen & Kawalklak, 2014).

Researchers and practitioners across three global organizations consider broad-based social system approaches intended to bring smaller impacts on professional behaviors through collaboration while addressing social issues impacted by global ubiquity and interconnectivity. Teams of knowledge workers and learning workers representing the works and efforts of United Nations Educational Scientific and Cultural Organization [UNESCO] assert that globally “education has a fundamental role to play in personal and social development” (Delors, 1996, p. 13). Taking a broad-based educational approach, the United Nations Educational Scientific and Cultural Organization (UNESCO) Within these educational systems, UNESCO conceptualizes how education upholds the right to difference with four pillars of learning as underpinnings to 21st century learning environments (Delors, 1996). First, learning to know combines sufficiently broad general knowledge with the opportunity to work in-depth on a small number of projects. Second, learning to do acquires the competence to deal with many situations and to work in teams. Next, learning to live together develops an understanding of people and an appreciation of
interdependence. When groups carry out joint projects and learning, they manage conflicts in a spirit of respect for the values of pluralism, mutual understanding, peace, and cultural diversity. Finally, learning to be develops one’s experiences to interact with autonomy, judgment, and personal responsibility. This approach recognizes and acknowledges the demands of a global knowledge age with a creative economy on an educational system and the needs of an intergenerational skilled workforce. A collaborative learning space event with intergenerational learning activities between youth and category specialists provide formal and informal opportunities to socially interact or transact.

From research and practices across the global health/social care fields, teams representing the World Health Organization [WHO] developed a theoretical model as a way for local decision-makers and policy-makers “to conceptualize their existing [health/social] care system, commit to implementing principles of interprofessional education and collaborative practice, and champion the benefits of interprofessional collaboration with their regional partners, educators, and [health/social care] workers” (WHO, 2010, p. 11). Models like the outward-looking schools described in the last section take into consideration the adaptability, complexity, uncertainty of jobs (Arntz et al., 2016) and global trends in economic development (Handel, 2012). Concurrently, researchers and practitioners within and adjacent to these social systems in education, health/social care, and economic development consider how theoretical and conceptual frameworks across national or localized contexts impact the practices of individuals, teams, and organizations.

Across these domains of research, adult learning theorists foster social models focusing on knowledge, learning, and motivation (Bruner, 1961; Dewey, 1938/1967; Lindeman, 1926/1989; Papert, 2005; Piaget, 1973; Vygotsky, 1978). Happenstance learning involves
potential entanglements with naming elephants and situating dragons within unfamiliar or problematic situations. Making sense of the entanglements influence members’ implicit choices during resolution formulation or impede their explicit facilitation of a resolution (Krumboltz, 2008). Concurrently, team members entering unfamiliar or problematic situations often apply the results of practice-based learning gained through social construction and participatory development processes in familiar situations (Lave & Wenger, 1991; Wenger, 1998, 2009, Wenger-Trayner et al., 2014). Individually, three research areas bound the research discussions of how individuals develop and learn roles and responsibilities while addressing familiar situations: professional, interprofessional and organizational. Collectively, they situate parts of a team member’s learning and development of roles and responsibilities. Practice-based learning offers a representation of how a team member interprets the learning and developing situations across a journey.

2.3.1 Professional developing | learning.

As occupations continue to adapt to socio-economic factors, researchers and practitioners discuss the concepts of professional conduct, profession, and professionalism, especially in modern liberal democratic contexts and economies (Evetts, 2014). For example, one field of sociological analysis and research of professional work examines the concept of professionalism as “a special means of organizing work and controlling workers in contrast to the hierarchical, bureaucratic and managerial controls of industrial and commercial organizations” (p. 29). Professionalism refers to the verbal and non-verbal behaviors (i.e., actions, mannerisms, processes) fostering business relationships. Within the categorizations of an occupational profession, professional development (PD) and professional learning (PL) refer to ways in which an individual may grow, develop, and learn throughout a professional life cycle (DuFour, 2004).

For example, PD approaches in kindergarten to grade 12 (K-12) educational systems
began evolving over time and in different contexts from a traditional focus of PD as external experts directing paths to yield systematic growth across the educational profession to a growing emphasis of educators developing scholarly reflective practices in schools where they work and learn, individually and collectively (Fullan, 2015). This evolution heeds the warnings that standardized PD activities without allowances for effective application, reflection, and interaction with educators may not provide long-term changes in educators’ practices (Marzano, 2003). Researchers and practitioners describe knowing-doing gaps as theory-to-practice relationships that require bridging from evidence-based best practices adopted in their communities (Bryk, 2015; Darling-Hammond & Rothman, 2015; Ellis, 2005); or laddering personal growth to design principled practical knowledge in their teams within organizations (Bereiter, 2014; Jacobsen et al., 2013; Reilly & Literat, 2012).

When applying the research findings, practitioners and researchers debate the merits and barriers of how top-down PD/PL implementations of theoretical frameworks may bridge systemic growth to develop evidence-based best practices adopted in their communities (Bryk, 2015; Darling-Hammond & Rothman, 2015; Ellis, 2005). Others discuss the strengths and weaknesses of bottom-up PD/PL approaches laddering personal growth to design principled practical knowledge in their teams within organizations (Bereiter, 2014; Jacobsen et al., 2013; Reilly & Literat, 2012). Concurrently, realizing their personal PD/PL gaps between theories and practices, individuals within social systems may seek additional supports or resources by socially constructing communities of practice or inquiry outside their collectives (DuFour, 2004; Lave & Wenger, 1991; Wenger, 1998, 2009). Included in the debates and dialogues are the commingled living stories and narratives of professionals and practitioners. In this research, PD/PL offers these bridges and ladders to address potential gaps between theories and practices for educators across the kindergarten to grade 12 education system. However, within the ecosystem, many
educators work in the post-secondary education system. Few PD/PL opportunities exist for educators from both educational systems in the ecosystem to participate as a collective.

Alternatively, a practitioner’s professional life cycle, including PD/PL, may be bound to other professional life cycles within recognized social systems and common organizational settings (Epstein & Hundert, 2002). For example, in the health/social care fields, multiple occupation professions may require PD/PL opportunities to develop and learn. Doctors in medical institutions may engage in social, professional, and reflective practices with nurses, social workers, and physiotherapists. Generally, while engaging with other professional practitioners in medical institutions, doctors experience

- the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served … Competence depends on habits of mind, including attentiveness, critical curiosity, self-awareness and presence.

Professional competence is developmental, impermanent, and context-dependent (Epstein & Hundert, 2002, pp. 226-227).

Forming a collective structure of PD/PL activities to develop and learn within a spiraling social system like the healthcare field has merit when situations across professional designations dictate human life-death decision-making. Other theorists and practitioners acknowledge the collective structure of activities across a spiraling social system like the healthcare field impacting smaller organizational units in individual ways. Studies within organizational units conceptualize competence as a condition or quality of effectiveness, ability, sufficiency, or success (Elliot, Dweck, & Yeager, 2017).

For example, in the case of trade certifications, a governing body may set the conditions
of certification for individuals after they develop and learn appropriate knowledge, skills, and competencies in an educational institution. In the field of organizational studies, several researchers explore user training and learning with appropriate technologies and define user competence as “the user’s potential to apply technology to its fullest possible extent so as to maximize performance of specific job tasks” (Marcolin, Compeau, Munro, & Huff, 2000, p. 38). Competence refers to a broader approach as “an organism’s capacity to interact effectively with its environment. … in mammals and especially [humans], with their highly plastic nervous systems, fitness to interact with the environment is slowly attained through prolonged feats of learning” (White, 1959, p. 297). Competencies refers to how the team members may adapt their professional practices when situated in many different environments as they complete their assigned task. With the cyclical nature of their processes with complex and uncertain environments, their competencies may vary in number and strength from one visit to another in an unfamiliar situation.

Thus, analogous to a journey rather than a destination, individuals within organizations or individuals working adjacent to other organizations may recognize and acknowledge a need or a demand for PD/PL events or experiences “across time, situations, and problems” (Nelson, 2007, p. 12). Several theorists studying the PD/PL experiences determine PD/PL experiences form structures of action within defined environments (i.e., Reckwitz, 2002); behavioral strategies key for individuals to thrive in times of uncertainty and risk (i.e., Deci, Connell, & Ryan, 1989); and life-long growth of strength-based values, inner resources, and cognitive strategies may be a key for individuals to flourish in times of risk, complexity, and uncertainty (i.e., Elliot et al., 2017).

In recent years, professionally designated practitioners, such as teachers, social workers, and nurses, are seeking employment opportunities in the private or not-for-profit organizations.
Across the literature, researchers and practitioners debate the roles and responsibilities of para-professional and professional designations. As one example, several researchers explore the what, how and why parts of their work might not consider an “occupational category of profession from such other groupings as (for example) vocation, trade or service industry” (Carr, 2014, p. 8). Alternatively, researcher and practitioners in the fields of interprofessional development / learning (IPD/IPL) identify demands and needs of professional growth with teams situated in interprofessional or organizational environments.

2.3.2 Interprofessional developing | learning.

Over the past two decades, local, national and global health/social care providers and policymakers have sought collaborative human-centered solutions enhance collaboration, to reduce health/social care service fragmentation, and to promote high quality client care (Romanow, 2002). One theoretical framework refers to interprofessional development and interprofessional learning (IPD/IPL). IPD/IPL encompass theoretical frameworks of developing and learning common professional knowledge, skills, and competences through social interactions (World Health Organization [WHO]), 2010). An interprofessional event is when two or more professions learn with, from, and about each other to improve the quality of care through interprofessional collaboration (Centre for the Advancement of Interprofessional Education [CAIPE], 2002). Since the late 1990s, the research literature describes interprofessionalism as ways of practicing that provides an integrated and cohesive answer to the needs of the client /family/ population… and it involves continuous interaction and knowledge sharing between professionals organized to solve or explore a variety of education and care issues all while seeking to optimize the patient’s participation (D’Amour & Oandasna, 2005, p. 9).
Communities of health/social care practitioners, policymakers, administrators, and academics report valuing this client-focused, collaborative integration of

[1] the development of a [socially] cohesive practice between professionals from different disciplines… [2] by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population… [3] involves continuous interaction and knowledge sharing between professionals organized to solve or explore a variety of education and care issues … [and 4] all while seeking to optimize the [client’s] participation (D’Amour & Oandasna, 2005, p. 9, numbers in italics added to identify components).

Applying this theoretical concept in informal or formal interactions addressing complex social issues between interprofessional groups has proven challenging. Independent surveys show over 80% of faculty, administrators and practitioners entering the field report valuing IPD/IPL theoretical frameworks to enhance collaborative practices. These same respondents report barriers within their chose disciplines and institutions that deter successful IPL implementations. From the survey data, these IPD barriers have been categorized as structural, attitudinal, professional/disciplinary, and teaching/learning (Gardner, Chamberlin, Heestand, & Stowe, 2002).

Addressing these IPD barriers in IPL implementations, several researchers and practitioners explore complex social issues and consider the impact of an inclusive view of professional practices using interprofessional competency frameworks (Bridges, Davidson, Soule Odegard, Maki & Tomkowiak, 2011; Wood, Flavell, Vanstolk, Banbridge, & Nasmith, 2009).

Thus, administrators and policymakers may attempt to solve a complex and diverse social challenge to create more and better health/social care systems for a community experiencing
demographic and environmental changes. Alternatively, within professional systems, administrators or policy providers develop common patterns of discourses, symbols and communications based on knowledge domains of specialized language and skills sets.

Concurrently, researchers report tensions arising between professionals as theory-to-practice gaps form in community programs. Descriptions of these tensions include 1) historical professional hierarchies within societal norms, 2) little leadership of interprofessional initiatives, 3) few resources available to maintain collaboration across community programs, and 4) little time given to collaborate (Barr, 2005; Boettchera, Jakesb, & Moskow Sigalc, 2008; Thistlethwaite & Moran, 2010; Whiteley, Gillespie, Watts, Robinson, Dattolo & Jones, 2010; Wood et al., 2009). Within the IPD/IPL literatures, interprofessionalism may strengthen interprofessional collaboration (Bainbridge et al., 2010).

Administrators, policy providers, and professional practitioners attempt to apply these theoretical frameworks and concepts while planning for future community-based health/social care systems. They meet complex interdependences between teams of professionals within risky, complex, and uncertain health/social care environments. In general terms, researchers and practitioners explore and discover ways to enhance the work and efforts of interprofessional teams as they formulate – design, develop, prototype, evaluate – and facilitate a holistic resolution to a problematic situation involving wicked problems within social messes. In many of these cases, the IPD barriers (structural, attitudinal, professional/disciplinary, and teaching/learning) are like barriers identified in the PD/PL literature in the last section. In the next section, organizational development and learning (OD/OL), similar situated discussions prevail that consider an organizational learning process through single- or double-loop learning.
2.3.3 Organizational developing | learning.

Across the literature on organizational development (OD), organizational learning (OL) and organizational systems (OS), researchers and practitioners debate the impact of organizational training and learning (Compeau et al., 1995). As their situated organizational contexts change rapidly, the potential of new experiences rises. Individual and collective living stories expand, condense, or stay the same based on their ways of knowing (Cross, 2001). From an organizational viewpoint, Schwartz (2015) posits “human nature is more created than discovered. [People] design human nature, by designing the institutions within which people live” (p. 10). When facing complex situations with ill-defined social issues; managers, leaders, and researchers may alter the established institutional design by developing ill-formed strategies for change management for their organizations (Schmitt, Raisch, & Volberda, 2016) and organizational learning processes for their workers (Argyris & Schön, 1978; Dougherty, & Hardy, 1996). Several researchers and practitioners describe learning as a process like double-loop learning (Argyris & Schön, 1974).

Traditionally, leaders and decision makers identified professionalism within sociological theoretical frameworks. Their task became designing and developing pathways to these professional designations. These designations bound professional conduct by determining the ethics, work, practices, learning, and development of each identified professional category (i.e., doctors, nurses, social workers, teachers). As the theoretical and conceptual frameworks grow, researchers and practitioners may choose to focus their studies and discussions by determining contextual variants. Organizational learning (OL) involves processes in which team members may learn to create order in unfamiliar or problematic situations through the detection and the correction of an error after applying an action strategy to a situation (Argyris & Schön, 1974).
Double-loop learning, an organizational learning process, involves the detection and the correction of an error after applying an action strategy to a situation (Argyris & Schön, 1974). When an action strategy is applied through organizational development (OD), one of three consequences result. First, if the intention matches the expected outcome, no OL happens. Otherwise, one of two consequences evoke OL:

When the error detected and corrected permits the organization to carry on its present policies or achieve its presents objectives, then that error-and-correction process is single-loop learning. Single-loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off. The thermostat can perform this task because it can receive information (the temperature of the room) and take corrective action. Double-loop learning occurs when error is detected and corrected in ways that involve the modification of an organization’s underlying norms, policies and objectives (Argyris & Schön, 1978, p. 2-3, italics in original text).

As stated earlier, wicked problems within social messes contained in a turbulent social system are analogous to disruptions in ecosystems. Identified disruptions become resistant to standard applications, a known solution, or a single method. Decision-makers, leaders, or funders approach identified disruptions with creative resolutions that seem incomplete or contradictory due to the rapid changes in individuals or spaces across an ecosystem. Thus, the potential of social applications of thinking processes broadens the perspectives of teams and their ecosystem membership. However, deepening the thinking to instill changes-to-practice require higher-order cognitive functioning and a dual process of social learning. The next section introduces how teams tame wicked problems through practice-based learning.
2.3.4 Practice-based learning.

When team members formulate a resolution to *tame the wicked problems*, they consider storytelling as the filters and practices of the end-users. In turn, the resolution of the team may create the persistent knowing-doing gaps they encounter across the ecosystem (Wenger-Trayner et al., 2014). When a team navigates unfamiliar situations, the team processes the influential factors through sensemaking. The reports, processes, and roles of the team become “grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focused on and by extracted cues, and driven by plausibility rather than accuracy” (Weick, 1995, p. 17). Therefore, iterative processes serve as a series of steps to tame the wicked problems rather than an expectation of “a totally rational approach… [of asking] decision-makers to define their objectives clearly, analyze information rationally, predict consequences, and be consistent” (Gelatt, 1989, p. 252). Team members engage with professionals and practitioners from a network of communities of practice across ecosystems.

Team members address a dual process of social learning in complex social learning contexts by promoting social learning processes such as collaboration and design thinking processes across an ecosystem. They need opportunities to reflect on their practice-based learning and determine the impact of new knowledge, skills, competencies, and social connections. These opportunities offer team members time to discuss their roles as knowledge workers (Drucker, 1959) and learning workers (Morgan, 2014) in unfamiliar or problematic situations. These practice-based learning processes complement their professional practices in the familiar situations developed and learned through PD/PL, IPD/IPL, and OD/OL.

2.3.5 Summary.

Studies within social systems include PD/PL, IPD/IPL, and OD/OL consider multiple influential factors within the research designs. Within educational studies, one research design
studies how educators and their communities apply models of PD/PL to address potential theory-to-practice gaps between 21st learning theories and classroom practices (Ellis, 2005; Jacobsen et al., 2013). Alternatively, another design focuses on identified gaps, such as achievement gaps in classrooms (Wagner, 2014) or leadership gaps in educational changes to classroom practices (Fullan, 2015). In recent years, research designs integrate fields of professions working to integrated approaches and to address gaps in workflows.

Within IPD/IPL studies, health/social care researchers and practitioners study how theoretical frameworks involving IPL practices to enhance social interactions and collaboration, to reduce service fragmentation, and to promote high quality client care (Barr, 2012; Bainbridge, Nasmith, Orchard, & Wood, 2010). Alternatively, health/social care researchers and practitioners choose to study how a single concept, such as social cohesion or IPD/IPL collaboration, strengthen a localized instance of the broad-based theoretical framework (D’Amour & Oandasna, 2005). From the growing literature and studies in IPD/IPL, organizations form to support researchers, educators, and practitioners (i.e., UK-based Centre for the Advancement of Interprofessional Education (CAIPE), [https://www.caipe.org](https://www.caipe.org)).

Within organizational studies, researchers explore the impact of team or organization reporting, processes, and roles as potential driving forces of change in unfamiliar and problematic situations (Hackman, 2002; LaFasto & Larson, 2001; Kania & Kramer, 2011). Alternatively, OD/OL designs choose a specific topic like team effectiveness (Rubin, Plovnick, & Fry, 1977). Several OD/OL studies narrow the focus of OD/OL with concepts like theories-in-action (Argyris & Schön, 1974, 1978, 1996). Alternatively, OD/OL studies expand the focus to discover how members of ecosystems coevolve through unfamiliar or problematic situations while addressing OD/OL (Moore, 1996/2016). Working within unfamiliar or problematic
situations, team members make sense of their experiences through practice-based learning as they participate in dual social learning processes involving cognitive presence, cognitive processing, and reflecting.

2.4 Ways of Knowing: Influential Factors

Generally, a way of knowing (WoK) refers to influential factors that team members discover, perceive, express, or justify as evidence while they continue to learn and to develop sensemaking of new experiences in unfamiliar or problematic situations (Cross, 1982; Dewey, 1910, 1937/1967, 1925/1977; Weick, 1995). When a team begins to form, the team experiences influential instances of team members’ practice-based learning through a variety of WoKs (Evetts, 2014). As unfamiliar or problematic situations normalize to familiar situations, team WoKs converge and represent a narrative of guiding variables, team or organizational principles, professional expertise, or organization experiences. A team learns and develops designerly ways of knowing through inquiry, dialogues, and common experiences.

Alternatively, when unfamiliar or problematic situations have little or no basis in familiar situations, individuals express their WoKs through forms of storytelling (Boje, 2014). In storytelling, individuals or collectives might not consider the same influential factors to each WoK. Individual and collective experiences diverge while individuals discuss their WoKs from current best practices to inform unfamiliar next practices (Rosile, Boje, Carlon, Downs, & Saylors, 2013). From these divergent discussions, the collective fosters newly formed bridges and ladders between the knowing-doing gaps (Pfeffer & Sutton, 1999). Alternatively, they adapt models from change agents with a consultancy model as the team members discovered using the RIPL model in their organization-based model (Caldwell, 2003).

Before facilitating resolution-driven events involving problematic situations, individuals and teams choose adaptive thinking processes (design, critical, creative, mindfulness) to
formulate a resolution (i.e., Kelley & Littman, 2006; Langer, 2014; Kramer & Pfitzer, 2016; Resnick, 2017). During the formulation, they explore and discover new WoKs when collaboratively integrating their current experiences, events, and situations with others in the ecosystem (Cross, 1982; Jones, 1992). Depending how well other individuals listen, a way of knowing may or may not impact the individual or the collective as the storyteller intended due to various naming of elephants and situating of dragons. Without inquiry or dialogue, the collective considers their way of knowing has the same underpinnings or influence as the individual (Seidel & Fixson, 2013).

Social applications of potential thinking processes broaden the team and ecosystem perspectives through interviews, personal stories, and professional practices (Brown & Katz, 2009). Group processes involving problem-finding, brainstorming and prototyping are having an increasing influence across social systems and organizations (Brown & Katz, 2009; Crichton & Carter, 2017a; Seidel & Fixson, 2013). Thus, when tasked with new social processes or group dynamics, organizational teams might benefit from designing and developing designerly ways of knowing through culturally appropriate storytelling processes (Cross, 1982).

**2.4.1 Designerly ways of knowing.**

As a team gathers content to report the results of social construction and participatory development, team members weave the stories from their professional roles and responsibilities. Over time and space, team members determine how their ways of knowing foster designerly ways of knowing (Cross, 1982). As a team reports the social construction and participatory development while focusing on their professional roles and responsibilities, team members illustrate how their ways of knowing aggregate into designerly ways of knowing (Cross, 1982). Designerly ways of knowing identify the aggregation of a team’s implicit and explicit standards set for an organization-based resolution to a problematic situation as they engage in participatory
developing and socially constructing knowledge and learning (Cross, 1982).

While broadening their perspectives in these processes during formulation or facilitation, the team fosters a better sense of how the ecosystem members coevolve. Archer’s (1984) work in industrial design introduced a ‘designerly way of thinking and communicating’ as “both different from scientific and scholarly ways of thinking and communicating, and as powerful as scientific and scholarly methods of inquiry when applied to its own kinds of problems” (p. 17). Building on Archer’s (1979) work in design methodology, Cross (1982) introduces the term \textit{designerly ways of knowing} to represent how designers think and act within their professional practices. \textit{Designerly ways of knowing} include the manipulation of non-verbal codes in a material culture. Cross (1982) explains

\[\text{these codes translate messages either way between concrete objects and abstract requirements; they facilitate the constructive, solution-focused thinking of the designer in the same way that the other (e.g. verbal and numerical) codes facilitate analytic, problem-focused thinking (p. 12).}\]

From Cross’ (2001) review of a wide variety of studies of design activities and designer behaviors, five design abilities resulted when identifying \textit{designerly ways of knowing} by tackling and resolving ill-defined problems; (i.e., identified disruption, problematic situation); by adopting solution-focused cognitive strategies (i.e., problem-finding, shaping, synthesis, and appropriateness within an imagined culture); by applying social constructivist mode(s) of thinking (i.e., abductive, appositional, design, productive, social, organizational, creative, critical, computational); by choosing codes (i.e., governing variables, intentions, graphic/spatial literacies, non-verbal modeling media,) to translate abstract requirements into concrete objects (i.e., developing language to illustrate a resolution); and by applying these codes to both read and
write in the resolution language developed. To illustrate his point of designerly ways of knowing, Cross (1982) systematically contrasted “design with the sciences and humanities [as] a useful, if not crude, way of being more articulate about it” (p. 2). He interpreted cultural differences using three criteria: phenomenon of educational environment, appropriate methods used, and values.

Based on Cross’ findings, in a scientific culture, ways of knowing involve the natural world using controlled experiments, classifications and analysis. Members of the scientific culture value objectivity, rationality, neutrality and a concern for truth. Alternatively, in a design culture, ways of knowing involve a future world, which never replicate, using modeling, pattern-forming, and synthesizing to imagine a new artifact. Members of a design culture value practicality, ingenuity, empathy and a concern for appropriateness. From the last section, the humanities culture, ways of knowing involve human experiences using analogies, metaphors, and evaluations. Members of a humanities culture value subjectivity, imagination, commitment and justice. Cross’ representations demonstrate how design and humanities cultures are not mutually exclusive. Considering the social applications of the biological or other natural sciences ecosystems, the analogies represent how social scientist brings human experiences to the concepts and theories of the natural world. As ecosystem leaders, a team uses modeling, pattern-forming, and synthesis to formulate and to facilitate an organization-based resolution. Table 2.1 summarizes Cross’ findings.

Table 2.1 Cross (1982): Three cultures in educational systems

<table>
<thead>
<tr>
<th>Culture</th>
<th>Phenomenon of Educational Environment</th>
<th>Appropriate Methods</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>artificial (imagined) world</td>
<td>modeling, pattern-forming, synthesis</td>
<td>practicality, ingenuity, empathy, and a concern for appropriateness</td>
</tr>
</tbody>
</table>
Although highly developed in skilled designers, most practitioners hold some degrees of all these abilities, implicitly or explicitly. In recent years, with the introduction of mindsets (Dweck, 2006) and 21st century learning, the protocols and traits of design thinkers have become commonplace within K-20 curricular blueprints. Many of these abilities reside in topic discussions including social systems mapping, graphic/spatial modelling media, and visual thinking (Casakin, 2003). Team members may not immediately identify with Cross’ three cultures. Their shared values and common concerns produce appropriate processes as they formulate and facilitate their organization-based resolution through inquiry-based approaches.

For researchers, professionals, and practitioners learning and developing solutions in familiar situations, the relevance of aggregating designerly ways of knowing seems an unnecessary task. For team members learning and developing resolutions in ecosystems, the relevance of aggregating designerly ways of knowing seems too time-consuming. When chosen as a leader, why might these team members and their organization consider allocating time and resources to thinking processes or frameworks? One reason is professional and practice-based learning manifests in many different forms when team members work in unfamiliar or problematic situations. What a team member learns or develops differs by personal characteristics, professional experiences, and personal practices (Mulder, 2014). Thus, using

<table>
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<th>Culture</th>
<th>Phenomenon of Educational Environment</th>
<th>Appropriate Methods</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciences</td>
<td>natural world</td>
<td>controlled experiments, classifications, analysis</td>
<td>objectivity, rationality, neutrality, and a concern for truth</td>
</tr>
<tr>
<td>Humanities</td>
<td>human experiences</td>
<td>analogy, metaphor, evaluation</td>
<td>subjectivity, imagination, commitment, and a concern for justice</td>
</tr>
</tbody>
</table>
processes like sensemaking after team members experience unfamiliar or problematic situations provides ways to formalize the learning across the team. While synthesizing, or building up, ideas through collective iterative processes, the team creates analogies and visual symbols through social learning methods like collaboration, social reasoning, dimensions of team effectiveness, and working with change agents.

2.4.2 Analogies and visual symbols.

As a team gathers contexts to report the results of problem finding, team members highlight the stories from their interprofessional roles and responsibilities. Over time and space, team members illustrate how their sensemaking supports analogies and visual symbols. One-narrative reports directed at new target audiences require the team discover analogies and ubiquitous visual symbols to socially constructed team reports. The ability of the team to generate visual symbols from the viewpoints of the new target audience enhances the potential of the new target audience to understand the analogies as representations (Boje, 2014). They consider participatory development as an approach across the ecosystem to add necessary details or additional resources to orient the new target audience to their processes and approaches (Cross, 1982; Boje, 2014; Wenger-Trayner et al., 2014). Concurrently, team members craft and curate one-narrative reports to leaders and decision-makers by applying the analogies and symbols of the organization.

Given humans’ propensity of processes like sensemaking through stories, Schwartz (2015) proposes “ideas or theories about human nature have a unique place in the sciences” (p. 10). He explains:

it is human nature to have a human nature that is very much the product of the society that surrounds us. That human nature is more created than discovered. We ‘design’
human nature, by designing the institutions within which people live. So, we must ask ourselves just what kind of a human nature we want to help design.

If we want to help design a human nature that seeks and finds challenge, engagement, meaning, and satisfaction from work, we have to start building our way out of a deep hole that almost three centuries of misconceptions about human motivation and human nature have put us in, and help foster workplaces in which challenge, engagement, meaning, and satisfaction are possible (p. 10, italics in original text).

Generally, within a social system, leaders, teams, organizations and their innumerable communities might develop and design a human nature through comparable stories they hold based on historic, social, and cultural factors (Groen & Kawalklak, 2014). Bringing members together to discuss similarities and differences of situations may not develop the necessary stories or narratives to move forward in attempts to formulate an organization-based resolution. An analogy involves a story or representation to translate, mobilize, or transfer prior knowledge from a familiar situation to a new target with explanations and processes. For example, logos or branding use visual analogies that the public readily identifies with specific organizations or social issues (Casakin, 2003). Alternatively, when considering end users, software developers create personas which are “fictitious, specific, concrete representations of target users” (Adlin & Pruitt, 2010, p. 1). Like the processes to create and curate one-narrative solutions, software developers weave threads of target users’ living stories to create personas. In these cases, an analogy might provide a step towards designing and fostering a view of workplaces and combine several ways of knowing.

Two analogies from educational studies illustrate the potential complexity, uncertainty, and risk when a team begins to formulate and to facilitate an organization-based resolution
across an ecosystem through analogies and visual symbols. Choosing a new target based solely on analogies, logos, branding, or personas when unfamiliar with the nuances within a profession. Each analogy produces a potential target with explanations and processes. Separately, each analogy represents a one-narrative solution. Both analogies begin with a single model to translate, mobilize, and transfer prior knowledge from a familiar situation in the field of educational research.

First, from Schön’s (1983) view of reflective practitioners, a profession represents a combination of theories, practices, ethics, and judgments within the contexts of inherent and unavoidable adaptability, complexity, and uncertainty. Through career/life experiences in daily practices, a practitioner develops two personalized professional acts: knowing-in-action and reflection-in-action (Schön, 1983). Knowing-in-action describes the practitioner’s ability to draw on tacit knowledge to bridge the gap “artificially created between acting and thinking” (Schön, 1983, p. 50). As compared to professional or explicit knowledge, Schön describes tacit knowledge as “implicit in our patterns of action and in our feel for the stuff with which we are dealing with” (p. 49). Reflection-in-action describes the professional’s ability to draw together the gap between ‘knowing-in-action’ and an unfamiliar or problematic situation within daily practice.

Second, in Wagner’s (2014) view, an educator or teacher attracted to the 20th century profession is “a kind of craftsman… someone who enjoyed honing a skill… preferred working alone… [and] valued security and continuity above challenge and change” (p. 155). Entering professionally designated higher education programs, all these tendencies seem nurtured through a cohort experience of training. Upon graduation and certification, the educators and teachers consider their workplaces within a broader social system “held together through compliance to
traditional bureaucratic authority… more characteristic of yesteryear’s blue-collar assembly lines than of ways in which most work is organized today” (p. 155).

These two analogies highlight divergent ways of knowing. Tasked with developing visual symbols for these practitioners, team members choose various processes to determine a target audience. First, given these two analogies without further exploration or explanation, team members choose to determine a general target audience and “produce statistically supported conclusions about [these] specific, tightly defined practices” (Eisner, 1979/2017, p. ix). Next, with further exploration and explanation, team members consider these two analogies as representations of two endpoints of a continuum of potential targets and adapt their visual symbols within localized contexts. Finally, team members might consider the analogies of scholarly reflective practitioners and craftsmen as living stories to explore, discover, and examine. Several readers privilege one story over others. Given time for exploration, several readers may choose to deconstruct the analogies of Schön and Wanger. Given time and space, other opportunities to use these analogies for developing and learning may become apparent. Regardless of the approaches, team members produce visual symbols for a new target audience that becomes a subset of the whole. Two key questions before investing time and resources to deconstruct the analogies become Why do it? and Why not create one we know? Answers to these questions demonstrate the potential power and potential danger of using analogies, visual symbols, and storytelling from unknown sources due to the variety of reactions and responses to consider depending on the number of voices needing to be heard.

Consider a scenario where without dialogue or inquiry, readers choose the analogy of Schön’s reflective practitioner or Wagner’s craftsman to represent their professional story. When the same story repeats endlessly, the readers begin to believe that their choice is the one-narrative
solution without adding the necessary details or additional resources to orient the new target audience to the processes and approaches (Cross, 1982; Boje, 2014; Wenger-Trayner et al., 2014). In a similar fashion, abandoning all past stories dispossess or malign several readers and their experiences. Several readers may not identify with either analogy presented based on their governing variables or various confounding variables.

Approaches like collective impact (Kania & Kramer, 2011) and processes like design thinking (Kelley & Kelley, 2013) guide the iterative team processes that synthesize, or build up, the knowledge, skills, competencies, and social connections. Engaging iterative processes provide team members a distinct way of problem finding. As a team determines the dimensions, growth, or change of a social system, they apply social tools like problem shaping, synthesis, and professional appropriateness (Cross, 2001; Schön, 1985). Concurrently, teams making sense of how they define concepts like team effectiveness (Rubin & Plovnick, 1981) or team processes like communication and learning in these complex workplace contexts. Several researchers in the field explore what might constitute elements of team effectiveness (Katzenbach & Smith, 1993) and components of team dysfunction (Lencioni, 2002). One model of team effectiveness identifies eight dimensions as influencing the concept of team effectiveness (Rubin & Plovnick, 1981; Whitney, Trosten-Bloom, Cherney, & Fry, 2004).

### 2.4.3 Team effectiveness.

As a team gathers resolutions to report on the results of identifying social messes, team members contemplate the collective impact from their organizational roles and responsibilities. Over time and space, the team members discover how their standards of quality underpins their dimensions of team effectiveness. When considering individual effectiveness as a professional or practitioner, effectiveness is “a habit; that is, a complex of practices and practices can always be learned … always exceedingly hard to do well. They have to be acquired” (Drucker, 2001, p.
Researchers studying the concept of team effectiveness propose eight key dimensions as influencing team effectiveness (Rubin & Plovnick, 1981; Whitney, Trosten-Bloom, Cherney, & Fry, 2004). The dimensions are (a) clear and shared goals or purpose, (b) clear and shared roles/responsibilities, (c) supportive and empowering relationships, (d) clear and shared procedures, (e) nurturing and challenging leadership, (f) evolving energy and spirit, (g) productivity and performance, and (h) complete, purposeful and uplifting communication. The examination and exploration of team effectiveness dimensions demonstrate how the team negotiates the individual ways of knowing to design the ways of knowing to build, manage, and transfer knowledge across teams and communities.

Additionally, given high degrees of risk of a resolution adjacent to the K-20 education systems, a second area of exploration of team effectiveness is the choice of team members’ reports with their varying roles and responsibilities with their team members, their organization, and their ecosystem. This exploration comes from the literature on knowledge workers who are “rarely in synch with each other, precisely because they are knowledge workers. Each has his or her own skill and concerns … [and each] has to be able to use what the other produces.” (Drucker, 2001, p. 198). Understanding what the other produces considers several skills as a learning worker since the knowledge of learning workers is how to learn in the workplace (Morgan, 2014).

Alternatively, team members apply an organization-based SHA to the change agents’ consultancy model. The team considers ways to translate, mobilize, and transfer knowledge, teams introduce various sources to inform their decisions including research studies involving training/learning (Compeau, & Higgins, 1995; Sein, Bostrom, & Olfman, 1987; Simon, Grover, Teng, & Whitcomb, 1996) or industry vendors like Business Technology Management (BTM)
http://beedie.sfu.ca/ftm/about or ITAC http://itactalent.ca/talent-initiatives/ftm/BTMAccreditation/AccreditationCriteria. In recent times, discussions of digital badging and micro-credentialing offer additional choices such as open virtual spaces to recognize and authenticate knowledge and skills (i.e., IBM Skills Gateway or Open Source Badges services) or to create custom digital badges and micro-credentials (i.e., Badgr, https://badgr.com/; OpenBadges, https://openbadges.org).

Choices of professional stories and analogies have the potential to break or repair a collective since histories, lives, and cultures are composed of many overlapping stories (Boje, 2014). Using designerly ways of knowing within social interactions provides an inclusive process to question and express the overlapping professional stories in purposeful ways. For example, we might begin an inquiry with three criteria from 21st century learning to address a team’s designerly ways of knowing: are they authentic? Are they social? Are they collaborative? Alternatively, we may choose one, or a combination, of the four ways in the next sections: collaboration, social reasoning, dimensions of team effectiveness, and change agents with a consultancy model.

2.4.4 Change agents with a consultancy model.

As a team gathers one-narrative reports to review the results of designing their resolution, team members examine their practice-based learning from their team roles and responsibilities. Over time and space, the team members explore how their evaluative judgment invites change agents. When tasked as an ecosystem leader, a team interacts or transacts with consultants outside the ecosystem. Recognized as specialists, professionals, or practitioners, individuals serve unique roles or functions in the team’s formulation or facilitation of an organization-based resolution including areas of education, leadership, management, or team development. These unique roles do not necessarily hold a space or place in either the organizational model or the
Change agents with a consultancy model refer to consultants external from the ecosystem who “operate at a strategic, operational, task, or process level within an organization, providing advice, expertise, project management, change program coordination, or process skills in facilitation change” (Caldwell, 2003, p. 140). In these examples, knowledge, skills, competencies, or social connections of the change agent transfers in some form or structure to the team (i.e., a dietician speaks on healthy eating; then a team member incorporates team activities to address health and well-being at an organizational level). The social interactions enhance knowledge, skills, competencies, and social connections as part of the formulation and facilitation of a resolution. Change agents impact various changes, innovations, or transformations to professional workflows and practices for the purpose of reducing conflict or producing change within the various phases (Geertz, 1973; Guskey, 2000; Lawless & Pellegrino, 2007).

2.4.5 Summary.
As ecosystem leaders, a team formulates and facilitates a current organization-based resolution across an ecosystem. Team members evaluate the success of the assigned task through the inward-bound journey. Organizations evaluate the success of the assigned task through the team’s proposal. Members of the ecosystem evaluate the success of the organization through the team’s outward-bound journey. Members with mutually supportive roles within the ecosystem evaluate the success of the assigned task through results of social construction and participatory development. Concurrently, a team identifies the cognitive construction zones and the social construction zones along the way. Recognizing that few structures remain visible once an assigned task ends, a team develops a set of interpretive blueprints including cognitive construction zones involving dual social learning processes and social construction zones...
involving participatory development. Whether formulating or facilitating, team members surface context-based and resolution-driven factors that impact a team’s abilities to project future scenarios involving long-term solutions to immediate disruptions (Florida, 2002; Pink, 2006; Wagner, 2010). A theoretical framework, a landscape of professional practices, provides ways to capture the results of the team’s reports, processes, roles, and ways of knowing.

2.5 A Landscape of Professional Practices

_A landscape of professional practices_ (Wenger-Trayner et al., 2014) provides a theoretical framework situated in practice-based learning. Studies by social learning theorists form a dual process of social learning to illustrate how professionals and practitioners working across ecosystems are

- involved not only in practicing their occupations, but also in research, teaching, management, regulation, associations, and many other relevant dimensions. All these practices have their own histories, domains, and regimes of competence.
- The composition of such a landscape is dynamic as communities arise and disappear, evolve, merge, split, compete with or complement each other, ignore or engage the other. (Wenger-Trayner et al., 2014, p. 14).

Applying this framework to a team, team members effectively create two landscapes of professional practices by conceptualizing a landscape of professional practices within the team and a landscape of professional practices across the ecosystem. Sensemaking as a team offers a catalyst to explore, discover, and examine the team’s _inward-bound journey_ and _outward-bound journey_ (Senge et al., 2005). The _inward-bound journey_ refers to the team’s sensemaking processes of complex experiences like situated, socially constructed learning across an ecosystem. Sensemaking of inward-bound journeys may counter instances of _groupthink_, “the
continual, albeit often subtle, censoring of honesty and authenticity in a team. This collective Voice of Judgement tells people what they should and shouldn’t say, do, and even think” (p. 41). In other words, team members making sense of experiences outside the team filter the features and influential factors of the outward-bound journey. The team’s outward-bound journey refers to how the team builds and stewards the ecosystem’s landscape of professional practices and the internal results of team member’s sensemaking. The narratives and living stories illustrate how team members process and filter knowledge, skills, competencies, and social connections within the team and across the ecosystem. Over space and time, the practices and workflows across the landscapes adapt through influential factors including elephants and dragons. Within unfamiliar or problematic situations like disruptions, team members tend to identify influential factors from relevant experiences (Dewey, 1910).

2.5.1 Divergence and convergence.

Divergent thinking is the ability to offer different, unique or variant ideas adherent to one theme while convergent thinking is the ability to discover a resolution to a given problem. For example, design thinking encourages divergent thinking to ideate many practical solutions before prototyping that uses convergent thinking to build a resolution (Cross, 1982). Including divergent and convergent thinking may serve newly-formed groups while they identify problematic features within unfamiliar situations (Rittel & Webber, 1973). Participating in team processes, members experience convergence and divergence in their communications as well as their thinking when they explore situations and discover resolutions (Cross, 2001; Kelley & Kelley, 2013). During information exchanges, convergence begins through the team’s ability to communicate and discover the best resolution to a given problematic situation across interpersonal networks (Rogers, 2003). Divergence begins through the team’s ability to see, hear and communicate different, unique or variant ideas adherent to one theme (Rogers, 2003).
Over time and space, making sense of the influential factors while processing convergent and divergent thinking through open communication channels conceptualizes the team’s designerly ways of knowing (Cross, 2001). As team discuss unfamiliar or problematic situations, the barriers involving knowledge, skills, competencies, and social connections appear when team members include their ebbs and flows to the optimal resolution (Argyris & Schön, 1974, 1978, 1996; Csikszentmihalyi, 1990/2008). Individuals and teams may identify new knowledge and learning by debriefing events or situations through a design thinking process (Cross, 2001). Encouraged to ideate many probable situations with divergent thinking, team members then use convergent thinking to negotiate and realize the best potential resolution guided by an imagined environment, or scenario construction (Leite et al., 2000). As the team constructs the scenarios, a set of interpretive blueprints evolve to support the landscapes of professional practices. These blueprints contain the cognitive construction zones and the social constructions as the team moves across the ecosystem.

2.5.2 Interpretive blueprints.

As teams work across ecosystems, team members require the mindsets of knowledge workers (Drucker, 1959) and learning workers (Morgan, 2014). Knowledge workers acquire, analyze and manipulate information and knowledge as opposed to producing goods or services (Drucker, 1959). Learning workers have the skills to learn as they go, adapt their skill sets and knowledge domains, and apply their learning to new situations and issues effectively (Morgan, 2014). Human-centered approaches are increasingly influencing the landscape of professional practices including social systems such as K-20 educators, health care/social care practitioners and organizational leaders.

Many contemporary professional practices address non-generalizable social issues have
popularized the traits of design thinkers and how they approach an unfamiliar or problematic situation (Conklin, 2006; Kelley & Littman, 2006). During group processes, team members begin with few judgments and attempt to eliminate the fear of failure with other group members. They frame questions to address the problems, gather as many ideas as time allowed from the participants, and collectively choose the best solutions from the process. Design thinkers encourage maximum input in any of the synthesizing processes, sometimes called ideation phases, and expect full participation in the prototype phases as they test their initial resolutions. Many of these processes and practices occur simultaneously and are usually repeat. By tackling more complex social problems with human-centered approaches, practitioners and researchers report a group of workers often begin to share a mindset and to cultivate a creativity in action approach and human-centered organizational culture (Kelley & Kelley, 2013).

A landscape of professional practices adapts team reporting to include team processes that filter the buzz around their work. Filter processes are human-centered such as social reasoning (Weick, 1995) and collaboration (Kahane, 2017). Processes like social reasoning invite team members to consider inward-bound journeys of the team. Collaboration opens opportunities for informed ecosystem members to stretch the context and content of the team’s one-narrative reports through participatory development.

2.5.3 Cognitive construction zones.

Cognitive construction zones characterize learning and development of the team members or the team as they translate, mobilize, and transfer knowledge, skills, competencies, and social connections during their dual social learning experiences (Newman, Griffin, & Cole, 1989). The results of the filtering processes happening in the cognitive construction zones become the artifacts of the dual social learning processes. Team reports, team processes, and team roles
represent three components of cognitive construction zones as the team members and the team interplay between the outward-bound journeys and the inward-bound journeys.

As ecosystem leaders, the team diagnoses the consequences to the resolution by expanding the distribution across ecosystems. Social reasoning provides a diagnostic process for team members to illustrate how the team makes sense of the actions across an ecosystem as they apply a resolution (Weick, 1995). Team members choose which actions to consider as they apply iterations of social reasoning. They discern the consequences of an action through single- or double-loop learning (Argyris & Schön, 1974, 1978, 1996). As a team discusses the consequences, they learn ways to bridge gaps amongst knowledge translations, mobilizations, and transfers.

In new contexts or roles, exposing actions, thoughts, and feelings make individuals feel vulnerable to the reactions of a group (Brown, 2015). Argyris and Schön, (1974, 1978, 1996) suggest that people have mental maps regarding how to implicitly act in situations. These mental maps include how to plan, implement, and review actions (theories-in-use) within a situation. The relationship between these mental maps and action “is like the relation of grammar-in-use to speech… [the mental maps] contain assumptions about self, others and environment – these assumptions constitute a microcosm of science in everyday life” (1974, p. 30). One potential set of mental maps illustrate the dimensions of team effectiveness (Rubin & Plovnick, 1981; Whitney, Trosten-Bloom, Cherney, & Fry, 2004).

Using the double-loop learning as a reflective practice provides teams a process to see their organizational mental maps and apply them to their systems maps using action and consequences. In turn, the leaders diagnose the consequences of these actions. Through this iterative diagnostic filter, the leaders diagnose which actions consider single- or double-loop
learning. This type of information exchange has the potential to contribute to organization-based resolutions (Dougherty & Hardy, 1996). This type of social reasoning based on past professional experiences seems to bridge the process from knowledge building to knowledge transferring. As knowledge builds within team collaborations or social reasoning, knowledge transfer between teams and communities provides opportunities for mutual learning to create new knowledge. Concurrently, transferring knowledge implies moving from social interactions (learning) to social transactions (instructing and learning). Barriers to knowledge transfer might appear. For example, where the team members situate in an office environment creates barriers. In this case, several team members connect virtually with external contacts (i.e., volunteers, sponsors) which create a barrier such as transactional distance (Moore, 1993).

Few people are constantly aware of these mental maps guiding their actions. When describing how they might act, individuals explicitly adopt theories they would like others to think they do (espoused theory). Together, these two theories – theories-in-use and espoused theory – called theories-in-action. When focusing on social reasoning, not just mimicry of social behavior, the theories-in-action process explains how these two interact. This process includes three elements: governing variables (i.e., values or design principles), action strategies, and consequences. To illustrate the process, Argyris (2012) suggests the following governing variables for a team or organization: (a) give and receive valid information (i.e., an open and self-organizing way of knowing); (b) favor informed choice for all concerned (as opposed to unilateral control); and (c) instead of holding negative assumptions about what others are thinking, engage in enough dialogue to confirm or disprove your assumptions. Applying these governing variables, team members become more willing to share their experiences in unfamiliar or problematic experiences. Concurrently, they become more concerned about hearing what others share about their experiences. In other words, the team creates a complete picture of the
situation from all perspectives including the state of the situation: familiar, unfamiliar, or problematic.

Within a cognitive construction zone, team members translate, mobilizes and transfer new knowledge, skills, competencies, and social connections. They become responsible for three roles: an instructor, a volunteer, or a learner. Instructors organizes the relevant materials and resources before they translate new knowledge for learners. Volunteers share knowledge, skills, competencies, and social connections freely as they mobilize. Learners question instructors and volunteers about new experiences, events, and situations during the transfers. In these roles, the team member considers the interplay between self-directedness and mindfulness through communication channels that open dialogue, sharing, and questions (Hanson, 2013; Langer, 2014). As individuals’ practices, experiences, and contributions across cognitive construction zones begin to vary, the necessity of sensemaking processes returns. The team develops methods and processes as they enter social construction zones.

2.5.4 Social construction zones.

As a social learning method, collaboration uses purposeful social interactions as a way of knowledge building. When the method is applied in familiar situations or with groups with established social relationships, collaboration has the potential to bring participants together to (a) dialogue and share representations of common goals, (b) to social construct sensemaking, and (c) respect each individual’s practices, experiences, and contributions (McInnemey & Roberts, 2004, p. 205). In general terms, as a social learning method, collaborative learning events require facilitators to become familiar with the situations being addressed or to have established social relationships. In unfamiliar situations without the appearance of team collaboration or social relationships, an open and self-organizing way becomes misinterpreted by individuals in the
same situation as a hierarchical or binary mindset (Kahane, 2017).

This example illustrates that regardless of the good intentions or abilities of an individual to collaborate in a familiar situation, collaboration may not effectively build knowledge, skills, or competencies in another situation. As an example, team members might lack domain-related knowledge, experiences or social relationships to draw upon social learning methods like collaboration when addressing wicked problems within social messes. As ecosystem leaders, collaboration may not be the best response in every unfamiliar or problematic situation. For example, besides collaborating, teams need to know when to respond in other ways: adapting, exiting, or forcing (Kahane, 2017). Social reasoning through OL provide a team with a process for action and diagnosis in these situations (Argyris & Schön, 1974, 1978, 1996).

2.6 Summary

From a broad sociological lens, the proposal of social constructionism across situations seems “simple and straightforward: what we take to be truth about the world importantly depends on the social relationships of which we are a part” (Gergen, 2015, p. 3). Individuals make sense of situations through processes that commingle their social development (Brown, 2015), their social learning (Papert & Harel, 1991), and their work (Weick, 1969, 1993, 1995). No one authority represents the results of sensemaking that hold many different views and potential tensions among those views. Individuals chose how to generate social constructivist ideas from sensemaking processes including storytelling, inquiries, and dialogues “that are on-going, and to which anyone, [including] you as a reader, may contribute” (Gergen, 2015, p. 3).

Change is a constant process of adaptive shifts from disorder to order resulting from the complex and uncertain interactions across an ecosystem (Mitleton-Kelly, 2003; Moore 1996/2016). Members of biological or other natural sciences ecosystems experience a myriad of disruptive barriers that spark changes and creates a new order. Depending on the barriers,
changes, or creations, the members literally take root and prosper or shrivel and die. Members of social ecosystems may figuratively describe their experiences in a similar fashion as they attend to and make sense of their disruptive experiences (Weick 1969, 1993, 1995). The perceptions and choices of individuals, teams, or organizations adds to the adaptability, complexity, and uncertainty during a disruption. Whether attentive, sensemaking, or unresponsive to disruptions, individuals continually adapt their social ecosystems through processes, or lack of processes, like self-organization, the emergence of patterns, and coevolution (Peltoniemi & Vuori, 2004). Unknown to the leaders across the social ecosystems is the impact of a factor, an action, or an adaptation (Mitleton-Kelly, 2003). In social ecosystems planning, social systems come together to address a shared purpose involving disorder to workflows and practices due to system-wide disruptions modeling a new order that constantly changes.

Collaboration as a social learning method and organizational learning as a social reasoning diagnostic method provide ways for sensemaking with teams and unfamiliar situations. At these points, designerly ways of knowing serve to set guidelines. Thus, a team adapts or adopts methods and processes to formulate – design, develop, prototype, evaluate – and to facilitate a resolution across an ecosystem. Social reasoning through organizational learning provides a team some basis for action and diagnosis (Argyris & Schön, 1974, 1978, 1996; Moore 1996/2016). In other words, team members need to recognize and acknowledge the choices made as the resolution design and be prepared to accept the results of negotiations and the potential of set-backs during these processes. These negotiations and set-backs test the team’s effectiveness.
Chapter 3 Research Methodology

Case study methodology provides both an inquiry process and the product of that inquiry (Stake, 2005). Several qualitative case study methodologies analyze multiple perceptions, or member checking, as a holistic, in-depth exploration to provide evidence of analytical generalization (Feagin, Orum, & Sjoberg, 1991; Miles et al., 2014; Yin, 2007). In analytical generalization, the researcher “is striving to generalize a particular set of results to a broader theory” (Yin, 2004, p. 36). Alternatively, researchers employ a comparison strategy to fix attention on a few specified attributes or variables creating a conceptual framework (Stake, 2010). Fixing the attention of the observer before data collections or comparative descriptions obscure the complex interactions and situated contexts of the intrinsic case knowledge (Stake, 2005, 2006, 2010).

Within the intrinsic case study methodology, two AI principles, Anticipatory and Free Choice, become part of the study. Anticipatory refers to the notion of a team’s propensity to move towards a specific direction resulting from anticipating that direction. By asking open-ended questions, the participants make sense of the team’s thinking rather being pointed in a chosen direction. In this way, I honor the participants’ Free Choice to react or respond in whatever way they felt most comfortable. As stated earlier, professionals develop their practice with specialized language and skills sets while developing their knowing-in-action and reflection-in-action (Schön, 1983). Participants may not share their implicit knowledge with peers or researchers (Hammond & Mayfield, 2004).

3.1 Why Intrinsic Case Study Methodology?

Intrinsic case study methodology is not sampling research where researchers study a case primarily to understand other cases (Stake, 2005; Yin, 2018). Stake (2005) refers to naturalistic generalization as how the researcher connects the reader to the participants’ experiences in true,
coherent, and believable ways. Thick description includes multiple perspectives, iterative changes to the events, and illustrations of how events occur, then provide valued and trustworthy knowledge (Geertz, 1973). The team in the study have formulated and facilitated their tool, an organization-based resolution. The participants formulate and facilitate their organization-based resolution across an ecosystem.

An intrinsic case study methodology neither compares nor generalizes to other cases (Stakes, 2005). In recent years, researchers and practitioners apply storytelling as lens within qualitative research (Miles, Huberman, & Saldaña, 2014) and organizational learning processes (Rosile et al., 2013). Qualitative research refers to studying how things work in situations where “personal experience, intuition, and skepticism work alongside each other … [and] relies primarily on human perception and understanding” (Stake, 2010, p. 11). Qualitative researchers and practitioners studying professional situations gather data “gained from working with others having similar training and depth of experience” (Stake, 2010, p. 13).

Concurrently, personal practice and professional knowledge within teams or organizations may “focus on the fact that how things work varies with [and within] the situation … from observation and inquiry, from training and experience” (p. 13). In these ways, a qualitative study applying a storytelling lens explores, discovers, and examines the interpretive, experiential, situational, and personalistic experiences of a chosen group within a situation (Stake, 2005, 2010). Applying an appreciative inquiry (AI) approach and storytelling lens to a qualitative study becomes “useful at the theoretical and applied levels … to help identify the conditions and processes that are most effective given an organization situation” (Rosile et al., 2013, p. 573).
3.2 Limitations to intrinsic case study methodology.

The rationale for choosing a case study methodology for this research also presents the opposite side of the coin: its limitations in its usage. Through a series of research events, the researcher and participants decide collectively how much to make the report a story; to compare with other cases; to formalize generalizations or leave such generalizing to readers; to include a description of the researcher; and to protect anonymity (Stake, 2005, p. 460). Eisner (1979/2017) proposes “by broadening the forms through which the educational world is described, interpreted, and appraised … the politics of practice become more generous” (p. 246).

The intrinsic case study broadens the view of how provincial curricular redesign through the practices and workflows of a team adjacent to an educational social system. As ecosystem leaders of the assigned task, the team formulates and facilitates their context-based and resolution-driven reports, processes, and roles across the ecosystem including K-20 education social systems. Through their retrospective descriptions, interpretations, and examinations, the participants examine their contributions of an organization-based resolution for a problematic situation involving a provincial grades 6 to 9 curricular redesign of an elective course across an ecosystem.

3.3 Appreciative inquiry (AI) Approach.

Concurrently, given the complexity, uncertainty, and potential risk of the assigned task, an appreciative inquiry (AI) approach to these opportunities serve team members as ecosystem leaders. Grounded in the domains of positive psychology, sociology, neuroscience, and positive organizational systems (POS), an appreciative inquiry (AI) approach fosters a coevolutionary search for what individuals and groups describe as the best in the people, their organizations, and the relevant world around them (Cooperrider & Avital, 2004; Barge & Oliver, 2003). The AI
approach comes from the understanding of its two-word title (Cooperrider & Srivastva, 1987). Appreciative refers to valuing and recognizing the best work and efforts in individuals, teams, and their organizations. Inquiry refers to the act of exploration, discovery, and examination. AI emphasizes collaboration and participation of multiple voices within an existing organization or community facing change (Barrett & Fry, 2005). Together, AI approaches and processes generate individual, team, and organization stories to determine how and why to change that differs from more common organizational change development interventions such as strategic planning, coaching, evaluations (Bushe, 2001). AI approaches change as a journey rather than an event or destination like many approaches (Cooperrider & Srivastva, 1987).

Developing and learning through AI approaches with professionals, interprofessional groups, or organizations focuses on broadening and building on the positive core (Fredrickson, 2006). With its systems orientation, the focus of AI is formulating and facilitating next stage changes to the organization rather than the people. To this end, eight AI principles underpin this approach to assist teams facing change management to prepare for a new stage in their journey. Using multiple cycles of an AI process provide leaders or organizers of change management time to renew or reframe their practices which include knowledge, skills, competencies, and social connections (Cooperrider, & Avital, 2004).
Practitioners using the AI approach to focus and to enhance a positive core of a team, group, or project as they iteratively address change by finding, defining, and resolving problematic situations in the moment. In these ways, an AI approach serve to maintain team effectiveness and to build resiliency in individuals and the team (Bowers, Kreutzer, Cannon-Bowers, & Lamb, 2017; Conner, 1992). Like other change management approaches, AI acknowledges that change is accelerating and becoming more complex (Conner, 1992).

3.3.1 AI approach critique and response.

One critique of AI is its focus on appreciating the positives rather than fixing the
problems. In the literature, this criticism and its responses have created a dualistic, either/or discussion of positive versus negative methods to discern how best to address change management (Bushe, 2012). Alternatively, Johnson (2013) argues “the generative potential [contributions] of AI [are] most likely to come from embracing the polarities of human existence and that it is the tensions of those very forces that most give life and vitality to organizations” (cited in Bushe, 2012, p. 18). From the field of educational research, Eisner (1998) suggests team members discern wise, ethical choices amongst the myriad of generative policies and practices using connoisseurship. Connoisseurship applies the art of appreciation involving the ability to see, not merely to look at, the interplay between light and shadow. In similar tones to Eisner’s connoisseurship, Senge et al. (2005) describe adding team processes or practices, like team collaboration to see the team’s seeing and then community collaboration to see from the whole. At times, these negotiations include ways of knowing: the evidence from individual experiences, the perceived needs of members within the ecosystem, the boundaries of funders or stakeholders, and the accountability to the broader social systems, such as education. Eisner’s connoisseurship become an integral part of the team’s negotiations while implementing the organization-based resolution across the ecosystem. Concurrently, teams and organizations may not have the time nor the resources necessary to explore, discover, and examine the amounts of information generated from these processes effectively or efficiently (Bushe, 2012).

The AI principle, Wholeness, addresses the notion that teams achieve a better outcome when they listen, not only hear, the whole story. First, all team members are present without distractions and, concurrently, in the room during an AI event. Second, they listen to everyone’s perspective including past, present, and future. Individuals and teams have more confidence and comfort to journey to the future (the unknown) when they carry forward parts of the past (the known). Carrying relevant parts of the past forward refers to the team considers the best parts of
the past experiences, not necessarily the strategies or solutions. It also refers to teams provide time to hear the complete perspective from everyone; not necessarily the politically correct message (Barrett & Fry, 2005). Inviting the entirety of individual hopes, fears, and interests considers a safe environment where the focus is on the open conversation rather than agreement. For example, given the uncertainty and complexity of an organization, individuals might describe acute problems and unprecedented opportunities in the same story.

A second critique of AI, researchers discover when new knowledge reinforces our ideas and reference points about practice, it is more likely applied than that knowledge which conflicts or contradicts them (Churchland, 2011; Churchland & Churchland, 1983; Hanson, 2013). Neuropsychologists report individuals tend to embody practices and workflows that meet their immediate needs of safety, connection, and satisfaction (Seligman, 1998, 2002, 2011). Using social reasoning, individuals match their intention and expected outcome incorrectly in a problematic or unfamiliar situation resulting in no OL happening (Argyris & Schön, 1974, 1978, 1996). This type of learning requires an explicit two-part process involving activation and installation. Activation events might include the novelty of unique social or cognitive presences involving group practices or changing social-emotional states within their daily social interactions and transactions. However, without an installation process, learning does not happen (Hanson, 2013). In other words, without an explicit activation-installation learning process, individuals only demonstrate to teams how they know what they have successfully experienced as individuals (Dewey, 1938/1967). When entering unfamiliar or problematic situations, participants may not determine what to expect as an outcome or be unaware of an explicit intention. Regardless of chosen action strategies, the foundational values of any organization create a tone for potential solutions. By choosing an AI approach within an organizational change framework, the study focuses the participants’ attentions to potential changes to the
assigned task, not the participants of the current organization-based resolution.

During a formulation of a resolution, the interactions within the team fluctuate as team members experience new knowledge, skills, competencies, and social connections across the ecosystem. As team members report and discuss their experiences, knowledge building and transfers to the team happen organically (McInnemey & Roberts, 2004). When identified as unfamiliar or problematic situations by team members, the team provides support and past experiences to illustrate their ways of knowing the social signals in these situations. Thus, seeing a social signal does not provide the ability for anyone to read another’s mind (i.e., know what others intend, believe, expect or feel). Considering team members have varying roles and responsibilities, shifts or changes in acting or thinking might require individuals to collectively evaluate a myriad of practices or potential workflows rather than rely on best practices. Best practices become entrenched mindsets when

once certain practices become the norm, once they are seen to bring benefits and to circumvent troubles, once they are reinforced by social approval and disapproval, they do of course seem to reflect the one and only right way for things to be (Churchland, 2011, p. 59).

One approach to disrupt mindsets is to provide unique challenges with teams to explore, discover, and examine the potential of changing entrenched best practices including sensemaking, beliefs, or values (Immordino-Yang, 2010). The 5D AI Cycle is one example of this approach. When individuals are involved in purposeful social transactions, they participate in knowledge creation or knowledge transformations. Building artifacts of reflective and collaborative practices as well as a one-narrative solution provide opportunities for individuals to discuss their ways of knowing about these representations (Casakin, 2003; Papert, 2005). With
several resolutions to problematic situations, professionals and practitioners collaboratively consider shared-value approaches and recognize their autonomous meanings, beliefs, or values (Seligman, 1998, 2002, 2011).

Within familiar situations, community developers, educators, community leaders, and researchers tasked with developing purposeful and sustainable IPD / IPL resolutions that have the potential to build interprofessional knowledge, skills, and competencies and not address individual workflows. Several practitioners define these tasks as many projects that hang from the sides of their desks (Bridges, et al., 2011). These projects are relevant to the professionals and practitioners. They receive little, or no time, in their tight daily schedules. The tasks become after work obligations or squeezed between other meetings. Once professionals and practitioners situate in an organization within an ecosystem, their standard professional practices, whether by discipline or as an interprofessional team, impact their answers when asked to volunteer for a participatory social learning environment as modeled in the collaborative learning space.

Once engaged in these sensemaking activities, participants examine their professional habits and experiences: collaborations, reflections, constraints, beliefs, and other practices. The importance of this incremental approach shows the need for change and an immediate resolution as a new stage in a journey rather than a destination. By facilitating disruptions of common practice thinking through sensemaking processes provide individuals the opportunities to recognize instances of unconscious mimicry (Churchland, 2011) or encroachment of buzzwords without a team’s organizational definitions. Therefore, this study positions designerly ways of knowing (Cross, 1982) to serve the participants as they describe through their professional stories to serve as examples of collaboration and social reasoning.
3.4 Why not Action Research (AR) or Design-Based Research (DBR)?

In recent years, social scientists consider various research designs, such as action and DBR, to explore, discover, and examine new knowledge transformations involving cognitive, social, and affective processes such as (a) personal meaningful learning goals; (b) intelligent reciprocal accountability systems between development and classroom challenges; (c) equitable and adequate resources; (d) strategies grounded in strong professional standards; and (d) opportunities within organizations to be continually learning (Darling-Hammond, 2010, p. xi). While planning for a career, professionals develop habits of head, heart, and hands in and through learning experience.

3.4.1 Why not action research methodologies?

Concerned with organizational change, or more specifically, effective, permanent social change, Lewin (1958), attributed with coining the term action research, concludes if people are active in decisions influencing them, they are more likely to adopt new ways. He states, “rational social management proceeds in a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of action” (p. 201). Committed to real issues and democratic intentions, action researchers argue that organizations or leaders may not impose democracy on people. Rather, people learn democracy through a voluntary process of responsible social participation (Cassell & Johnson, 2006). Action researchers postulate the responsibility of leaders during change is to guide, rather than manage, individual needs in moments of transition and to instigate changes toward democracy a situation has to be created for a certain period where the leader is sufficiently in control to rule out influences, he does not want and to manipulate the situation to a sufficient degree. The goal of the democratic leader in this
transition period will have to be the same as any good teacher, namely to make himself superfluous, to replace by indigenous leaders from the group (Lewin, 1948, p. 39).

Action research has the potential to identify real world problems, determine systematic interventions, and measure change in actions throughout the project and its formulation (Lewin 1948, 1951, 1958). Through descriptions from the participants of their facilitation and guidance, the case study researchers confirm, deny, or enrich the reports, processes, or roles based on their participants’ lived experiences. In addition, by using case study methodology, the descriptions of the social interactions and transactions within the team inform various identifications, determinations, and measures of a project. Analyzing episodes or text materials, researchers search for sensemaking with patterns and consistent codes (Miles et al., 2014).

**3.4.2 Why not design-based research (DBR)?**

In DBR, researchers explore the formative evaluations on the similarities/differences between the literature and local design including content and context. Their evaluations expose issues through the DBR research design and enable them to identify problems and gaps (Edelson, 2002). When designing and developing a resolution involving ill-formed social issues, design-based researchers explore the literature and identify the variables through a gap analysis prior to an intervention where generalized principles being explored and discovered (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003; Edelson, 2002; Gustafson, 2002). To bridge the gaps, researchers develop and design a theoretical intervention. As they apply the intervention, researchers extend and develop the implementation. The initial intervention may be insufficient to explain emerging patterns and a new framework emerges (Cobb et al., 2003). Using case studies, researchers design, study, and represent the multi-dimensional views of the participants. While collecting relevant data, they gather multiple sources such as documentation, archival records, interviews, direct observation, participant observation and physical artifacts (Yin, 1994).
Though design thinking processes, individuals and teams approach an understanding of wicked problems (Rittel & Webber, 1973). Design-based research has emerged in recent years as an approach for studying learning in context through systematic design and study of instructional strategies, tools, and technology-based instructional materials (Barab, 2006; Design-Based Research Collective, 2003). Wang and Hannafin (2005) define DBR as “a systematic, but flexible methodology aimed to improve educational practice through iterative analysis of design, development and implementation, based on collaboration between researchers and practitioners in real-world settings, and leading to contextually sensitive design principles and theories” (pp. 5-6). Reigeluth and An (2009) articulate a comprehensive set of characteristics driven in theory and prior research, which is pragmatic, collaborative, contextual, integrative, interactive, adaptive / flexible and linked to actual practice. In these ways, DBR feeds back and feeds forward the development of practice while improving the researchers’ understanding of theoretical frameworks applied to practices. By identifying new possibilities, DBR "helps create and extend knowledge about developing, enacting, and sustaining innovative learning environments" (Design-Based Research Collective [DBRC], 2003, p. 5). Four characteristics of design research include research-driven, systematic documentation, formative evaluations, and generalization. Case study and DBR methodologies usually share the first two characteristics.

Using case study and design-based research (DBR) methodologies, Conole et al. (2002) subscribe to the notion of coevolution of tools and practices. Their studies discover participants adopt a socio-technical coevolution approach with two parallel strands of intervention, one technical and one social. In their reporting, Conole et al. (2002) include a rich ethnographic approach to evaluate the participants’ uses of the virtual tools and identify emergent user behaviors. Using DBR methodologies, the researchers design and develop the intervention by exploring the literature and identifying the variables of the study through a gap analysis. Using
DBR, living stories and narratives may not emerge from the participants in the same fashion as an intrinsic case study methodology. For example, the retrospective stories of the participants illustrate how they identified the variables and determined how to bridge their experiential gaps in problematic situations through sensemaking and ways of knowing. The graphics (tables, figures) are synthesized from the data while the memos provide the interpretative underpinnings from literature and observations. Generalizations limit the outputs of participants once they apply the intervention in DBR methodology.

DBR’s four-phase approach differs from action research in two aspects: the goals of the research and the roles of participants in the research process (Bannan-Ritlan, 2003). First, while action research focuses on the practitioners’ actions, design-based research generates theory to solve authentic problems of practitioners. Second, action researchers are usually the practitioners that initiate an intervention and design the research. Alternatively, design-based researchers usually determine the systemic intervention and design the research. Initially, the researchers work with teams of professionals (i.e., educators, software designers and academics) to discover an ideal to “conduct research that resides in and better supports classroom practice” (Sloane & Gorard, 2003, p. 30). As originally described by Dewey (1938/1967), the ideal “provides a vision and a guide as well as a significant component of the measuring stick by which the ideal, as instantiated in actions within a real context, is measured” (Anderson, 2005). However, bridging the gap between developing an effective educational tool and the systematic planning necessary to create an ideal that attends to individual learning styles, needs, experiences, values, inter alia remains a challenge. Research has shown applying traditional instructional solutions to online learning environments are not always as flexible, fast, or fluid as once thought (Anderson, 2008). While DBR focuses on participatory development of tools and systematic planning, action research methodologies focus on professional practices and organizational change.
Two distinct and complementary findings of neuroscientists studying cognitive, social and affective processing provide a foundation for choosing a DBR design or applying action research with multiple professionals (Hirsch-Pasek & Bruer, 2007; Stoll & Louis, 2007). First, neuroscientists found emotion and cognition intertwine and involve interplay between body and mind. This finding suggests that emotions surface without warning when teams or organizations participate in social processes. Understanding retrospective views of these emotions inform concepts such as team effectiveness. Second, neuroscientists found social processing and learning happen by internalizing others’ beliefs, goals and actions while experiencing aspects of these events as if they were already part of the professional’s system (Immordino-Yang, 2011). The finding suggests team members may not always identify influential factors in unfamiliar or problematic situations. As a complement to DBR or action research designs, case studies provide sensemaking of how individuals, teams, and organizations develop and learn through their retrospective stories and narratives.

3.5 Summary

While applying a storytelling lens (Boje, 2014) and an AI approach (Cooperrider & Avital, 2004) to an intrinsic case study (Stake, 2005), the research design and methods illustrate, explore, and examine retrospective views of team members tasked as ecosystem leaders (Moore 1996/2016). The research design adapts a pre-structured case data analysis of literature to create relevant sub-questions that situate the synthesized graphics from data sources. The literature review captures four team functions serving team members to make sense of their journey through problematic situations: team reports, team processes, team roles, and ways of knowing. The findings emerging from the case illustrate how the team discover ways of aggregating their designerly ways of knowing, expanding the team’s contexts, and maintaining a team habitats using a contextual analysis of the organization and a thematic analysis of the organization-based
Case study methodology allows participants to describe and explore their insights in these ways. Using intrinsic case study methodology, the exploration and discoveries come from the retrospective views of participants’ contributions and insights to their ways of knowing. Alternatively, action research and DBR approaches ask participants to identify real world problems while the researchers determine systematic interventions and measure change in actions while participants facilitate a formulated intervention. In all these research methodologies, participants are highly involved in this research process. These research methodologies have the potential to sustain and develop innovative localized solutions through iterative processes. They create participant expectations to reach a certain potential or report back favorably. The methods associated with these research methodologies provide profoundly disruptive experiences for participants while entrenched in personalized meanings, beliefs, or values of the organization as ecosystem leaders (Immordino-Yang, 2010).

By bounding the study and synthesizing the data sources, a contextual description provides discussion points for the participants and potential lessons learned informed by the graphics (Herrington, McKenney, Reeves, & Oliver, R., 2007). This process addressed the third AI principle, Simultaneity, that considers questions as fateful and change begins as soon as individuals from teams, organizations, or systems consider engaging in an inquiry. When applying a storytelling lens and an AI approach to an intrinsic case study methodology, the participants direct the paths we follow and the language we apply after I ask the first question. In contrast, another way of knowing applies the frameworks of AR or DBR. The participants fill an empty shell created through a formative evaluation, a gap analysis, a generated intervention, and an implementation to impact change (Zuber-Skerritt, 1992).
Chapter 4 Research Design

The case study focuses on team reporting through storytelling; team processes using social construction and participatory development; and team roles when tasked to formulate – design, development, prototype, and evaluate – and to facilitate an organization-based resolution. The participants’ stories reveal forms of feedback providing a 360-degree view including an advisory board of affiliated stakeholders; the members of an ecosystem investing in the programming and events developed and designed by the team; and the team members, individually and collectively. Before gathering participant data, I reviewed the three team-related components across the literature that impact team members’ retrospective views of their contributions and the assigned task: team reports, team processes, and team roles.

The research design includes an interplay between naturalistic and interpretative interactions with the participants (Wallen & Fraenkel, 2001). Naturalistic interactions represent interactions when as the researcher, I have no control over events or attempt not to impact the observed situation in any way. The data from naturalistic interactions (i.e., SV1-D2PO, SV2-D2PO, SV3-D2PO) describes what happens during on-site visits or meetings. Interpretative interactions, like interviews (SI and SSI) and the results from the 5D AI Cycle (AI), represent interactions when as the researcher, I impact the interactions. The data from interpretative interactions examines the participants’ interpretations through retrospective narratives and stories. Both interactions are valuable within this study as I seek to make sense and represent multiple perspectives, shared representations of common goals, and individual models of success. I choose to synthesize the data collected using graphics of tables and figures of the data collections in the findings. Participants reviewed the tables and edited the figures, individually and collectively. The memos in the findings overview my observations, coding, and bracketing analysis to examine the synthesized data. A sub-question guides each memo.
4.1 Participants

The team chosen for the case study represent the federation’s management in a federated provincial organization. The team consists of 10 full-time team members, 1 part-time team member returning from a 1-year leave of absence, and 1 accountant. The 10 full-time members and 1 part-team member volunteered and signed informed consents for the study (Appendix A). The data collected from these participants focuses on the impact identified by this team - individually, collectively, organizationally, inter-organizationally – through retrospective narratives and stories. The team effectively plans and implements multiple organizational initiatives involving programming and events across their ecosystem. Individually and collectively, the team members sustain complex communication links as they translate, mobilize and transfer data, information, and knowledge across the organization and the ecosystem. Members from the ecosystem investing in the organization’s core programming and events include provincial kindergarten to grade 12 (K-12) school systems, post-secondary institutions, partners, sponsors, donors, and volunteers from associated workplaces. The associated workplaces may or may not include grades 10 to 12 students and post-secondary students as apprentices or employees.

Participants illustrate how they adapted their current practices and procedures with new knowledge, skills, competencies, and social connections incorporated into the assigned task. Thus, to further the discussions of researchers exploring the challenge of replicating a team’s experiences within a journey, an intrinsic case study methodology focuses on the stories of an identified effective team tasked with formulating an innovative collaborative learning space for their ecosystem. Using data collected through public domain website archives, structured and semi-structured interviews with a 5D appreciative inquiry (AI) cycle, the study explores how the team members account for the immediate, potential, and realized impact of their learning and
development, individually and collectively (Yin, 2018). Team members identify emergent team reports, processes, and roles while describing and exploring their retrospective views of the journey.

4.2 Data Sources and Methods

Four data sets represent five data sources: public domain website documentation and records, structured interviews, 5D AI Cycle, semi-structured interviews, and participatory observation. Data Set #1 supplies representations from the organization’s public website before the first of three site visits to collect Data Sets #2 to #4. I completed analysis of Data Set #1 before I travelled for my first on-site visit. I collected Data Sets #2 to #4 during three on-site visits (Stake, 2006). The graphics describe and explore the representations of the public organizational context and the representations of the current resolution to the assigned task (Kramer & Pfitzer, 2016). Participant data sets include a structured interview (Data Set #2), a model of a 5D Appreciative Inquiry (AI) Cycle (Data Set #3) and a semi-structured interview (Data Set #4). As a group, the participants reviewed and edited the graphic representations. Participants’ requests protect their anonymity and that of their collective voice of the ecosystem. During the semi-structured interviews, participants reflected on how the graphic representations included their contributions to the processes and the outcomes of the assigned task. The only external model applied by the participants while formulating the organization-based resolution was that of the change agents with a consultancy model held under Creative Commons licensing (Crichton & Carter, 2017b).

The research design includes participatory development and social construction between the participants and me. In two group reviews, the participants informed the graphics (tables, figures) synthesized from all the data sources. Data Sets #2 to #4 hold the participant data collected from three on-site visits. During the three site visits, I journaled observations of how
the team responds, reacts, interacts, and transacts. Coming from my personal practice, my journal pages are hand-written and include space for first thoughts, definitions, references, reflections, diagrams, sketching, bracketing t-charts with notes, and general doodles. The graphics illustrate the artifacts of the data gathered during the study.

Broadly defined, the term artifact represents any social interactions that new knowledge transformations occur (Moore & Kearsley, 2005; Moore, 2007). Specific strategies (i.e., journal writing, movies, story-telling) serve to foster the cognitive imagery or mental maps as project artifacts (Argyris, 2012). Participants shared their contributions to the assigned task through retrospective storytelling during interviews. When shared and discussed with others, these artifacts provide participants and I opportunities to locate and socially construct themes, sensemaking, and values that bridge the gap between the new knowledge developing and any past professional experiences. Once participants and I recognize these gaps and bridges, changes to personalized sensemaking, beliefs, or values begin to form patterns and more satisfying relationships with others emerge (Immordino-Yang, 2010). Participants describing their contributions and involvement during the assigned task reported living stories, emergent living stories, and ways of knowing while answering the interview questions. The group of participants discussed and edited the artifacts with me and then individually during interviews. The figures in Chapter 4 are the results of the discussions and edits of the artifacts.

4.2.1 Interviews.
Open-ended questions for the interviews reflect an Appreciative Inquiry (AI) approach (Cooperrider & Avital, 2004). AI distinguishes itself from other change efforts by deliberately focusing on questions to constructively dialogue and actively inspire the work and efforts within an organization (Bushe, 1998; Johnson, 2013). Participants and the team chose their stories of how they contributed during the assigned task throughout the interviews and a 5D AI Cycle.
Through the literature review, the research design uses a pre-structured case data analysis to identify team reports, processes, roles, and ways of knowing (Miles, et al., 2014). The research design follows a contextual analysis of the organization and a thematic analysis of the organization-based resolution. Interviews of participants happened during on-site visits. The two data sets collected over two site visits provided two cycles of coding: the first-cycle of coding with Data Set #2 (structured interviews) gathered during Site Visit #1 and the second-cycle of coding leading to patterns with Data Set #4 (semi-structured interviews) gathered during Site Visit #3. I completed first cycle and second cycle coding, synthesis including graphics, contextual analysis of the organization, and thematic analysis of the resolution-driven assigned task. The structured interviews before and the semi-structured interviews after the 5D AI Cycle focus on the question guiding the study: how might a team working adjacent to a kindergarten to post-secondary education (K-20) system and with associated workplaces within an ecosystem retrospectively describe the impact on organizational learning (OL) as they generate appreciative professional stories, individually and collectively, of their daily practices and workflows after formulating and facilitating a resolution?

The following table reviews the eight AI principles and eight dimensions of team effectiveness with the questions created for the structured and prompts created semi-structured interviews. Questions for the structured interview, prompts for the semi-structured interviews, and the prompts for the 5D AI Cycle have been adapted based on recommendations across the AI literature (Cooperrider, & Avital, 2004; Fry, Whitney, Seiling, & Barrett, 2001).
<table>
<thead>
<tr>
<th>AI Principles</th>
<th>AI Assumptions</th>
<th>Structured Interview Questions</th>
<th>Semi-structured Interview Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constructionism</strong></td>
<td>What we focus on becomes our reality.</td>
<td>In your own words, how would you describe the collaborative learning space project?</td>
<td>What is the narrative about the collaborative learning space project you have created through all the stories?</td>
</tr>
<tr>
<td></td>
<td>Groups create their reality through frequent conversations resulting in shared understanding of the words they use and the stories they tell.</td>
<td>What are the indicators of success?</td>
<td></td>
</tr>
<tr>
<td><strong>Poetic</strong></td>
<td>The language we use creates our reality.</td>
<td>What part of your story do you focus on with others on your team?</td>
<td>How do you interpret the story of others in your narrative?</td>
</tr>
<tr>
<td></td>
<td>Stories are not set in stone and open to re-interpretation or affirmation providing several clues to individuals’ ways of knowing</td>
<td>What part of your story do you focus on with members in your ecosystem?</td>
<td>What part of your narrative will you focus on with members in your ecosystem?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Depending on your experiences, where do you focus on?</td>
</tr>
<tr>
<td><strong>Simultaneity</strong></td>
<td>The act of asking questions of an organization or group influences the group in several ways</td>
<td>When did you first see a change in the project?</td>
<td>When did you first see a change in the project?</td>
</tr>
<tr>
<td></td>
<td>Simply by asking a question, change happens to an individual or in a group.</td>
<td>How would you describe the change?</td>
<td>How would you describe the change?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How did the change happen, in your view?</td>
<td>How did the change happen, in your view?</td>
</tr>
<tr>
<td>AI Principles</td>
<td>AI Assumptions</td>
<td>Structured Interview Questions</td>
<td>Semi-structured Interview Prompts</td>
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<tr>
<td><strong>Anticipatory</strong></td>
<td>In every society, organization, or group, something works. Groups move in the direction they anticipate.</td>
<td>Considering all the contributions you made to this project, what is one of the most surprising outcomes to you? What were you expecting to happen?</td>
<td>Did you anticipate any specific outcomes through this entire process? If so, which ones? Were there any outcomes in this entire process that you found surprising?</td>
</tr>
<tr>
<td><strong>Positive</strong></td>
<td>When we carry parts of the past forward, they should be what are best about the past. Cultivating inner resources like hope, excitement, inspiration, camaraderie, and joy are central to any change process</td>
<td>How do you feel your expectations of the project contributed to the outcomes of the project? If possible, please provide an example.</td>
<td>How do you feel your expectations of the project contributed to the outcomes of the project?</td>
</tr>
<tr>
<td><strong>Wholeness</strong></td>
<td>Reality created in the moment, and there are multiple realities. Inviting the entirety of individual’s past, present, and future experiences including hopes, fears, and interests in a safe environment where the focus is on the open conversation rather than end in agreement.</td>
<td>How does it feel after completing the project and being part of this process?</td>
<td>Once a project like this begins, how often do you discuss the motives behind a professional request? How important is knowing how the rest of the team is doing to you?</td>
</tr>
</tbody>
</table>
Appendix B illustrates the organization of the structured interviews. The following table lists the eight dimensions with prompt questions asked during the semi-structured interviews.

Table 4.2 Team effectiveness dimensions and prompts

<table>
<thead>
<tr>
<th>Team Effectiveness Dimension</th>
<th>Prompt Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear and shared goals or purpose</td>
<td>What are the indicators of success personally, collectively and organizationally? [AI Principle Constructionism]</td>
</tr>
<tr>
<td>Clear and shared roles/ responsibilities</td>
<td>What are your roles and responsibilities in this project? What important part does each member play? What are the shared roles and responsibilities of the team?</td>
</tr>
<tr>
<td>Team Effectiveness Dimension</td>
<td>Prompt Question</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Supportive and empowering relationships</td>
<td>How does the team ensure that everyone experiences are considered as part of the result?</td>
</tr>
<tr>
<td>Clear and shared procedures</td>
<td>How do members communicate with one another so that everyone has the information needed to perform at the highest individual level?</td>
</tr>
<tr>
<td>Nurturing and challenging leadership</td>
<td>How is leadership distributed across the organization? How is leadership distributed across the team?</td>
</tr>
<tr>
<td>Evolving energy and spirit</td>
<td>How do the individuals and the team celebrate successes and mark rites of passages?</td>
</tr>
<tr>
<td>Productivity and performance</td>
<td>What are the members’ connections to the larger organization and the ecosystem they serve?</td>
</tr>
<tr>
<td>Complete, purposeful and uplifting communication</td>
<td>What systems and structures are in place to foster people’s connections to the whole and to one another?</td>
</tr>
</tbody>
</table>

The graphics (tables, figures) *synthesize* the data gathered across the data sources. The findings emerging from the study overview the impact of the eight dimensions of team effectiveness.

**4.2.2 5D AI Cycle.**

Similar to other models involving thinking processes, such as design-thinking processes (Seidel & Fixson, 2013; Stanford d.School, 2015), the 5D AI cycle model includes timed events and phases within an iterative cycle. The 5D cycle of AI includes Define, Discover, Dream, Design, and Deliver/Destiny (Barrett & Fry, 2005). By applying the eight principles of the AI approach to the 5D AI cycle, participant discussions go beyond the roles/tasks of individuals and what the system needs or demands. The discussions result in the creation of *generative theory*. In the field of AI literature, generative theory provides *the anticipatory articulations of tomorrow’s...*
When mapping a potential new cycle or resolution to a project, the anticipation articulations become representations from a 5D AI Cycle.

During the facilitation of the 5D AI Cycle, teams return to any phase once they obtain or surface additional knowledge, skills, competencies or social connections through dialogue. Further, facilitation of one cycle may take several days, weeks, or months depending on the requirements of the teams or organizations. Alternatively, like action research methodology, facilitation of several cycles over the entire project benefit the teams or organizations. While facilitating a 5D AI Cycle with participants, the data collection was non-linear. Although presented here in a linear fashion, the model invites an iterative process with participants.

Initially, the Define phase asks the basic question, *What is it?* as a clarifying phase to assist a team determine what topics to learn about and to create an inquiry process. This phase includes which discussions of past collaborations and projects provides the positive core from which the current inquiry generates new knowledge and designs. The Discover phase continues with the basic question, *What is it?* as a probing and prompting phase for the group as they determine the narratives, governing values, and key ideas. Next, the Dream phase asks the basic question, *What might it be?* as an envisioning phase of the impact of the project by generalizing the discoveries from the previous phase into an image of how the organization would function if what they have discovered were fully present in their daily activities. The Design phase follows and asks the basic question, *What should it be?* as a phase to introduce social construction and participatory development of ideas about the organization’s next steps based on the positive core infused with the explorations and discoveries. Finally, the Delivery or Destiny phase asks the basic question, *What will it be?* as a phase for the team to consider how to sustain, innovate, and align the organization’s socio-technical infrastructure with the Dream and the Design phases. As
the last phase, teams and organizations foster strategies for distribution across the organization or the ecosystem including how to empower others, learn from others, adjust initial strategies and improvise when necessary.

The 5D AI Cycle provides the participants an inquiry process to fill a one-narrative solution that “empties out the living stories – leaving a shell” (Boje, 2014, p. 14). The participants determine a positive core to focus the inquiry while they define and discover. Next, they dream, and design followed by the delivery or destiny of the result. When creating team reports, the processes of creating, curating, and weaving the threads into A 5D AI Cycle counters the one-narrative process. The following Venn diagram represents the relationships of the four stages with basic questions that the participants followed to fill the blank spaces as they explore, discover, and examine the current organization-based resolution.
Figure 4.1 5D AI Cycle: Shell with base questions

The following table summarizes the intent, questions, and activities crafted for the participants during the phases of 5D AI Cycle.
Table 4.3 5D AI Cycle: phases, prompts, activities

<table>
<thead>
<tr>
<th>AI Cycle Phase</th>
<th>Intent</th>
<th>Prompts</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Define</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Question:</td>
<td>What is it now?</td>
<td>1. Envisioning the positive core</td>
<td>1. What is the positive core of this project?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Topics to discuss</td>
<td>2. What parts of this representation are missing? What activities, people, or tasks require discussion to better understand this positive core?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Set #2: Structured Interview</td>
<td></td>
</tr>
<tr>
<td><strong>Discover</strong></td>
<td>Stories, narratives, governing values, and key ideas that come out of both the positive core and the inquiry.</td>
<td>What components of this project give the project life?</td>
<td>List one other project you and your partner are involved in.</td>
</tr>
<tr>
<td>Base Question:</td>
<td>What is it now?</td>
<td>How are these components similar or different from other successful projects the team formulates?</td>
<td>How are these projects similar? How are these projects different?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What made this project possible? (Hammond, 1998, p. 37)</td>
<td></td>
</tr>
<tr>
<td>AI Cycle Phase</td>
<td>Intent</td>
<td>Prompts</td>
<td>Activity</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Dream</strong></td>
<td>Group begins envisioning impact by generalizing their discoveries into an image of how the organization would function if what they have discovered were fully present in their daily activities.</td>
<td>What is the ecosystem calling for to be different?</td>
<td>Describe 3 concrete wishes you have for the future of this positive core. (Hammond, 1998, p. 38) Choose one of your wishes. IF that wish came true, how might the project change? How might the ecosystem change?</td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td>Participatory development and social construction of ideas about next stems from the positive core infused with discoveries</td>
<td>What should be the ideal? What would be the next steps?</td>
<td>With a partner, share one of your wishes and any changes you foresee to the project in its next iteration.</td>
</tr>
<tr>
<td><strong>Delivery / Destiny</strong></td>
<td>Sustaining, innovating and aligning the organization’s socio-technical infrastructure with the Dream and the Design phases</td>
<td>How do we deliver, learn about, adapt and sustain the ideal?</td>
<td>Each pair splits and makes two groups (As in one group; Bs in one group) Each member in the group shares the pair wishes and changes Group discusses a potential solution. Each group shares in hole group discussion</td>
</tr>
</tbody>
</table>
As storytellers, members chose diverse ways of knowing within their stories to tell of the same event or experience (Ellis, Adams, & Bochner, 2011). When synthesizing the stories of all the data collections and then relating the findings, validity refers to the experiences of the reader who “comes to know some things told, as if he or she had experienced them” (Stake, 2005, p. 240). Bracketing is a method applied in phenomenology to ensure the stories being related are those of the participants (Soursa, Kikkala, & Astedt-Kurki, 2015).

### 4.2.3 Bracketing with data sources.

Descriptive phenomenologists apply bracketing to set aside their understanding and act non-judgmentally. Alternatively, interpretative phenomenologists use bracketing to intentionally show their earlier knowledge to create new understanding. From these traditions, qualitative researchers adopt and adapt the concept of bracketing to address preconceptions that “influence how data are gathered, interpreted, and presented” (Tufford & Newman, 2010, p. 81). Bracketing became a process of drawing awareness to my presuppositions about the collected data while applying first-cycle and second-cycle coding (Miles et al., 2014). In these ways, I bring balance to bias created through professional practices.

The research design supplies opportunities through public domain website narratives and participants’ retrospective views to illustrate, explore, and examine how they completed an assigned task from members of an ecosystem. The data collections include the organization’s public domain website, two interviews with participants, and a group event using a 5D AI Cycle. I applied bracketing while gathering and exploring the retrospective views of the participants’ experiences. Additionally, my journaling and field notes include bracketing to ensure participants’ words carried throughout representations of the data collections (Tufford & Newman, 2010). As stated earlier, the sub-sections titled *memo* includes my previous knowledge, observations, two-cycle coding, and bracketing analysis. A concept and question guide the
4.2.4 Synthesis and analysis.

To make sense of the complexity and context encountered by the team, the synthesis and analysis of the data sources create graphics (tables, figures) to “tease out assumptions, uncovering reasons for practice, and delving into myths and dogma” (Stake, 2010, p. 40) and memos to “seek to understand better how this whole … operates in different situations. The unique life of the case is interesting for what it can reveal” (Stake, 2006, p. vi). As the researcher for this case, I uncover the participants’ voices and perspectives in unfamiliar situations as they become a collective voice of the ecosystem (Boje, 2014). Additionally, through the literature review and participatory observations of the memos, I illustrate my sensemaking as a researcher (Stake, 2005).

Synthesizing and analyzing the data collected from the public domain website and the participants into graphics (tables and figures) generates “the social processes and group dynamics through which they interact that may [impact] organizational learning” (Crossan, Lane, & White, 1999, p. 534). Between the four data collections, I completed first-cycle and second-cycle coding, synthesis of graphics, contextual analysis of the team, and thematic analysis of the assigned task (Miles et al., 2014). The following sub-questions guide the synthesis of the data collection:

1. Replication: will new team members be able to replicate the team’s journey with similar or diverse ways of knowing?
2. New knowledge: What constitutes new knowledge? What are its sources? What are its limits?
3. Professional Practices and Workflows: How do team members define and interpret the knowledge, skills, and competencies involved in professional practices and workflows across a growing ecosystem?

4. Effectiveness: How effectively has the team individually and collectively, gathered facts, interpreted experiences, and communicated their journey?

5. Changes in Resolution: How does the team warrant changes in the resolution?

6. Organization’s Narrative of Governing Variables: How might representations of the team’s emergent living stories of learning and development impact the organization’s narrative of governing variables? How do the teams and how does the team members take up the governing variables of competition and collaboration? Do their living stories about these governing variables move forward into the ecosystem?

7. Assessment within Collaborative Learning Space: As masters of summative assessment in competitions (end of a learning process in competitive events), how does the teams and team members encourage and engage the formative assessment (feedback dialogues applied in learning-in-process) and diagnostic assessment (what participants know at the beginning of a learning process) in the current resolution?

Analysis of the organizational context follows the AI approach focusing on the strengths, opportunities, aspirations, and results of the team (Stavros & Hinrichs, 2009).

The coding of participants’ data within the graphics includes Participant’s Assigned Number: P01 to P11; Participant Organization Role: Two-letter or three-letter code; Site Visit Number: SV1, SV2, SV3; Day during Site Visit: D1, D2, D3; and Participant Data Collection Methods: Structured Interview (SI), 5D AI Cycle (AI), Semi-Structured Interview (SSI).

Data Sets #2 to #4 represent a different site visit with a different data collection method:
• Data Set #2: P01 to P11, SV1, SI (*Table 3.1* summarizes structured interview questions);

• Data Set #3: P01 to P04 and P06 to P11, SV2, AI (*Table 3.3* summarizes questions and activities); and

• Data Set #4: P01 to P09 and P11, SV3, SSI (*Table 3.1* summarizes structured interview prompts).

I coded my participatory observations by site visits (SV1-D2PO; SV2-D2PO; SV3-D2PO).

My participatory observations weave throughout all four data sets. The group’s participatory elements include two email correspondences (EC1 and EC2) to confirm correct terminology on figures presented in the group reviews (GR). *Figure 4.1* summaries the order of collections and the codes.

![Figure 4.2 Data collections order and codes](image)

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During Data Sets #2 to #4, participants offered personal stories or narratives while answering questions or participating in the 5D AI Cycle coded as living stories (LS); emergent stories (ELS); and way of knowing (WoK) (Boje, 2014; Cross, 2001).

The following table provides a sequential representation of data sets, methods, representations, and initial findings emerging through the synthesis.

Table 4.4 Data sets, method, representation, initial findings

<p>| Data Set # | Site Visit || Source | Method | Approach | Representations | Findings |
|-----------|------------|---------|---------|---------|-------------|---------|
| #1 | PSV || Organization’s public domain website including documentation and archival records | Website Contextual Analysis | Organization’s Public Domain Representations | Section 5.2.1 Memo: Sub-question #1 |
|         |           |         |         |         | Section 5.1.1 | From Participant Interviews: Figure 5.4 Federation Model. |
|         |           |         |         |         | BME Narrative | BME Narrative describes only one part of Organization Model, Pan-Canadian Alignment |
|         |           |         |         |         | Section 5.1.2 | Figure 5.2 integrates the literature and P01ed’s interview to create the foundation of organization-based resolution using participatory development and social construction. |
|         |           |         |         |         | Competitive programming and events | |
|         |           |         |         |         | Section 5.1.3 | Exploratory programming and events |
|         |           |         |         |         | Section 5.1.4 | Mapping assigned task event to core events. |
|         |           |         |         |         | Figure 5.2 Public domains website organizational model | |</p>
<table>
<thead>
<tr>
<th>Data Set #</th>
<th>Site Visit</th>
<th></th>
<th>Source</th>
<th>Method</th>
<th>Approach</th>
<th>Representations</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2 and #4</td>
<td>SV1 and SV3</td>
<td>Participants</td>
<td>SV1: SI</td>
<td>P01 to P11 SIs Audio Record with permission</td>
<td>AI approach</td>
<td>Section 5.2.1 Memo: Sub-questions #1</td>
<td>Federation Model (<em>Figure 5.4</em>) Advisory Board of Affiliated Organizations sets wide boundaries and several members sit on National Board</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SV3: SSI</td>
<td>P01 to P09 and P11 Audio Record with permission</td>
<td>AI approach</td>
<td>Section 5.2.2 Demographics</td>
<td>Federation’s Management and Ecosystem where programs and events happen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Section 5.2.4 Ecosystem of Assigned Task</td>
<td>Ecosystem of Assigned Task: New Youth Group with Supports: Grade 6 to 9 Students, Parents, Teachers,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Section 5.2.6 Organization structure and reports</td>
<td>Familiar Situations: Core Volunteers from Industry, Labor, Organizations - spread over core and assigned task events</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Section 5.2.8 Organizational roles and responsibilities</td>
<td>Team of Assigned Task is complete Organization. Tasks categorized as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Responsibility-enhanced: enhancement to organizational roles &amp; responsibilities;</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Time-ordered: additional responsibility piece, like core deliverables; or</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Team Member Support: off side of desk and no change to practices</td>
</tr>
</tbody>
</table>
The following chapter provides the synthesis of the data collected with graphics (tables, figures) representing participants’ descriptions and memos exploring participatory observations.

4.3 Summary

The case study design surfaces details of the team’s journey from the retrospective viewpoints of the participants by using multiple data sources. After data collection, I synthesized and condensed the data. Then, the graphics (figures, tables) illustrate components of the team’s landscapes of professional practices with graphics and narratives (Boje, 2014; Miles et al., 2014). Using a participatory approach, the group of participants reviewed and informed the final graphics. We discussed how to protect anonymity (Stake, 2010). During the semi-structured interviews, each participant discussed their contributions and their viewpoints of the assigned task based on the series of graphics. Through these discussions, the participants and I discussed and edited the graphical mappings of the data collections. From those discussions with the participants, the graphics (tables, figures) are finalized. Additionally, the research design explores how team members describe their communication styles when continually creating categories of new resolutions, opening paths to new knowledge, and providing an implicit
awareness of more than one professional perspective, internally and externally (Langer, 1989). This research design provides multiple perspectives, shared representations of common goals, and individually defined models of success through storytelling and an appreciative inquiry (AI) approach.
Chapter 5 Synthesis of Data

This chapter overviews the synthesis and analysis of data collected to answer the overarching question guiding the study: how might a team working adjacent to a kindergarten to post-secondary education (K-20) system and with associated workplaces within an ecosystem retrospectively describe the impact on organizational learning (OL) as they generate appreciative professional stories, individually and collectively, of their daily practices and workflows after formulating and facilitating a resolution? From data collected from the public domain website, Data Set #1 represents the public domain view of the organization (BME Narrative); and how the facilitation of the current organization-based resolution for the assigned task maps to the organization’s BME narrative. From the responses of participants in the structured and semi-structured interviews, the synthesis of the data collected represents the organization’s model and its structure; participants’ organizational roles and responsibilities; and participants’ descriptions and contributions throughout the assigned task. During the 5D AI Cycle, the participants named three elephants and four dragons situated during the assigned task. The elephants and dragon representations show the impact of the assigned task to daily practices and workflows of individuals as well as the team and organization (Eisner, 1979/2017; Stake, 2010).

5.1 Public Domain Website: Organizational Context

Recognizing a potential shortage of skilled laborers, a Canadian non-profit organization promotes technology and skilled trades careers to engage grades 10 to 12 students and students up to 21 years of age in post-secondary institutions. Their core events involve youth in Olympic-like competitive activities at regional, provincial, national and international levels. Next to competition areas, competitive specialist committee members interact with non-competitors in exploratory booths. The exploratory booths offer opportunities for non-competitors to apply their hands and minds to appropriate knowledge, skills, and competencies. “While competitors
compete, spectators can get their hands dirty which makes it super interactive” (P09pec-SV1-D2-SI). In recent years, non-competitive events, non-curricular conferences, and trade shows provide additional opportunities for grades 6 to 9 students to explore and discover technology and skilled trades careers with team members and competitive specialist committee members (PSV).

5.1.1 Public domain: BME narrative.

The organization’s BME narrative from the public domain website supplies the institutional memory of a current resolution that the team facilitates across the ecosystem on their public website. Upon examination of the organization’s website, I discovered that for over 25 years, the core programming and events serve youth (up to 21 years old) registered in accredited trades and technologies career programs in grades 10 to 12 and post-secondary institutions. Their flag-ship events are competitive-based with youth receiving challenges set by master experts in specialist categories. As individual competitors, the youth prove their accumulated knowledge, skills, and competencies to the master experts. The organization supports this Olympic-like event model by planning and implementing regional, provincial, national, and international competitions across the ecosystem. I discover the ecosystem recognizes the organization as an ecosystem leader based on excellence and engagement. The organization consistently applies their mission statement of excellence in planning and engagement in implementing to meet their goals. The organization appreciates and values the people who invested time and resources. The ecosystem represented on the websites include schools and sectors from provincial school systems, several post-secondary institutions, partners, sponsors, and organizations associated with certification and accreditation of apprenticeship programs as well as with employment opportunities for graduates. The core of the team’s work and efforts includes managing, coordinating, and facilitating programming and events for grades 6 to 9 students, for grades 10 to 12 students, and for apprentices from post-secondary institutions. The core responsibilities of the
team of organizers are planning, registering, marketing, supporting, invoicing, fund raising, gathering feedback, and evaluating the core events. The website lists two categories of core programming and events: Competitive or Explorative. (PSV)

5.1.2 Public domain: Competitive programming and events.
Three yearly events (regional, provincial, national) and one biennial event (international) generate a progression of successful provincial competitors registered in either accredited grades 10 to 12 student programs or accredited post-secondary institution-sponsored apprenticeship programs. Currently, youth up to 21 years-old choose from 40+ competitive category specialties. Regional competitors have several non-provincial competitive category specialties as well. Competitors register based on their competitive category specialties. In the competitive events, master experts in their competitive category specialties judge competitors on how they apply their knowledge, skills, and competencies to a challenge. The linear order of the cyclical events designates Regional Events, Provincial Event, National Event, and International Event. Regional Events include provincial competitive specialist categories and non-provincial competitive specialist categories. All regional winners from the provincial competitive specialist categories compete in a Provincial Event. In turn, the Provincial winners in each competitive category specialties compete in a National event. Every second year, provincial winners of a National Event compete in an International Event.

5.1.3 Public domain: Explorative programming and events.
Explorative programming and events are issued as invitations to the public, particularly grades 6 to 9 students, to experience several of the skills categories that they might consider taking when they enter grades 10 to 12 and then continue into post-secondary apprenticeships. Several explorative events mention regional organizers. Broader thematic regional events mention the team of organizers. During the competitive events, explorative booths are part of the
broader provincial, national and international events. School leaders and teachers register entire classes to attend an event, attempt several of the skills at the explorative booths, and be spectators at the competitive events. The current resolution for the assigned task describes an explorative event for grades 6 to 9 students to address the problematic situation resulting from a provincial curricular redesign of an elective. (PSV)

5.1.4 Public domain: Mapping assigned task event to core events.

The four competitive events in the organization’s BME narrative are interlocking puzzle pieces. The interlocking of the events illustrates how competitors move through a sequence of events starting with regionals. The spaces between each puzzle piece represent the fact all participants start fresh after each competitive event. The large bubbles around the puzzle pieces represent the explorative events separate from the competitive events; whereas, the small bubbles represent the explorative booths included as part of the competitive events. On the website, the current resolution of the assigned task describes a distributed interactive learning model with an in-class design challenge process in preparation for a collaborative learning space event. The Education Team supports the in-class design challenge process. The team formulates and facilitates the current resolution as a separate collaborative learning space event for grades 6 to 9.

The focus of this case study is how the assigned task from the ecosystem impact the participants’ organizational roles and responsibilities identified with the core events. While synthesizing and reflecting on the Data Set #1 prior to the first site visit (PSV), I considered Where does the Current Resolution fit in the Public Domain BME narrative? The representation that follows illustrates the organization-based resolution as another puzzle piece to interlock some point with the four identified events. How this Resolution Puzzle Piece fits was unclear. Before the site visits, I envisioned the Resolution Puzzle Piece to replace several of the Explorative Events (small bubbles) as a self-contained event, either an independent event of the
other four events or additional representation within the competitive events.

**Figure 5.1 Public domain website organization model**

Explorative Events offer more interactive learning activities and collaborative events rather than summative assessment of learning programs in the competitive events.

5.1.5 Memo: Intrinsic question begins.

The intrinsic question of this case study focuses and clarifies my sensemaking - when formulating and facilitating a resolution for an ecosystem, what is it that makes this team feel unique to me? The graphics in this section and the next illustrate how applying storytelling as a lens surfaces representative changes between the public domain data and the participant data. The organization’s website creates a one-narrative report illustrating the interplay between the
organizational context and the current organization-based resolution as “a common thread for understanding human experience, a thread that connects events into words … [it represents] different elements of the journey including place, concept, people, or action” (Johnson Coffin & Young, 2017, p. 1). During the processes of creating, curating, and weaving the threads, a one-narrative report “empties out the living stories – leaving a shell” (Boje, 2014, p. 14).

The finding emerging from the organizational contextual analysis of the public domain website offers four large puzzle pieces, a sprinkling of dots, and the narratives of completed events. The graphics supported my initial meetings with the team as a change agent during Cycle #2 and Cycle #3. I synthesized graphics with the public domain data before my first site visit. The flow of website information represented a cohesive and aligned Pan-Canadian organization. I referenced website URLs in anticipation of mapping team members with business units across the country. I envisioned the organizational site within a corporate high rise with 50+ people. I considered how to situate the team members during my first on-site visit. I anticipated multiple phone calls and emails to bring everyone together. On my first site visit as a researcher, I discovered the team of organizers I considered as a subset of an organization represented the entire organization as the federation’s operations management team. I learned how the federation applies that blend of autonomy of the team as an organization and a perceived alignment to a broader organization (Provan, 1983). The graphics from this section illustrate the influential factors set within the organizational context to direct the team as they formulate and facilitate the current organization-based resolution across the ecosystem.

Four governing variables (excellence, engagement, competition, collaboration) coded from the public domain data continue into the participant data. The variables serve the team during their processes of decision-making, self-organizing, discovering the emergence of patterns, and coevolving. Team members describe the effect of the assigned task on their
organizational roles and responsibilities including the state of relevant situations as familiar, unfamiliar, or problematic (Argyris, 2012). Two additional governing variables (planning and implementing) from the participant data became in the public domain data during the second-cycle coding. The interplay amongst the variables offers glimpses into how the team applies these variables in their daily practices and recognition from the ecosystem. Two examples from the participant interviews illustrate how the empty shell of one-narrative reports from public domain data highlights influential factors in the team members’ living stories of present activities impacting the team’s future.

We have had a few bumps along the way with the economy the way it is. However, we have a history of excellence … in planning a high level of performance and striving to do our best … [that is] recognized by the public that we serve, and we have made it through mostly unscathed … in part, due to our 25 years [of operations] … [completing the assigned task] we take risks, but manageable risks, not reckless in any manner … [as ecosystem leaders], it’s exciting because there is something there that has never been brought to bear and we’re using models that exist in other fashions and tapping into resources and things we have never done before (PO1ed-SV1-D1-SI).

The Management and Partners Teams set a budget for the programs or events. Then I go out to partners and sponsors engaged in implementing the program or events. We always try to exceed the budget; however, that depends on the economics and other environmental factors happening along the way … We work with partners, sponsors, and donors while maintaining our history of excellence. We continually discuss as a whole team how to create a bridge between the programs and events that we have and the partners who want to connect to [the new youth group] that we are serving (P03pl-SV1-D1-SI).
These types of insights follow throughout the graphics with the interplay between how team members function within the organizational context and across the expanses of the ecosystem. The next section adds illustrations of how applying bracketing between the team members’ retrospective views and my professional views conveys balance to bias generated from professional practices (Sorsa et al., 2015).

### 5.2 Participant Interviews: Team’s Context

The graphics of the assigned task context from the participant data illustrates the assigned task context of team as a landscape of professional practices. When asked what the team does, P03pl stated “we resolve situations with partners, sponsors, and donors to serve the youth within our programs and events … our focus is to provide an excellent plan before we implement any event” (P03pl-SV1-D1-SI). Participant interviews happened on the first and third site visits while the team demonstrated what P03pl stated. The first site visit (SV1) was over two days. Upon arrival, I received an office site tour and met all the team members in their offices (Figure 4.3). Then, the team joined me in the boardroom as I explained the study. I conducted interviews in an office towards the back of the office site. During SV1, individuals came to ask questions about my study, to overview the informed consent form, and to conduct their interviews. Over the two days, 11 members volunteered to be part of the study and I joined a Tuesday organization meeting as an observer (SV1-D2PO). I completed the 11 structured interviews (Data Set #2). The third site visit (SV3) was over three days. I completed 10 semi-structured interviews (Data Set #4), one group review with participants as they viewed and edited the graphics, and I joined a Tuesday organization meeting as an observer (SV3-D2PO). Chapter 3 describes the research design and methods of this case study.
5.2.1 Memo: Replication?

*If the map does not agree with the ground, the map is wrong.* ~ Gordon Livingston, 2004

While collecting, coding, synthesizing, and contextually analyzing the organization the participants’ data using storytelling methods (Boje, 2014), I observed differences between the representations of public domain website’s organization model (*Figure 4.2*) and the participants’ federation model (*Figure 4.4*). These differences prompted sub-question #1 that asks: *Will new team members be able to replicate their journey with similar or diverse ways of knowing?*

Completing the synthesis, I observed that the team worked through an iterative operational cycle which provided the processes of creating, curating, and weaving the threads, a one-narrative solution, called the organization-based resolution, that “empties out the living stories – leaving a shell” (Boje, 2014, p. 14). From participant data, I discovered how new team members recognized and acknowledged the shell through governing variables; thereby, bring order to their unfamiliar or problematic situations. Additionally, the organization site provided opportunities to fill the shell with new emergent stories while the organizational model provided the requirements for creating and curating the threads to be woven.

P06ef and P07pc self-identified as new team members during their interviews. Their roles and responsibilities include being part of the assigned task. P06ef facilitates the school workshops and information sessions that prepare teachers and students participating in the collaborative learning space. P07pc coordinates the partnerships established by P01ed, P04lm, or P03pl for each program or event including the organization-based resolution (P07pc-SV1-D2-SI). Returning to their data, I explored and discovered answers to the sub-question #1.

When describing their understanding of the assigned task, P06ef and P07pc emphasized the importance of an organization-based resolution. When asked for further clarification of what
organization-based means, both participants offered similar descriptions to the six governing variables named by other participants. I coded a way of knowing (WoK) for new team members to replicate the journey the original team members undertook was identifying the organization’s six governing variables (excellence, engagement, competition, collaboration, planning, and implementing) represented in the organization-based resolution.

From the first-cycle coding (SV1) on the first site visit to the second-cycle of coding (SV3) of participant data, P06ef and P07pc added order and understanding of the assigned task by mapping their professional behaviors and actions from the familiar situations in their previous roles and responsibilities to the unfamiliar situations in the assigned task (Conner, 1992). For example, during a Tuesday organization meeting, P06ef described how the first meeting with an unexpected snow-plow driver on a rural road in poor weather conditions resulted in spending time in a ditch until help arrived. First, the team listened to how and what P06ef did in the unfamiliar situation. Then, team members and leaders provided their personal and professional experiences in similar situations to normalize the unfamiliar situation for P06ef. The discussion ended with a general review of the organization’s policies and procedures around those types of unfamiliar situations. The team effectively and efficiently provided P06ef, a team member for one cycle, with an opportunity to develop and to learn from other team members while making sense of a new experience.

During the semi-structured interviews, they described the parts of the ecosystem they worked with autonomously. Both participants described the complexity, uncertainty, and risk they felt in the beginning when reporting either to the team or to members in the ecosystem (Arntz et al., 2016; Camillus, 2008). By the second-cycle coding (SV2), I observed the governing variables were consistent across all participants’ interviews as they describe their
organizational roles and responsibilities involving core programming and events or the assigned task including P06ef and P07pc. Both participants described gaining confidence in their roles and responsibilities in the ecosystem. They described the mentoring of their managers and the Tuesday organization meetings as “providing opportunities to hone the meanings of terms as everyone reported their work and efforts each week. I have participated in other events with members from the ecosystem and contributed to the conversations” (P07pc-SV3-D3-SSI).

New team members replicate the journeys of original team members throughout the organization cycle. From one cycle to the next, replication of exact ways of knowing for new team members are improbable due to the iterative nature of the organization and the members of the ecosystem (Cross, 2011). As an iterative organization cycle, team members have multiple levels of opportunities to communicate, discuss, and identify changes in workflows and practices based on new knowledge, skills, competencies, and social connections.

As I did not experience an entire organization cycle with the team, I offer my narrative of how the organization site changed my perspectives of the team and how it oriented me to what was happening with the assigned task. Although I do not consider myself a team member, I was a consultant during Cycle #1 to formulate the assigned task. Since that time, the team members have completed their formulation and moved to facilitation of an organization-based resolution. My narrative of my first on-site visit offer several insights to how a team member becomes re-oriented to the assigned task when their contributions are intermittent based on their organization site and organizational model. The narrative illustrates how new team members do not need to replicate the actual journey of the assigned task. Like P063f and P07pc, the team contributes their ways of knowing from where they are situated in the iterative organization cycle. Further, team members have the affordances of the organization site and the organization model while
participating in the assigned task.

To begin, on my first site visit, as soon as I reached the organization’s office situated in an industrial park, I sensed a change in my prior interpretations of the organization. As I rang a bell to unlock the public entrance and entered the physical space, I realized my interpretations of the organization model based on data collected from the public website did not illustrate the entire organization model. As I toured the office site, I recognized and acknowledged my skewed interpretations of the organization model. Inside, the area is rectangular with three main spaces: a front public area with two offices for the executive team (P11om and P1ed), a middle space with education and logistics team members’ offices, and a back common space with washrooms, a gym, photocopying and office supplies, and an event storage area. During the first interviews, I learned the organization’s office site moved from the downtown area to an industrial park because “the lease was up. Hauling boxes and supplies for events by elevator was wasting time and energies. Besides, we don’t have many visitors dropping by unless invited” (P02em-SV1-D1-SI).

The front public area has a locked public entrance with a small reception area to the right and to the left, a board room that sits 14 people comfortably with video-conferencing equipment. The reception area and board room have floor to ceiling windows. The wall facing the hallway in the boardroom is glassed floor to ceiling with horizontal opaque stripes approximate half-way up. The boardroom has two doors: one from the hallway and one connecting to the open-concept kitchen that is behind the boardroom. After the reception area on the right-hand side is P11om’s office with a wall separating the two spaces. Next, P01ed’s office that looks out to the kitchen. The middle area has a single hallway with offices on both sides. When sitting at a desk in an office, the office across the hall is at a slight angle. In this way, no one looks directly at anyone
sitting across the hall. The office walls facing the hallway are the same glass configuration as the boardroom with paneled doors. The team members’ offices are situated on either side of the hallway with consideration for their main functions (partners, education, logistics).

For example, the two members with the main function as funders have offices across the hall from each other. This arrangement affords opportunities to communicate from a desk across the hall, impromptu hallway chats, small group discussions, or formal meetings in the boardroom. Team members decorated their offices. Office doors close infrequently. Past the team’s offices, the hallway continues to a paneled wall with a door. Before the door and wall, the back common space has on the right of the hallway, a photocopy and office supply room, two large washrooms with one housing a shower. On the left of the hallway is a gym area with one wall dedicated to a mosaic of post-it notes representing everyone’s time spent working out. Behind the door and wall, a storage area with open shelves for boxes of supplies and tools for events with doors to a large parking area serving a dual purpose. First, it serves as a loading dock before or after events. Second, it serves as an outdoor space to eat and bar-be-que. *Figure 4.10* represents the layout of the organization’s office. As mentioned, by the end of my first site visit, 11 participants volunteered for the study, which is the entire organization except for an accountant who comes in once a week.
Figure 5.2 Organization site
During the structured interviews, I specifically asked P01ed to explain the organizational model after discussing the demographic questions. P01ed’s explanation confirmed that the representation of the organizational model in Data Set #1 (*Figure 4.2*) described only part of the organization model:

We are a federated [not-for-profit provincial association] model structured with a governance board that sets the boundaries … We are autonomous … with strong linkages to other provincial, national, and international organizations … We are aligned enough to look like a well-knit Pan-Canadian organization, but we run as an autonomous body (P01ed-SV1-D1-S1).

With P01ed’s explanation, I understood how the public representation of an aligned well-knit look of a Pan-Canadian organization with four inter-locking puzzle pieces. Further, the organization has no intentions of adding an additional puzzle piece to represent the current resolution to the alignment. *Section 4.5* represents the future of the assigned task and current resolution within the organization. In the organization research literature, a federated model, called *federations*, are established when “affiliated organizations agree to relinquish control over certain activities to the federation’s management. In return, affiliated organizations expect the federation’s management to minimize the complexity of the linkage network and reduce environment uncertainty” (Provan, 1983, p. 79, *italics added*). A strength of the federation model is the reduction of complexity and uncertainty for the affiliated organizations. Their representatives on the advisory board focus their common issues through the federation’s management of activities to bring a concerted effort to the public. With this strength comes the potential of internalized complexity based on the differentiation of the organizations (Toubiana et al., 2007).
The federation theoretical model parallels the IPD/IPL theoretical framework in health/social care in its intention to develop and learn across the organization. Both theoretical models focus on developing and learning common professional skills, attitudes, and behaviors by enhancing opportunities for collaboration, reducing service fragmentation across social systems, and promoting high quality programs and events for its clientele (Provan, 1983; Bainbridge et al., 2010; D’Amour & Oandasna, 2005; WHO, 2010). One difference in the federation theoretical model lies with the voice of its stakeholders across the interorganizational linkage network represented by the advisory board which directs the federated management team (Provan, 1983). P01ed meets with the advisory board quarterly. They govern “at 10,000 feet … they reside there, a true governance board” (P01ed-SV1-D1-SI). This level of trust by advisory board allows P01ed the autonomy to manage the team’s day-to-day activities. However, this does not mean the advisory board members always remain hands-off if operational questions arise. Participants provided several examples from the assigned task where the advisory board asked for additional information before making a decision. Three examples illustrate how the advisory board received additional information when requested.

First example, P01ed related how the advisory board discussed the importance of the team to formulate and to facilitate an organization-based resolution when accepting the assigned task (P01ed-SV1-D1-SI). An action plan from this discussion resulted in P05ec’s research in Cycle #1 (P05ec-SV1-D2-SI). P05ec reported the research results to OM and P01ed before P01ed, Po4lm, and P05ec participated in one of the change agent’s provincial events (P05ec-SV1-D2-SI). With the research results and participation in the change agent’s event, the team determined how to adapt the RIPL model for an organization-based resolution (P01ed-SV1-D1-SI).
Second example, P01ed recounted a phone conversation with the chairperson about why the change agents with a consultancy model were from another province when there must be several excellent possibilities within the province and across the ecosystem. From the work and efforts described in the first example, P01ed answered all the chairperson’s concerns (P01ed-SV3-D2-SSI). Third example, P02em described the concern and additional discussions of the advisory board members when the Education Team reported the success of *Monthly Maker Challenges* including elementary students (P02em-SV1-D1-SI). In contrast, adding the new group of grades 6 to 9 students from the assigned task had little discussion or concern with the original range of grades 10 to 12 students and apprentices up to 21 years of age. These examples reinforce the team’s choice to formulate and to facilitate the organization-based resolution.

The following figure *summarizes* the advisory board’s directives across the top to represent their 10,000 feet governance providing the structure of the program and events. Attached to the structure of the programs and events, the two puzzle pieces, *Partners Engagement and the Sponsors Engagement*, represent how P03pl ensures “the main goal of serving the provincial youth with the organization’s programs and events” (P03pl-SV1-D1-SI). Additionally, advisory board members sit on the National advisory board supplying the National and International pieces of a well-knit Pan-Canadian alignment. Along the bottom of the figure is the representation of the provincial organization’s activities to engage youth in classrooms, in schools, or in events. One added piece, the Category Specialists Committees, provides the knowledge, skills, and competencies for the provincial competitive category specialties.
While collecting Data Set #2, participants’ contributions and experiences with the assigned task did not flow throughout the formulation. For example, P06ef contributed in Cycle #4 while P05ec contributed in everything except Cycle #4. P11om and P09pec contributed during the collaborative learning space event. From these stories and others, they described diverse ways of knowing what other team members directly involved in the formulation through organizational checks and balances in place by using the organization site and the organization model. In turn, through participatory observations while on-site and understanding the federation model, these two elements bound the form and structure of new knowledge, skills, competencies,
and social connections. In turn, the individuals interpret and apply new professional practices or workflows they have experienced in the ecosystem in unfamiliar or problematic situations. Finally, while I felt like a new team member orienting to the site and understanding the model on my first site visit, the team members took time on my second and third visits to re-orient me formally and informally to what had happened with the assigned task since my last visit. These courtesies reminded me of my first meetings with the team as a change agent.

In summary, the iterative organization cycle which everyone follows creates multiple opportunities to explore, discuss, and discover new knowledge, skills, competencies, and social interactions between the team members. The blend of autonomy for team members with wide boundaries set by an advisory board of affiliated organizations as the team members’ stakeholders, and the alignment to afford a Pan-Canadian presence impact the living stories of the team members in unique ways. Although during the research design, I initially wondered if the individual practices of participants may or may not reflect the eight team effectiveness dimensions. Once on-site, I wondered how the organization site and organization model influence the process of the participants to become effective ecosystem leaders. I determined these elements become confounding variables and chose to add the organization site and organization model as part of the organizational context.

5.2.2 Demographics.

Demographic questions began each structured interview and gave us a bit of time to settle into our respective roles as participant and researcher. When asked which generation they identified with:

- one participant - Boomer (1945-1964);
- two participants - Gen-X (1965-1978); and

When asked to choose their personal career cycle from a provided list:

- five participants - Professional (4-7+ years of experience);
- one participant – Transitioning from Professional to Expert;
- two participants – Expert (7-10+ years of experience and I’m beginning to take leadership roles at work);
- two participants - Transitioning from Expert to Distinguished; and
- one participant - Distinguished (10+ years of experience; I am a recognized leader in my organization).

The following table summarizes the generation, the assigned organizational roles and teams with the participants’ personal career cycle.

Table 5.1 Demographics responses

<table>
<thead>
<tr>
<th>Participant</th>
<th>Generation</th>
<th>Organization Role</th>
<th>Personal Career Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>P01ed</td>
<td>Gen-X (1965-1978)</td>
<td>Executive Director</td>
<td>Distinguished (10+ years’ experience; I am a recognized leader in my organization)</td>
</tr>
<tr>
<td>P01ed</td>
<td>Gen-X (1965-1978)</td>
<td>Executive Director</td>
<td>Distinguished (10+ years’ experience; I am a recognized leader in my organization)</td>
</tr>
<tr>
<td>P02em</td>
<td>Millennial (1979-1999)</td>
<td>Education Manager</td>
<td>Transitioning from Professional (4-7+ years’ experience) to Expert (7-10+ years’ experience and I’m beginning to take leadership roles at work)</td>
</tr>
<tr>
<td>P03pl</td>
<td>Boomer (1945-1964)</td>
<td>Partners Lead</td>
<td>Transitioning from Expert (7-10+ years of experience and I’m beginning to take leadership roles at work) to Distinguished (10+ years of experience; I am a recognized leader in my organization)</td>
</tr>
<tr>
<td>Participant</td>
<td>Generation</td>
<td>Organization Role</td>
<td>Personal Career Cycle</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>P04lm</td>
<td>Gen-X</td>
<td>Logistics Manager</td>
<td>Transitioning from Expert (7 – 10+ years’ experience and I’m beginning to take leadership roles at work) to Distinguished (10+ years’ experience; I am a recognized leader in my organization)</td>
</tr>
<tr>
<td>P05ec</td>
<td>Millennial</td>
<td>Education Coordinator</td>
<td>Expert (7-10+ years of experience and I’m beginning to take leadership roles at work)</td>
</tr>
<tr>
<td>P06ef</td>
<td>Millennial</td>
<td>Education Facilitator</td>
<td>Professional (4-7+ years of experience)</td>
</tr>
<tr>
<td>P07pc</td>
<td>Millennial</td>
<td>Partners Coordinator</td>
<td>Professional (4-7+ years of experience)</td>
</tr>
<tr>
<td>P08ecc</td>
<td>Millennial</td>
<td>Communication Coordinator</td>
<td>Professional (4-7+ years of experience)</td>
</tr>
<tr>
<td>P09pec</td>
<td>Millennial</td>
<td>Provincial Events Coordinator</td>
<td>Professional (4-7+ years of experience)</td>
</tr>
<tr>
<td>P10rc</td>
<td>Millennial</td>
<td>Registration Coordinator</td>
<td>Expert (7-10+ years of experience and I’m beginning to take leadership roles at work)</td>
</tr>
<tr>
<td>P11om</td>
<td>Millennial</td>
<td>Office Manager</td>
<td>Professional (4-7+ years of experience)</td>
</tr>
</tbody>
</table>

Several team members have additional roles based on the requirements of special programming and events addressed. The group is too small to consider generalizing the demographic data.
5.2.3 Memo: New knowledge?

Sub-questions #2 include What constitutes new knowledge? What are its sources? What are its limits? Sub-questions #2 underpin the coding, synthesis, and organizational contextual analysis of the participants’ data in two ways. First, the questions underpin the first-cycle coding for Data Set #2 and second-cycle coding for Data Set #4. For example, the data gathered in the Demographics section of the structured interviews (Table 4.2) was not large enough to warrant further coding, synthesis, or analysis. The participants’ living stories accompanying the demographic questions inform the synthesis of graphics (tables, figures) using first-cycle coding in Data Set #2 followed by the second-cycle coding and the contextual analysis with Data Set #4 to inform the findings (Miles et al., 2014).

Second, the questions informed the bracketing method that may not be as apparent in the chapters. The following narrative illustrates how applying the sub-questions #2 inform the practices of the participants and team in the organizational context. To begin, from the summary in Table 4.2, the answer to the participant’s personal career cycle shows years of experience. The participants’ living stories accompanying their answers include their actual employment with the organization as a variance from one to four months to over ten cycles, not years. Two brief examples illustrate how the team members aligned the success of assigned task with one of six organization governing variables and how concerns surrounding the assigned task become part of the flow of Tuesday organization meetings.

Briefly, during the case study, with the team approaching their organizational roles and responsibilities through iterative cyclical processes, the assigned task became a part of the organization team reports, processes, and roles rather than a separate project. Additionally, while the participants described their organizational roles during the demographic questions, what became apparent is that although the physical site is in an industrial area with a locked public
entrance (Figure 4.3), team members describe multiple opportunities to engage in participatory development or social construction with professionals and practitioners outside the organization site. In Section 4.2.6., participants describe how their roles and responsibilities include high-energy dynamic situations with intergenerational populations during core programming or events involving the entire team. Two examples follow to demonstrate how governing variables and Tuesday meetings become part of the decision-making during the assigned task.

First, from the participants’ descriptions in Section 4.2.6, engagement refers to one of six governing variables identified by the participants when implementing their core programming and events. Answering the first demographic question, P11om shares a personal perspective of youth engagement while tasked in the collaborative learning space event as a station volunteer ending with “everybody here knows that I am not a very good public speaker, but I am breaking out of my shell and getting my feet wet in small ways which is good for me” (P11om-SV1-D2-SI). P06ef, who facilitates the collaborative learning space event agenda from a stage overlooking the workspaces of 200 youth describes the event like a “science fair on steroids that keeps everyone engaged from start to finish” (P06ef-SV1-D2-SI). P07pc participating as a helper where needed declares “I was only hired for a few days [and attended the community learning space event] so I really don’t how [team members] keep students engaged, but I know I want to be a part of whatever that is!” (P07pc-SV1-D2-SI).

All three participants reported this as their first time attending the collaborative learning space event, part of the organization-based resolution. All three participants were in different organization teams (Executive, Education, Partners). Their stories reinforced the organization governing variable, engagement, as a key success factor for the organization-based resolution. The sources of their experiences came from their contributions to the assigned task as a station
volunteer, a facilitator, and a helper. Finally, their expressions of engagement echoed by other participants as a governing variable that informed the work and efforts of the assigned task within the ecosystem.

Second, during the 5D AI Cycle on Site Visit 2, P09pec “doesn’t want to bring everyone down” as stories continued to describe engagement while facilitating the organization-based resolution. P09pec asked partner P11om to consider a concern of volunteer community burnout (P09pec-SV2-D2-AI). Encouraged to discuss the concern further by partner P11om, P09pec’s concern stems from P09pec’s organizational responsibilities to manage the category specialists committee that supplies the station leads and most of the volunteers for the community learning space event, part of the organization-based resolution. Brought to the attention of the entire group, P01ed provides new knowledge to P09pec that the current resolution of the assigned task lasts a few additional cycles, the equivalent of six events. After this information exchange, P04lm suggested two ways to avoid some volunteer committee burnout given the few cycles involved with the current resolution. Continuing the group discussion, the group agreed that volunteer community burnout is one of the three elephants identified by the team. P01ed asked P02em to add the concern to the next Tuesday meeting agenda. P09pec reflects when asked about any follow-up, “I knew we were thinking about the same thing and I could ask my questions without being a complete thorn in everyone’s side” (P09pec-SV3-D3-SSI). The flow of Tuesday meetings provides opportunities for the entire team to address the decision-making processes openly throughout the organization cycle.

In summary, these examples illustrate how bracketing one word or phrase (i.e., cycles rather than years) identify biases, appreciate its sources, and examine its limitations. Using the sub-questions with a bracketing method informs Part A of the intrinsic question, while emerging
a resolution to the ecosystem, what is it that makes this team feel unique to me? The team members represent various professional designations, practices, and expertise. By using their established organizational context with its iterative cyclical process of workflow with their internal participatory development and social construction through Tuesday meetings, they formulate and facilitate the necessary professional actions and behaviors to mobilize and transfer knowledge interdependences (i.e., knowledge, skills, competencies, social connections) from across their ecosystem including the networks of professional communities (Schön, 1983; Wenger, 1998, 2009) back to their organized-based resolution (Figure 5.2).

Using social construction as a learning theory for the team to express and evaluate their ways of knowing through their practice-based learning, organizational leaders, policymakers, and decision-makers change roles, responsibilities, processes, and policies through design rather than management (Brown & Katz, 2009). Most times, individuals respond to these changes as opportunities to learn and to develop knowledge, skills, competencies, and social connections (Drucker, 1959; Champion, 2003; DuFour, 2004; Morgan, 2014). Other times, individuals react to announcements of unanticipated change initiatives based on financial constraints, administrative policies, or global economic factors. In these circumstances, individuals feel a sense of fatigue or resistance to another change initiative considering “[i]t’s not the surprises in life that are so debilitating. The truly crushing force is being surprised that you are surprised” (Conner, 1992, p. 28). In general terms, individuals want to consider how to bring control and equilibrium back to their unfamiliar or problematic situations in isolation (Conner, 1992). However, left too long in isolation, an individual’s professional development (Marzano, 2003) or social development (Langer, 2014) suffer. Alternatively, from its inception as a change development approach, AI practitioners agree “that inquiry into the social potential of a social system should begin with appreciation, should be collaborative, should be provocative, and
should be applicable” (Bushe, 2011, p. 87). Thus, an AI approach distinguishes itself from other change management efforts by deliberately focusing on questions to encourage participatory development and social construction through dialogue and action strategies within teams and organizations (Ludema, Cooperrider, & Barrett, 2000).

5.2.4 Organization team structures and reports.

The three organization team structures and reports did not change with the addition of the assigned task. First, as a federation, the organization prepares reports for the quarterly advisory board meetings. Second, the organization team meets weekly to report and discuss relevant tasks and situations. Third, the structure of the internal team occurred just after the team started the assigned task. P05ec explains the initial structure of the internal team and reports:

When I started the assigned task in Cycle #1: Design, I was working directly with the Operations Manager (OM). We had a different structure then. Everyone except the Partners team reported to OM. When the OM left to go the International Organization, I then collaborated with P02ec and P04lm depending on what I needed. P02ec and I did more of the education parts. P04lm and I looked at the logistics – the categories specialists committees, tools, venues. Now, with new organization structure, how we report formally has changed and I still work with P02ec and P04lm on the assigned task (P05ec-SV3-D3-SSI).

P02em explains how the organizational structure of internal team and reports changed:

With OM leaving, an opportunity presented itself to look at the [internal] organizational structure. The current structure splits OM’s one large team into two teams loosely based on roles and responsibilities. First, the Education Team which I oversee. Second, the Logistics Team which P04lm oversees. The third team, Partners, remained the same. A
Management Team includes P04lm, P03pl, and me. [The Management Team] meets with P01ed on Mondays to discuss updates to projects, programs, and events. Tuesday morning the [Organizational Team] meets to report on weekly schedules and general updates. The Executive Team, Education Team and Logistics Team have their own ways of reporting (P02em-SV1-D1-SI).

Since the assigned task and change in structure, two participants have joined the organization. P07pc continues the role and responsibilities from a former team member. During P05ec’s 1-year leave, P06ef contracted P05ec’s roles and responsibilities. Upon P05ec’s return, P06ef accepted a newly created position with the organization.

The following two figures represent the initial organization structure and internal team reports when the assigned task began and the current organization structure.
Figure 5.4 Initial organization structure and internal team reports
Figure 5.5 Current organization structure and internal team reports

Every team member resides in the organizational team that meets weekly. P01ed oversees all teams. The following table identifies the six teams within the organizational team, their goals, membership, and reporting currently in the organizational structure: Executive Team (3 team members), Organizational Team (all organization hires), Management Team (4 team members),
Partners Team (3 team members), Education Team (4 team members), and Logistics Team (3 team members).

Table 5.2 Teams, goals, membership, reporting

<table>
<thead>
<tr>
<th>Team</th>
<th>Goal</th>
<th>Membership</th>
<th>Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>Federation’s Management</td>
<td>P01ed, P11om, Accountant</td>
<td>Team Meetings as requested or required. P01ed &amp; P11om attend Quarterly Advisory Board Meetings. Accountant reports to P01ed (P11om-S1-D1-S1)</td>
</tr>
<tr>
<td>Organizational</td>
<td>Core Activities Flow</td>
<td>All Participants</td>
<td>Tuesdays, 9am start, Boardroom: Past, present, and future activities. Specific topics. Round Table – Individual reporting of schedules, activities, programs, events. (SV1-D2PO; SV2-D2PO, SV3-D2PO)</td>
</tr>
<tr>
<td>Management</td>
<td>Core Activities Management</td>
<td>P01ed, P02em, P03pl, P04lm</td>
<td>Mondays, 9am start, Boardroom: Round Table Discussions of schedules, programs, events, or specific topics (SV2-D2PO)</td>
</tr>
<tr>
<td>Partners</td>
<td>Programs and Events Budgets</td>
<td>P03pl, P07pc</td>
<td>Due to offices proximity and only two team members, few team meetings unless requested or required. (P03pl-S1-D1-S1)</td>
</tr>
<tr>
<td>Education</td>
<td>Education Programming and Events</td>
<td>P02em, P08ecc, P05ec, P06ef</td>
<td>Team Meetings infrequent. Frequent office, hallway, and impromptu meetings. (P02em-S3-D1-SSI)</td>
</tr>
<tr>
<td>Logistics</td>
<td>Competition Programming and Events</td>
<td>P04lm, P08pec, P09rc</td>
<td>Due to variance in roles and responsibilities of team members, infrequent team meetings. Reports and discussions in P04lm office. Always hallway and impromptu meetings. (P04lm-S3-D3-SSI)</td>
</tr>
</tbody>
</table>

The following figure illustrates how the teams’ goals operate across the federation model. The
colors identified in the legend reflect the team colors represented in the current organization structure.

Legend:
Blue: Advisory Board Influence - International Event and Youth Engagement
Green: P01ed (directed by Advisory Board)
Orange: Partners Team (directed by P01ed; managed by P03pl)
Turquoise: Education Team (directed by P01ed; managed by P02em)
Navy: Logistics Team (directed by P01ed; managed by P04lm)
Gradients: Influence and Responsibilities Blend

Figure 5.6 Federated model and color-coded team responsibilities

When on-site, I attended one Monday Management Team meeting and three Tuesday
Organization Team meetings. During the Monday Management Team meeting, the managers and P01ed created the agenda items of the meeting before any discussions. Then, each team member reviewed their prior week and highlighted priorities for the following week. The discussions flowed to the agenda items highlighting the common concerns and priorities of the team. Before wrapping up, team members discussed current programming and core event requirements for the organization.

During the Tuesday organization meetings, everyone took turns to highlight reminders, alerts, and planning of present and future tasks including living stories and emergent living stories. A general discussion followed focusing on upcoming programming, events, or debriefing the previous week’s event. During Site Visit #1, the general discussion of the meeting focused on the nine Regional events scheduled over the next month. During Site Visit #2, the general discussion of the meeting focused on the Provincial Event and the National Event. Site Visit #3, the general discussion of the meeting focused on the debrief of the Provincial Event and the National Event. After the general discussion, individuals break into smaller groups or initiate hallway meetings as required. The following figure summarizes the general structure of the Tuesday organizational meetings. P02em confirmed the flow of Tuesday organization meetings happened regularly with few cancelations. The common reason for cancelation was “when an implementation of core programming or an event happened on a Tuesday and the team participated which means the office closes” (P02em-SV1-D1-SI). Otherwise, the two overarching discussions focus on event planning or event debriefing. Although no formal agenda,
During site visits, whenever the door to the office I occupied was open, there seemed to be a constant hum of hallway activities. I did not take part in any meetings with the Executive, Education, Logistics, or Partners Teams.

5.2.5 Memo: Professional practices and workflows?
Sub-question #3 inquires how do team members define and interpret the knowledge, skills, and competencies involved in professional practices and workflows across an ecosystem? The literature review provides insights to this question. The eight dimensions of team
effectiveness (Rubin & Plovnick, 1981) illustrate how team members define and interpret responsibilities in unfamiliar and problematic situations. Across ages, stages, and domains of development and learning, humans craft and curate appropriate forms of stories to make sense of their experiences, to share knowledge, to build connections, and to foster wisdom (Turkle, 2015; Weick, 1969, 1993). Narratives, living stories, emergent living stories, and ways of knowing develop the mental maps of team members to describe and to report external impact from social interactions (Argyris & Schön, 1974, 1978, 1996). Confident in their familiar situations, storytellers convey the facts, represent the interpretations, or defer the fates based on their ways of knowing personally, professionally, or organizationally (Boje, 2014).

From the participant data, the changes to workflows illustrate how the team members contribute to the assigned task. Further, the workflow changes illustrate how formulating an organization-based resolution through organizational cycles assists the team in problem-finding and provides multiple opportunities to consider the optimal resolution (Dougherty, 2012, 2013, 2016; Dougherty & Hardy, 1996; Kelley & Kelley, 2013). Concurrently, during any phase, unpredicted emergent work experiences surface across ages, stages, and domains of development and learning in situated contexts with adaptability, complexity, and uncertainty (Cooperrider, & Avital, 2004; Cross, 1982; Lave & Wenger, 1991; Weick, 1969, 1993). Therefore, the design and development of an organization-based resolution requires iterative processes like the four cycles represented in the data to formulate the organization-based resolution.

Further, the literature suggests when individuals attempt to discover internal order in unfamiliar or problematic situations without dialogue or social interaction, confusion and isolation occur (Conner, 1992). As confusion or isolation persists, individual performance reduces resulting in the potential of team members dropping out of conversations or tasks
(Turkle, 2015). Lencioni (2002) found five dysfunctional behaviors of team members surface: absence of trust, fear of conflict, lack of commitment, avoidance of accountability, and inattention to results. The following narrative illustrates the impact of how internal team reports offer multiple informal opportunities for team members to inquire and dialogue about the assigned task and their contributions while they define and interpret the knowledge, skills, and competencies across a growing ecosystem.

To begin, at times, team members individually choose descriptions and reports to present the broad-brush strokes of an unfamiliar or problematic situation. At other times, each team member considers specific resources, explanations, and justifications through a series of narratives, living stories, emergent living stories and ways of knowing. Alternatively, the organizational structure change with the additional managers and teams provides a change to organizational workflow and the potential to experience internal complexity as the organization continues to grow and develop (Lencioni, 2002). The addition of two internal teams seems to benefit the assigned task and growing ecosystem. The three internal teams become experts of their part of the ecosystem: partners, education, category specialist committee (Figure 4.7).

Through the organization cycle, team members report on changes from their specific areas. The weekly management and organizational meetings provide possibilities for team members to bring order to new knowledge, skills, and competencies with overviews of past, present, and future events followed by each participant reporting week-in-review and week-coming-up highlights (Figure 4.8). Three examples illustrate the three organization structures and team reports: the autonomy of team members within their internal teams, the benefits of the flow of Tuesday Organization Meetings, and the opportunities to report and present quarterly at the advisory board meetings.
First, during the interviews, P08ecc described how the look and feel of programs or events develop with the support of P02em. First, P08ecc drafts for P02em’s review the logos, fonts, colors, and hashtags. Together, they review the introductory paragraph introducing the organization (a BME narrative) with living stories (LSs) of the people and communities attending the core program or event. From P08ecc’s past experiences creating the look and feel, a way of knowing emerges from one narrative of a participating community that results in reserving a specific color for that community before considering other communities’ requests.

Concurrently, while discussing the look and feel of the assigned task and organization-based resolution changes the organizational processes, P02em asked P08ecc to research appropriate personal professional development opportunities and collect emergent living stories (ELSs) from team members, partners, sponsors, and donors about the unfamiliar situations. P0ecc started gathering stories from P05ec and P07ef since they had completed workshops and presentations with invested members of the ecosystem (P08ecc-SV1-D1-SI).

Second, the flow of the Tuesday organization meetings serves to deter confusion and isolation and hold the partial answer to derail three dysfunctions: lack of commitment, avoidance of accountability, and inattention to results (Lencioni, 2002). In their weekly alerts, a team member announces a planned monthly after-work activity (i.e., dragon boat racing, curling, karaoke, yoga, etc.). Scheduled meetings end with informal hallway meetings and information exchanges. The organization site supports these types of information exchanges. Concurrently, four times through the organization cycle, team members are accountable to develop formal written reports and to present their reports’ insights and oversights to the advisory board meeting. Preparing the reports and presentations in their internal team and across the organization offer opportunities to discuss the growing ecosystem.
Finally, P02ec described how the acceptance of *Monthly Maker Challenges* for elementary schools took more discussion between the team and advisory board members than adding the new student group including grades 6 to 9 (P02em-SV1-D1-SI). P01ed suggested the advisory board members’ professional experiences focused on industry, labor, workforce and post-secondary institutions where [kindergarten to grade 5 classrooms] are a distant memory (P01ed-SV1-D1-SI). For P06ef new to the Education Team, connecting with the kindergarten to grade 5 students seem warranted since

with my background working with high-level athletes, I saw a parallel there [*Monthly Maker Challenges*] to similar opportunities in the Canadian Athlete Competitive Model of long-term developing and learning … for over 10 years, their approach starts with 5-year-olds, not burning them out or injuring them so they still love what they are doing … before competition, it’s all play-based like what we are doing now. I work with P02em closely on our team. I know P04lm leads the competitive development of the provincial team and I haven’t had a chance to discuss everything that happens with that program. I am looking forward to those discussions during our planning for next cycle (P06ef-SV3-D3-SSI).

These examples illustrate how the blend of autonomy and aligning with internal teams focus or fragment the work and efforts of team members across the ecosystem while offering unique professional experiences that foster an organization-based resolution. Education Team members situate their unique sensemaking of 21st century learning from a variety of personal and professional contexts with K-20 educators, professional practitioners, and organizational leaders. Concurrently, members from the Partners or Logistics Teams formulate and facilitate theoretical or conceptual frameworks to address the common interests and challenges identified by their
parts of the ecosystem by adopting and adapting their specialized knowledge domains and skill sets (Lave & Wenger, 1991; Moore, 1996/2016; Wenger, 1998, 2009). At least four times a cycle, these teams have opportunities to integrate their insights and oversights to develop a cohesive formal report for the advisory board meetings.

In summary, some team members consider what team members share in these formal and informal information exchanges before sharing their living stories (LSs). As the team members learn and develop, the shared LSs become like shorthand abstractions (SHAs). The SHAs generalize the daily experiences, practices, and organizational concepts of the team (Flynn, 2012). When including SHAs into multiple reports, team members have the potential to deliver reports with organizational visions. Depending on the evaluative judgment based on standards of quality offered by a team member, the team discusses how to take it to the next step.

5.2.6 Organizational roles and responsibilities.
As the federation’s management, the organization team plans and implements the educational programming, explorative events, and competitive events up to and including the Provincial Event (P01ed-SV1-D1-SI). When asked to describe their roles and responsibilities, participants include a governing variable, excellence, to describe the results (i.e., events) of the team’s plans and another governing variable, engagement, to describe the results (i.e., participation, social interactions) of the team’s implementations. All participants know the cyclical flow of organization’s programming and events including P07pc who has only been with the organization for a month on my first visit. “I know the dates I am busy for sure and I am travelling with other team members to another provincial event soon” (P07pc-SV1-D2-SI).
Several participants’ roles and responsibilities continue with the assigned task through a complete organizational cycle (12 months). For example, P03pl sets budgets for programs and events, then matches opportunities with Partners, Sponsors, and Donors. P07pc coordinates the
partnerships established by P01ed, P04lm, or P03pl for each program or event (P07pc-SV1-D2-SI). P08ecc coordinates all official communication of the organization through traditional and social media channels (P08ecc-SV1-D1-SI). P10rc coordinates the registration and evaluations of participants, as well as the volunteer recruitment requirements for all programs and events (P10rc-SV1-D1-SI). Other participants complete the organization cycle.

For example, P02em oversees all the educational programming (classrooms, schools, events, and professional development) and manages the Education Organizational Team (P02em-SV1-D1-SI). P05ec coordinates all the logistics of educational programming (P05ec-SV1-D2-SI). P06ef travels across the province doing presentations and workshops in classrooms, schools, and conferences. (P06ef-SV1-D2-SI). Several participants oversee one competitive program or event in a series of events. Additionally, P02em oversees all nine Regional Events (P02em-SV1-D1-SI). Each Regional Event has a Regional Coordinator situated in the regional area. Several Regional Events chose non-provincial competition categories. The regional winners of any provincial competitive category specialties compete in the Provincial Event (P10rc-SV1-D1-SI). Once competitors win the Provincial Event, P04lm oversees the additional training of provincial team members to prepare for the National Event (P04lm-SV1-D2-SI). P09pec travels with the provincial team to the National Event (P09pec-SV1-D2-SI). For one year, P04lm stewards and mentors any provincial team members once they win their national competitive category specialties until the International Event (P04lm-SV1-D2-SI). The following table summarizes the participants’ responses when asked to describe their organizational responsibilities.
## Table 5.3 Organizational roles and responsibilities

<table>
<thead>
<tr>
<th>Participant</th>
<th>Organizational Role</th>
<th>Notes and Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>P01ed</td>
<td>Advisory Board Liaison</td>
<td>[P01ed explained responsibilities of Advisory Board.] Volunteers. Stakeholder Representation [affiliated organizations and independents]. Meets quarterly. Working committees. They “govern at “10,000 feet and they reside there, a true governance board” (P01ed-SV1-D1-SI). Sets Mission Goals (broad parameters and boundaries): Anticipates Excellence. Within Context set by Affiliated Organizations. Resolves Problematic Situations with Programs and Events. Partner and Sponsor Engagement. Several board members sit on the National Board to provide a voice for the federation and to associate with International Organization. (P01ed-SV1-D1-SI)</td>
</tr>
<tr>
<td>P01ed</td>
<td>Executive Director</td>
<td>[Slight difference in Responsibilities with Organizational Structure Change: From OM and Partners Manager of Partners Team to Management Team] Overall leading and directing. The conduit between the Advisory Board and Operational side: strategy, budget, HR functions, policies and procedures. “Senior Staffer making sure daily functions are not swaying out too far from Board’s broad parameters and boundaries” (P01ed-SV1-D1-SI).</td>
</tr>
<tr>
<td>P02em</td>
<td>Manager, Programming and Education</td>
<td>[Transition from reporting to OM to Education Manager of Education Team on Organizational Structure] • Prior Role and Responsibilities: Regional Coordinator, 5 cycles • Current Role and Responsibilities: 3 cycles • New Responsibility: Part of Management Team Member of Management Team. Oversees Education Team. Focuses on strategic planning and overall goals for federations’ management. Oversees nine Regional Events cyclically with Regional Coordinators situated in regions. (P02em-SV1-D1-SI)</td>
</tr>
<tr>
<td>P03pl</td>
<td>Partnership Lead</td>
<td>[Transition to Management Team on Organizational Structure] New Responsibility: Part of Management Team Responsible for partnerships and sponsorship for all programs and events. Work with industry, labor, and organizations. Set budgets for program or event. Set targets for what team can achieve. Stewarding relationships between organization and external relationships. Researching trends in economy and social responsibility. “Keeping up with what’s trending with industry, labor, and organizations interested in the youth.” (P03pl-SV1-D1-SI).</td>
</tr>
<tr>
<td>Participant</td>
<td>Organizational Role</td>
<td>[Notes] and Responsibilities</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
</tbody>
</table>
| **P04lm** | Manager, Programming and Competitions | [Transition from reporting to OM to Logistics Manager of Logistics Team on Organizational Structure]  
Prior Role: Provincial Event Coordinator. P09pec holds role now.  
Current Role: 3 cycles  
New Responsibility: Part of Management Team  
General Portfolio: Cyclical logistics of programs and events prior to Provincial Event. After Provincial Event. Oversees P08pec’s work and efforts with the committees of category specialists. General reporting and evaluations from P10rc on registrations, volunteer recruitment and appreciation.  
With Partners Team: secures donations-in-kind for programs and events. Resource relations with large Donors of supplies for programs and events.  
With P02em: Complements P02em’s works and efforts with nine Regional Coordinators and Regional Events.  
With Provincial Team members (mostly post-secondary students up to 21 years old and few grades 10 to 12 students): Training (1 year) until International Event. For each provincial team member, provides a trainer (local category specialist) and an expert (local or national category specialist with International Event competition experience). Organizes category specialists’ sessions or equipment. Monthly check-ins to “make sure everyone’s clicking on the team, watching for momentum and hiccups”. (Po3lm-SV1-D2-SI).  
P10rc beginning research and development of Events Alumni and Parent Committees. (Po3lm-SV1-D2-SI). |
| **P05ec** | Education Coordinator | [Transition with Organizational Structure Change from OM to P02em]  
Current Role and Prior Responsibilities: Office work and travel for education programming  
Current Role and Current Responsibilities evolving to work and efforts in the office, infrequent travel: Just back from 1-year leave  
Establishing Roles and Responsibilities. Working with P02em (teacher resources and facilitation) and P04lm (category committee members and logistics). (P05ec-SV1-D2-SI) |
<table>
<thead>
<tr>
<th>Participant</th>
<th>Organizational Role</th>
<th>[Notes] and Responsibilities</th>
</tr>
</thead>
</table>
| P06ef | Education Facilitator | [New Role with Past Responsibilities of travel for Po5ec] 
Current Role: 1 cycle 
Huge learning curve. Presentations in classrooms, workshops, on-line Monthly Maker Challenge (with a monthly draw and yearly grand prize), grades all over the place, from 50 students in kindergarten to grade 12 schools, grade 4 to 6 split classes, individual classrooms from grades 6 to 12. On the road three to four days a week, province wide mid-fall to mid-June. Attends teachers’ workshops and conferences. (P06ef-SV1-D2-SI) |
| P07pc | Partners Coordinator | [Replacement of previous PC who moved to another organization] 
Current Role: 1 month 
Learning about day-to-day operations on-site and traveling with P03pl and other team members to meet partners and sponsors. Attended one event. Responsible for partnership connections (P07pc-SV1-D2-SI). |
| P08ecc | Communication Coordinator | [Situated in Education Team] 
Current Role and Responsibilities: 3 cycles 
Any official organizational communication either from or through P08ecc, such as social media, traditional media, packages, pamphlets, advertising, website, anything with logo. Work with a graphic designer when necessary. Maintain look and feel of program or event (P08ecc-SV1-D1-SI). |
| P09pec | Provincial Event Coordinator | [Transition with Organizational Structure Change from OM to P04lm] 
Current Role and Transitioning Responsibilities: 4 cycles 
Still transitioning into Role and Responsibilities. Organize logistics of events involving Category Specialists Committees. Coordinates 40+ unique category specialist committees that design and develop the provincial challenges for the Provincial Event. Travel with Provincial Team to National Event Manages explorative events with schools and spectators with competitive events during Provincial Event. Refers to “while competitors compete, spectators can get their hands dirty – super interactive” (P09pec-SV1-D2-SI). |
| P10rc | Registration Coordinator | Current Role and Responsibilities: 2 cycles 
Handles process and procedures of registration, evaluations, analytics for all of the programs, events, professional development days, hospitality access pass to educational events, regional competitions, provincial competitions. 
Data collection and information gathering from evaluations. Manage and recruit general volunteers for programs and events. Assist with category specialists committee volunteers. Plan volunteer appreciation events. Special events coordinators (P10rc-SV1-D1-SI). |
During this study, several participants were transitioning into new roles or responsibilities.

5.2.7 Memo: Team effectiveness?

Sub-question #4 inquires *how effectively has the team individually and collectively, gathered facts, interpreted experiences, and communicated their journey?* The eight dimensions of team effectiveness include 1) clear and shared goals or purpose, 2) clear and shared roles/responsibilities, 3) supportive and empowering relationships, 4) clear and shared procedures, 5) nurturing and challenging leadership, 6) evolving energy and spirit, 7) productivity and performance, and 8) complete, purposeful and uplifting communication. Examples of these dimensions scattered through the participant data.

For example, just completing the National Event on my third site visit, P09pec commented before I had a chance to ask a question in our semi-structured interview, “I forget how great we work as a team. I was reminded as I watched other teams struggle with communications, processes, and different ways of doing stuff. We work all that out way ahead of time for every program or event. Way better in times of stress” (P09-SV3-D3-SSI). P09pec related the roles and responsibilities for the assigned task consist of “being at the collaborative learning space event and connecting with any youth or competitive category specialist during the prototyping part of the event. Not my usual way of doing things, but that’s what the team needs”
Through these examples and others, participants’ stories had examples of clear and shared roles/responsibilities in the assigned task, one of the eight team effectiveness dimensions (Rubin & Plovnick, 1981).

Briefly, during the case study, all participants continued to reserve the organizational meanings to the six identified governing variables (excellence, engagement, competition, collaboration, planning, and implementing) during discussions. While discussing the assigned task and its impact on the organization, the team members’ responses varied depending on the contexts or tasks they were highlighting. Three coding patterns involving reports and how the participants described their patterns of new knowledge, skills, and competencies emerged between the first-cycle coding and second-cycle coding:

- Responsibility-enhancement (5): participants described the team reporting of the assigned task as enhancing their organizational roles and responsibilities;

- Time-ordered (3): participants described the team reporting of the assigned task as an additional scheduled task added to their organizational roles and responsibilities piece, sometimes interfering with core deliverables; or

- Team Member Support-off side of desk (3): participants described the team reporting of the assigned task as creating more hallway conversations and considered as an extra task when asked.

These categories did not associate with the internal teams nor the amount of time spent with the assigned task. To illustrate the Responsibility-Enhancement category, P05ec describes collaborative interactions with Alternatives and Opposites categories across the ecosystem.

P05ec has been involved with the assigned task since the beginning with P01ed and P04lm. P05ec completed the first task and reported research findings to the team and organization.
While discussing the categories for the ecosystem, P05ec explains how the use of *competition* and *competitor* in the field with colleagues [across the ecosystem] and when the term is applicable to the youth served by the organization [core programming and events]:

[Across ecosystem] Although the term *competitor* might be used in theoretical ecosystem models, I try to create a more positive experience with our Alternative Programmers in the field. They are invited to our events as special guests to let them and our community know everyone is welcome … also, at some points down the road, together we intertwine throughout the experiences of our youth. We don’t want to build stereotypes between us and them using the term *competitors*. That’s not who we are within the ecosystem [Core Programming and Events]. We promote *competition* when youth are ready to compete and register for the *competitions*. Before that, alternative programs are key, and youth need to understand all their resources. That’s my responsibility in the ecosystem. Others on the team have other responsibilities to the ecosystem. That’s a part I enjoy and with the assigned task I do more (P05ec-SV3-D3-SSI).

P05ec was the first to identify a break in the path for students and how grades 6 to 9 students enter the organization’s cycle through exploration, leave to attend an alternative program within the ecosystem, and potentially return as a competitor at the Regional Event in grades 10 to 12. By connecting with *Alternatives* and *Opposites* in the ecosystem, P05ec felt better prepared to bridge the gap left when youth entered and left the organization’s cycle.

Participants in the Time-ordered or Team Member Support categories were less aware of the harmony existing among the created additional tasks, the present organization-based resolution, or the future destiny across the ecosystem. Although they described different outcomes for the assigned tasks, their descriptions of contributions involved additional work and
effort to their timelines rather than enhancing roles or creating unique responsibilities.

For example, P10rc and P04lm described the potential of changing parameters in the development of an alumni program through databases and analytics as part of their core role and responsibilities (P10rc-SV1-D1-SI). When discussing how quickly these databases might become unruly, P04lm suggested the directives set by the advisory board members created context-based and resolution-driven boundaries for the alumni program (P04lm-S3-D3-SSI). The idea of becoming unruly addresses the non-linear disruptive effects of participatory development within a participatory learning culture, such as an ecosystem. Whenever a team member ventures out of the organizational site and into the ecosystem, new knowledge, skills, competencies, and social interactions occur regardless of roles or responsibilities. The ecosystem of the team includes networks of communities of practice (Wenger et al., 2014) that require flexibility and adaptability in team processes and methods like collaboration (Kahane, 2017) and social reasoning (Weick, 1995).

5.2.8 Ecosystem.

Members of the ecosystem recognized the team members as ecosystem leaders. This section describes and explores the organizational context represented by the participants’ data as they completed the assigned task. The ecosystem is an economic community where the organization participates (Moore 1996/2016). In general terms, the membership of an ecosystem includes suppliers, lead producers, competitors, and other stakeholders. The organization provides goods and services of value to the ecosystem through their core programming and events to youth up to 21 years old registered in grades 10 to 12 and post-secondary programs within the regional and provincial competition categories. Additionally, Several participants considered their work and efforts as a skills “movement rather than a project management” (P01ed-SV1-D1-SI; P02em-SV1-D1-SI; P08ecc-SV1-D1-SI). They recognize and acknowledge
the Skills Movement as “growing organically without specific leadership like the phases of the assigned task while remaining bound in the Advisory Board directives” (P01ed-SV1-D1-SI). One contribution the organization provides to the ecosystem is “the hub to the wheel representing the Skills Movement. We anchor the spokes with folks by offering like-minded people opportunities to participate along whatever spoke matches their knowledge, skills, competencies and social connections” (P01ed-SV3-D1-SSI). Although Figure 4.5 does not show the spokes of folk, the two categories closest to the team hub, Investors and Advocators, and the two categories, Alternatives and Opposites representing the outer rim work as “checks and balances to ensure [our organization] continues to move forward while aware of all the moving parts within the ecosystem” (P01ed-SV1-D1-SI).

P01ed-SV1-D1-SI describes the ecosystem as “a foot-wide and a mile-deep” (P01ed-SV1-D1-SI). A foot-wide refers to the youth served in the programming and events. Teachers and parents of youth under the age of majority are part of the foot-wide reference. A mile-deep refers the support and various roles from industry, labor, and organizations to the core programming and events. The support roles include partners, sponsors, donors, category specialist committee members, and volunteers. The assigned task adds another foot of youth involved in the provincial grades 6 to 9 curricular redesign of an elective course. For the team to formulate and to facilitate within their organized-based resolution, the advisory board adds a new group of youth. The “equivalent of another foot of youth and an opportunity for another subset of students [grades 6 to 9 students] to gain a broader theoretical and practical learning about career paths and occupations that emanate our business community” (P01ed-SV1-D1-SI). During Cycle #1: Design, P05ec researches how grades 6 to 9 students develop and learn. For the Education Team, they add “collaborative programming and events to the competitive programming and events” (P02em-SV1-D1-SI). While completing the assigned task, the mile deep of industry, labor, or
volunteers described earlier does not change.

The following figure represents the four categories across the ecosystem of the organization: Investors (customers, lead producers, suppliers), Advocators (external distributors, marketers), Alternatives (habitants with complimentary roles), and Opposites (competitors). The team chose the categories to represent the potential commitment of time and resources to the assigned task. Descriptions of categories follow.

- **Investors (customers, lead producers, suppliers)** represents the members (i.e., youth, teachers, parents, K-12 schools, grade 6 to 9 classrooms, post-secondary institutions, industry, labor, organizations) in the ecosystem who invest time and resources into the assigned task. P01ed refers to this category as a “foot wide and mile deep” (P01ed-SV1-D1-SI). The members’ contributions in this category determine how the assigned task moves from the formulation cycles to facilitation. The first population in this category participate in the programming and events of the organization (foot wide) includes grades 6 to 9 students, teachers, educators, and parents involved in registration for the events. A second population (mile deep) includes partners, sponsors, donors, and leads. Leads volunteer from the provincial category specialist team to plan the stations and provide materials. Leads work with P09rc to identify volunteers to work with the grades 6 to 9 students to learn-a-trade for the collaborative learning space event. Finally, invited special guests (stakeholders) attend either the in-class design challenge process or the collaborative learning space events.

- **Advocators (external distributors, marketers)** are members (i.e., youth, teachers, parents, K-12 schools, post-secondary institutions, industry, labor, organizations) from an ecosystem who consider the work and efforts of the assigned task and organization-based
resolution advantageous for the populations it serves and doesn’t provide direct time or resources. Indirectly, they advocate the program and events without registration. Several reasons for non-participation in the organization-based resolution include barriers to attend (money, too far to travel to attend the event), students not in grades 6 to 9, or involved in core programming and events of the organization.

- **Alternatives (habitants with complimentary roles)** are members (i.e., youth, teachers, parents, K-12 schools, post-secondary institutions, industry, labor, organizations) in the ecosystem with similar mission goals and involved in alternative programming and events that complement the programming and events offered in the organization. As a federation, the organization and the team are bound by the Advisory Board Directives. In this category, other federations, regional committees, provincial committees, organizations, or individuals offering alternative programming and events for youth, teachers, and parents (i.e., after school programs, boot camps, community programs).

- **Opposites (potential competitors)** are members in the ecosystem (youth, teachers, parents, K-12 schools, post-secondary institutions, industry, labor, organizations) that have opposing views or have little or no interest in the programs and events offered by the organization. Examples in this category are post-secondary institutions, science centres, after-school programming, in-class program offering Science, Technologies, Engineering, Mathematics (STEM) programming and events for youth, teachers, and parents offered in science centres, after-school programs, or in-class programs.
The green Investors section represents the part of the ecosystem investing in the organization-based resolution. Advocates support the organization-based resolution and move forward with the Invest section. The Alternatives and Opposites move in many other directions which creates various ripple effects across the ecosystem. Thus, the circle becomes skewed. The figure shows a bulge on the right-hand side to designate the team’s optimism that their work and efforts moves the ecosystem forward.
5.2.9 Memo: Changes to plans?

*How does the team warrant changes in the resolution?*

While discussing the ecosystem graphic, participants chose to change the standard names (suppliers, competitors, etc.) from the SHA template provided (Moore 1996/2016) to terms applied in their organization. As they considered new categories, they referred to the ecosystem as situating “all stakeholders of education [whether they were] consciously or unconsciously involved in a *collaborative learning process*” (Mueller & Toutain, 2015, p. 6) and discussed the organization-based resolution as a process of “*collaborative learning spaces* to facilitate exchange across the diversity of learners.” (p. 15, italics added for emphasis). As they described their experiences in the ecosystem through individual and collective lens, their terms remain consistent to those they applied while describing their organizational roles and responsibilities. Their responses demonstrate that they warrant changes in the resolution based on their professional experiences and the organization.

For example, several terms in the ecosystem’s SHA template (i.e., suppliers, competitors) hold unique definitions throughout the organization cycle (i.e., suppliers) or act as governing variables (i.e., competitors) in the organization. When asked why not use the words *competitors or suppliers* as the SHA template suggested, three participant responses illustrate how the terms vary based on the roles and responsibilities of the participants:

- “Competitors [on SHA template] seem to have a negative connotation, our competitors [during core events] are the youth we serve, and they are anything but negative” (P02em-SV1-D1-SI).
- “Wordsmithing and hash tagging our programs and events reflect the organization’s goals while serving our youth. If our youth read this [SHA template] as is and thought
that’s what we represent, they would be disappointed in me” (P08ecc-SV1-D1-SI).

- “Depending on which program or event we are planning, the term suppliers vary. Sometimes we consider suppliers as part of the Invests, Alternatives, or Opposites categories holding some [knowledge, skills, competencies, or social connection] we might require. In return, we may be suppliers for them” (P04lm-S3-D3-SSI).

During second-cycle coding, I added two governing variables, planning and implementing, to the four listed earlier: excellence, engagement, competition, collaboration (SV3-D2PO). Concurrently, the six governing variables enhanced responsibilities through the Education Team’s living stories. P02em, P05ec, and P06ef added emergent living stories (ELSs) regarding the potential of adding elementary programs. During the 5D AI Cycle, the Education Team described the future destiny of the assigned task potentially opening “explicit opportunities for our team to plan and to implement elementary programs” (P05ec-SV3-D3-SSI).

During the coding, I wondered how governing variables in organizational roles and responsibilities potentially came naturally to all the participants as they described the core programming and events was not part of the assigned task processes. P01ed suggested, “we have had 23 years of the organization honing our necessary skills and verbiage for our core programming and events. We’ve never built anything like this. It’s like a new business venture. We know it will be a hit … And not necessarily expecting right or perfectionist tendency – room to find our course” (P01ed-SV3-D3-SSI). P08ecc suggested, “adding the new youth group requires we consider new words to recognize and acknowledge collaboration while blending the organization’s mission and goals. What catches the eye of a grade 6 to 9 student may or may not be of any interest to a post-secondary apprentice” (P08ecc-SV3-D1-SSI).

These two responses illustrate an expectation by the organization and team that
knowledge and skills change and transfer through the assigned task as new competencies and social connections evolve. During second-cycle coding, when the first-cycle coding of participants coded in the Time-Ordered or Team Member Support, their contributions to the assigned task did not involve direct contact with the four unfamiliar situations until the collaborative learning space event when the cycle finished. For others, finding our way without the aid of familiar organizational lexicon added some disorder to their familiar tasks with heightened disruption and disturbance. Several participants described a desire to immediately put a box around the assigned task or receive an elevator-pitch or 100-word opening paragraph. These examples support the research that individuals want to consider individually how to bring control and equilibrium back to their practices when a new initiative impacts their routines (Conner, 1992). Additionally, outside of the scope of this study, these categories suggest the need to recognize and acknowledge several types of shared leadership to maintain team effectiveness when assigning a task to a team (Bass, 1990).

5.3 Public Domain Website: Current Resolution

The public reporting of the facilitation of the current resolution on the organization’s website includes classroom teacher resources and a four-minute video of a collaborative learning space event. The website includes an invitation to teachers and schools with grades 6 to 9 students to participate the following year. This invitation indicates the facilitation of the current resolution continues in a similar fashion with the team of organizers responsible for the facilitation. Section 4.4 begins with the background to the case study and describes the team’s processes. (PSV)

5.3.1 Public domain: organization-based resolution.

The following figure represents the organization’s public website explanation of the current resolution, a distributed interactive learning model including an in-class design challenge
process in preparation for a collaborative learning space event. Data Set #1 provides little
evidence of the team’s processes to formulate and to facilitate the current resolution. Offering an
in-class design challenge process to prepare for a collaborative learning space event potentially
provides teachers and students curricular opportunities to experience

- knowledge, skills and competencies as new passports to career success;
- ubiquitous information sharing between grades 6 to 9 students and competitive category
  specialists that begin building relationships and fostering harmony;
- rapid transformations throughout the facilitated event that produce risk, uncertainty, and
  opportunity for youth; and
- a team’s ideas from in-class design process improve when shared with other school teams
  through collaborative action of learning at a station and prototyping designs (Bonk, 2009).

Offering a collaborative learning space event with post-secondary institutions and work force
representations disrupt some common practices involving competition versus collaboration and
provide the potential of intergenerational connections between youth and the competitive
category committee members. represents the external process of the current resolution with the
blue circles (school visits, preparation for event, collaborative learning space event, reporting)
and grey arrows representing the iterative process of the distributed interactive learning model
with one part in classrooms and the second part as a collaborative learning space event. The
diamond on the inside with the white arrows represents the internal processes with the Education
Team and the Organizational Team to complete the external process.
Figure 5.9 Public domain website current resolution

The webpages dedicated to the current resolution includes references and links to the provincial grades 6 to 9 curricular redesign of an elective course with an inquiry-based approach. The webpages and resources highlight the concept of a collaborative approach by offering classroom teachers the services of the education team while they prepare for the collaborative learning space event. The webpages addressing the current resolution align with the overall programming and core events of the organization (PSV).

5.3.2 Memo: Organization’s narrative of governing variables.

Sub-question #6 asks how might representations of the team’s emergent living stories of development and learning impact the organization’s narrative or governing variables? How do
the teams and how does the team members take up the governing variables of competition and collaboration? Do their living stories about these governing variables move forward into the ecosystem?

One example from the case study illustrates the difference between team and community collaborations (Dougherty, 2016). During the interviews, regardless of roles, responsibilities, or team membership, participants described team collaboration. Several participants were uncertain of the necessary roles and responsibilities to complete the assigned task across the ecosystem. They described their uncertainty when participating in the assigned task across the ecosystem. Their uncertainty arises from two factors. First, the assigned task did not have a team leader to assign tasks and manage people; therefore, team collaboration may not be apparent. Second, the participants did not have established social relationships in at least one of the four unfamiliar situations: a new group of youth; an in-class preparation of teachers and students for an event; working in groups; and a collaborative learning space. In an unfamiliar situation, community collaboration may not be apparent due to lack of social relationships.

As discussed in the introduction, I participated as a change agent during Cycle #2 and Cycle #3 of the assigned task. From my professional participation, as a community collaborator, I made sense of the team’s process to formulate and to facilitate an organization-based resolution across the ecosystem coevolving through a problematic situation. Although familiar with the public domain representation of the external process, I have no way of knowing what exactly happens in either the classrooms or during the collaborative learning space event. As team collaborators, participants provide these details during the structured interviews. During the synthesis and analysis, the website representation of the current resolution aligns with all the core programming and events represent my sensemaking as a community collaborator. From the
interviews, I discovered the underpinnings of the website representation from the team collaboration. First, the internal process involving team collaboration within the Education Team developed community collaboration through school visits and prepared teachers and students for the collaborative learning event. Next, the internal process involving team collaboration across the Organizational Team planned and implemented the collaborative learning space event. Finally, the internal process involving team collaboration within the Logistics team developed community collaboration through specialist committee visits and prepared volunteers for the collaborative learning event.

Further, the organization’s website has two teacher resources. The first is a handbook offering educators a manual to support other classroom learning activities involving design thinking processes and design challenges. This handbook represents the work and efforts of my director and myself while participating as change agents with a consultancy model. The second resource, a facilitator guide for teachers, outlines the organization’s policies and procedures to follow while preparing a group of four students for the collaborative learning space event. P05ec created the facilitation guide based on organizational standards during Cycle #3. Since that time, P02em and P06ef have edited and updated the facilitation guide. P08ecc edits and updates the content on the organization’s public website (PSV). The following sections provide syntheses of team reporting, team processes, team roles, and ways of knowing illustrating the team’s facilitation and the structure of the current resolution.

5.4 Participant Interviews: Resolution-Driven Assigned Task

For the reader’s convenience, a duplication of the assigned task from Chapter 1 follows. For the first time since its inception, the organization accepted an assigned task from members of the ecosystem consisting of two components: to formulate – design (cycle #1), develop (cycle #2), prototype (cycle #3), evaluate (cycle #4) - and to facilitate an organization-based resolution
across the ecosystem coevolving through a problematic situation involving a provincial grades 6 to 9 curricular redesign of an elective course involving an inquiry-based approach.

The problematic situation across the ecosystem involves an introduction of a provincial grades 6 to 9 curricular redesign to an elective course involving an inquiry-based approach. The provincial grades 6 to 9 curricular redesign of an elective course includes an inquiry-based approach to technology and trades career exploration. The members of the ecosystem chose the organization because of their team’s success with explorative opportunities for youth included in the organization’s core programming and events. The acceptance of the assigned task created four unfamiliar situations for the organization: new group of youth; in-class preparation of teachers and students for an event; a collaborative-based event; and a collaborative learning space. The following table overviews the unfamiliar situations, familiar situations, and potential barriers identified by the team in Cycle #1: Design.
Table 5.4 Unfamiliar situations of assigned task

<table>
<thead>
<tr>
<th>Unfamiliar Situations</th>
<th>Description</th>
<th>Familiar Situation</th>
<th>Potential Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Youth Group: Grades 6 to 9 students</td>
<td>Grades 6 to 9 students registered in schools and learning a new provincial elective course involving inquiry-based approaches to career exploration. (Public Domain Data Set #1: (P10rc-SV1-D1-SI))</td>
<td>Grades 10-12 students choose their learning path, register and complete courses (P05ec-SV1-D2-SI) Apprentices (up to 21 years old) register in Post-Secondary programs (P04lm-SV1-D2-SI) Winners from competitive events automatically tracked and invited to the next level of competition. (P10rc-SV1-D1-SI)</td>
<td>Registration and Transportation due to ages: teachers and parents become peripheral observers and potential participants at the event. (P10rc-SV1-D1-SI) Analytics: Who attended the event with correct paperwork completed (P10rc-SV1-D1-SI) Determining how and why donors, partners and sponsors might consider engaging with this the new youth group. (P03pl-S3-D3-SSI; P04lm-SV1-D2-SI)) Classroom teachers, administrators, school districts requesting their grades 6 to 9 students not registered in provincial redesign courses register and attend with expectations of support from Education Team (P02em-SV1-D1-SI; P05ec-SV3-D3-SSI; P06ef-SV1-D2-SI; P10rc-SV1-D1-SI)</td>
</tr>
<tr>
<td>Unfamiliar Situations</td>
<td>Description</td>
<td>Familiar Situation</td>
<td>Potential Barriers</td>
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<tr>
<td>In-Class Preparation for Event</td>
<td>Task of Education Team: Creating Learning Outcomes. Addressing various classroom practices. Teachers and Students consider some common challenge to complete before coming to the event (P02em-SV1-D1-SI; P05ec-SV3-D3-SSI; P06ef-SV1-D2-SI; P08ecc-SV1-D1-SI)</td>
<td>Task of Category Specialists Committee: Testing Learning Objectives. (P02em-SV1-D1-SI; P04lm-SV1-D2-SI; P09pec-SV1-D2-SI) Registrants complete course work and ready for assessment of their development and learning (P02em-SV1-D1-SI; P04lm-SV1-D2-SI; P09pec-SV1-D2-SI)</td>
<td>Moves youth activities from experts assessing the youth’s knowledge, skills, and competencies to youth exploring experts’ knowledge, skills, and competencies through social interactions (P01ed-SV1-D1-SI; P04lm-SV1-D2-SI; P05ec-SV3-D3-SSI; P06ef-SV1-D2-SI; P09pec-SV1-D2-SI)</td>
</tr>
</tbody>
</table>

| Group Work during event | Collaborative learning groups Youth explore volunteers’ professional work and practices through thoughtful repetition of exploratory opportunities (P02em-SV1-D1-SI; P05ec-SV3-D3-SSI; P06ef-SV1-D2-SI) | Competitive assessment of individual Volunteers vetted by Category Specialists Committees and Regional Coordinators set the assessments from knowledge, skills and competencies. At competitive events, volunteer judges from Category Specialists Committees and vetted Regional experts assess the youth’s work and practices. (P02em-SV1-D1-SI; P04lm-SV1-D2-SI; P09pec-SV1-D2-SI; P10rc-SV1-D1-SI) | Registration of Groups versus individuals (P10rc-SV1-D1-SI) Knowledge Transfers from Station Leads and Volunteers of exploratory activities – rote practice rather than thoughtful repetition (P02em-SV1-D1-SI; P04lm-SV1-D2-SI; P09pec-SV1-D2-SI; P10rc-SV1-D1-SI) |

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The current resolution facilitated by the team is a distributed learning model including two parts. First, the Education Team creates and facilitates a teacher resource with an in-class design challenge process for teachers and students to prepare for a collaborative learning space event. Second, the Organization Team plans and implements a collaborative learning space event. *Figure 4.11* represents the public domain cycle of tasks: school visits, preparation for event, collaborative learning space event, and reporting. Inside the cycle, the distribution of responsibilities involves the Education Team and Organizational Team. The Education Team schedules school visits for general information, prepares teachers and students for the collaborative learning space event, and reports to the organization and advisory board. The
Organizational team plans and implements the collaborative learning space event, and reports to the advisory board.

Figure 5.10 Current resolution and team responsibilities

After the memo describing the organization cycle, the next three sections describe the beginning, middle, and end of the team’s formulation process.

5.4.1 Beginning.
Although most participants have been on parts of the journey, only P01ed has started and completed the entire journey. P01ed explains how the offer of the assigned task appeared.

In our organization’s alignment to Pan-Canadian core programming and events, we show
case competitive events. In our programming of these events, we show the secondary school audiences what they might achieve by choosing a part of the skills movement. Members of our ecosystem recognized a provincial grades 6 to 9 curricular redesign included exploration of skills experiential learning to deepen their understanding of secondary courses and affect change for post-secondary programs. They asked us to formulate –design, develop, prototype, evaluate – and to facilitate an organization-based resolution across the ecosystem coevolving through a problematic situation. (P01ed-SV1-D1-SI).

P01ed explains why the organization accepted the offer.

We choose the assigned task because it aligned with our part of the skills movement. Our part of the skills movement is making the secondary path to post-secondary programs as smooth and seamless as possible … In our core programming and events, we represent a hub within a wheel of change bound together and moving forward organically. That’s why we aren’t the managers of change. No one has ownership. As the hub, we anchor the spokes with folks by offering like-minded people opportunities to participate along whatever spoke matches their knowledge, skills, competencies and social connections. We know we are not an island by ourselves. So, when we decided to take the assigned task, we came with our organization-based philosophy which runs deep into our roles and responsibilities. (P01ed-SV3-D3-SSI).

In similar terms, the management team (P02em, P03pl, P04lm) and P05ec, who originally worked with the OM, described how members of the ecosystem offered the assigned task to the organization. The rest of the participants (7) were not aware of the particulars. Several participants (3) knew when discussions started and not how the assigned task came to fruition.
The rest (4) were uncertain as to the how, why, or duration of the assigned task.

Although most (7) participants were not aware that the organization had a choice to decline the offer of the assigned task, every participant described the assigned task as expanding organizational opportunities to serve grades 6 to 9 students with a classroom component, the plans of excellence, and the implementations of engagement. When asked, what were their indicators of success for the organization-based resolution:

- Most (8) participants described the implementation of either Cycle #3 (prototype) or Cycle #4 (evaluate) where they participated in the collaborative learning space event and saw the students and the volunteers engaged in activities throughout the days;
- One (1) participant described full registration of the Cycle #3 (prototype) including a waitlist since the ecosystem showed no hesitation once the facilitation of a resolution started; and
- Several (3) participants described the venue set-up of Cycle #3 (prototype) complete.

The thread running through these three indicators is members from the ecosystem becoming involved with the team’s plans. After Data Set #3 5D AI cycle, most (9) participants recognized in the semi-structured interviews that the assigned task at some point return to the members of the business ecosystem. During the structured interviews (Data Set #2), each participant referred to the current organization-based resolution of the assigned task in the terms of a “context-based series of tasks that nudge [the team] in a trajectory of practical applications by adapting our roles and responsibilities” (P02em-SV1-D1-SI). The trajectory of practical applications by adapting our roles and responsibilities illustrates how the team approaches each cycle of their core programming and events. During first-cycle coding, I understood the illustration referred to
changes in the team’s knowledge, skills, competencies, and social connections developing through team members’ reports of their activities in the business ecosystem. During the semi-structured interviews (Data Set #4), second-cycle coding began.

Before planning begins for a new cycle of a program or event, the organizational team debriefs the last event from the start of planning to the finish of implementing the event. By reviewing the complete process as an organizational team, the entire team discovers ways to improve the experiences for the team members and for the past, present, and future contributors and attendees. Without additional prompting, the participants describe their roles and responsibilities throughout the past cycle, the challenges they faced as individuals or professionals, how they develop their knowledge, skills, or competencies to address the challenges, and finally, stories describing the experiences of their contributors and attendees. While describing the cycles of the assigned tasks, participants referred to a less formal process of debriefing in the first two cycles (design and develop). In Cycle #3, the organizational team incorporated a similar process of debriefing after the collaborative learning space event. The Education Team chose to debrief the in-class design facilitation separately as only their team members were involved.

5.4.2 Memo: Begin with inquiry.

The team propose how to formulate and to facilitate an organization-based resolution. From educational literature, the team applies Dewey’s (1910) experiential inquiry model to the problematic situation. A resolution emerges as the team explores, discovers, and examines their unfamiliar situations and experiences. After presenting their proposal and receiving the advisory board approval, the team members identified four unfamiliar situations associated with the assigned task: a new group of youth, in-class preparation with teachers and students for an event, a collaborative-based event, and a collaborative learning space.
During the first site visit to collect data from structured interviews, P01ed described “Research, Proposal, Go” (P01ed-SV1-D1-SI). Tasked with implementing curricular redesigned, team members consider how to develop and design a resolution with authentic personalized learning activities to guide each learner’s experiences while connecting with category specialists in purposeful ways. Designing for learning shifts the category specialists’ responsibilities from standardized testing for all in competitive events. Their exploratory booths shift from linear object-oriented plans with summative testing to mesh-works of grade 6 to 9 students exploring through the activities offering knowledge, skills, competencies, and social connections. While designing for these personalized, authentic and social learning activities, each category specialist plans remain rooted in preferred outcomes and distinct contextual frameworks from the curriculum (Hawley & Valli, 1999).

Deeper thinking processes have become part of the popular lexicon in contemporary professional practices addressing social issues (Conklin, 2006; Kelley & Littman, 2006). Examples include design, business, management, engineering, and urban planning. Many contemporary professional practices addressing non-generalizable social issues have popularized this lexicon These group processes involving design are having an increasing influence across social systems (Brown & Katz, 2009). Examples of mapping designing for learning to preferred learners’ outcomes follow:

- Designing for personalized learning, team members support learners’ development of mental models and internal motivation, and use of multiple intelligences (Trilling & Fadel, 2009, pp. 30-34).

- Designing for authentic learning, team members choose context / content that make sense to learners by connecting to their personal interests or life experiences (Sousa, 2003,
Designing for social learning, team members apply traditional social learning and development theories (i.e., Piaget’s (1973) constructivism, Bandura’s (1986b) social cognitive theory, and Gardner’s (2006) multiple intelligences) while introducing the social and emotional processing identified by neuroscientists (Immordino-Yang, 2011).

Despite team members applying the foundations of educational research to support the designs of learning, each youth’s development, learning or educational path include additional confounding factors within any collaborative learning system.

Further, some researchers and theorists propose multi-attentional methods of managing practices and analyzing engagement to support educators being the designers of learning environments in mindful and purposeful ways while engaging their students in a variety of individual, small group and whole-class activities (Boyer, 2010, p. 321). Other researchers suggest micro-developmental, interprofessional constructions of social emotional processing to develop a positive learning environment that uniquely influences each student experiencing multiple risk factors and the interactivity of these factors (Immordino-Yang, 2010, p. 218). Pinar (2011), a curriculum theorist and researcher, concludes

no single, even canonical, [curricular] concept — alignment with society (Bobbitt, 1918) or society’s construction through human intelligence (Dewey, 1916/1944), curriculum development through protocol (Tyler, 1949), curriculum practice as deliberation (Schwab, 1978), curriculum for the sake of transcendence (Huebner, 1999), and humanization (Macdonald, 1995) — solves the problem of the present moment, a divergent field moving in multiple directions (p. 123).

Pinar bases his conclusion from his research and observations in the educational field.
Developers and designers produce the base (i.e., environment, strategies, content, learners, technologies). Complexity arises as structures, descriptors, or modifiers are implicitly or explicitly assigned. From a social systems viewpoint, due to its complexity, social messes describe education systems. An education system includes connections to teams and community members with remnants of previous infrastructures, interconnections to other over-arching infrastructures, and a membership where “[n]o one works from a blank slate” (p. 123). Given the diversity, complexity and potential chaos of addressing these changes to educators’ classroom practices, evidence-based practices and narrative inquiries as ways of knowing how to integrate design for learning into the classroom require a third way — designerly ways of knowing.

From an educational theoretical perspective, the team formulated a distributed participatory learning culture from a model of outward-looking schools (Mueller & Toutain, 2015). The ecosystem includes the emerging needs of an intergenerational population of learners (K-20 education institutions) and demands of a local economy on the local schools to provide workers (partners, sponsors, donors, labor, industry, organizations). The Education Team facilitates the possibilities of either the in-class preparation for the event while the Volunteers input how the collaborative-based event become represented depending on how the team formulates the participatory development or the social construction of knowledge, skills, competencies, and social connections. Within this situated context lies a potential for students to observe the ways category specialists from different categories act autonomously (be), know what to do, and collaborate (live together). For the team members creating the events to transfer knowledge, skills, competencies, and social connections, two emergent roles of with key responsibilities address the dual process of social learning: knowledge workers (Drucker, 1959) and learning workers (Morgan, 2014). During the activities involved with the collaborative learning space event, the UNESCO’s four pillars of learning (to be, to know, to live together, to
do) reminds the team of their dual process of social learning: first, to the team’s organization and second, to the assigned task as ecosystem leaders.

During the formulation of the organization-based resolution, the team’s grounding in their organizational roles and responsibilities offer the governing variables while the team’s roles and responsibilities coevolved as ecosystem leaders across the ecosystem. The members that invest illustrate the permeability of participatory development and social construction throughout their processes to formulate – design, develop, prototype, evaluate – and to facilitate an organization-based resolution across the ecosystem. Throughout the process, the team stays relatively fluid in their reporting, processes and roles. The eight dimensions of team effectiveness created the individual blocks for each set of programming and events necessary to continually address the context-based and resolution-driven pieces from the two-dimensional puzzle pieces of the federated model. The three sets of blocks are regional events, provincial events, and collaborative learning space. The eight dimensions of team effectiveness numbered on the blocks are Eight dimensions of team effectiveness (Rubin & Plovnick, 1981):

1. clear, shared goals or purpose;
2. clear, shared roles/responsibilities;
3. supportive, empowering relationships;
4. clear, shared procedures;
5. nurturing, challenging leadership;
6. evolving energy and spirit;
7. productivity and performance; and
8. complete, purposeful, and uplifting communication.
Across their ecosystem, iterative social processes address changes to the individuals, the practices, and the social systems (Cross, 2001). Concurrently, the team members traversing across the ecosystem need to recognize and acknowledge their roots from which they formulated the resolution. From an AI approach, the roots create the positive core of the resolution. Within the positive core lies the sensemaking of the individual team member’s ways of knowing and collectively the team’s development of designerly ways of knowing through the phases of formulation - design, develop, prototype, evaluate – and facilitation of an organization-based resolution across the ecosystem.
5.4.3 Middle: Cycles to formulate.

Although recognized and acknowledged for their planning and implementing, the team had not formulated and facilitated an organization-based resolution before the assigned task. Section 4.3.6 describes the organizational structure change when the assigned task began. Completing the assigned task become an instance of P01ed’s description of the organization’s part in the Skills Movement in Section 4.4.2 P01ed’s description influenced the representation as a circle with the team as the hub for the ecosystem of the assigned task in Figure 4.5 P01ed’s description informed how the assigned task rolled out. First, no one has ownership of the assigned task. Second, P01ed acted as the hub and anchored the *spokes with folks*. In this instance, *spokes with folks* refers to the cycles during the formulation. During each cycle, team members participated based on their workflow of organizational roles and responsibilities. At times, several team members would have their organizational workflows disrupted because their knowledge, skills, competencies, and social connections complemented the cyclical requirements of the assigned task. *Figure 4.13* summarizes which of the participants contributed in each of the cycles and phases. Descriptions of the roles, the responsibilities, the programming, and the events for each cycle and phase follows organized by the four cycles.
Figure 5.12 Case study participants, cycles, phases

Cycle #1: Design began before P01ed had the advisory board approval to accept the assigned task. Figure 2.1 represents the framework discussed with P01ed and OM as P05ec integrated educational research on the four unfamiliar situations for the organization: new group of youth (grades 6 to 9); in-class preparation of teachers and students for an event; working in groups; and collaborative learning space. Table 4.5 outlines the four unfamiliar situations the team identified while researching making and design models with grades 6 to 9 students. Within that research, P05ec created a list of possible instructional and learning designs offered in grades 6 to 9 classrooms with an inquiry-based approach. Concurrently, P01ed and OM were working on a project with a rural school to create video conferencing opportunities that might serve to expand course offerings for students. On the peripheral of this work, P04lm was connecting with category specialists to identify several barriers and bridge the rural school to knowledge, skills,
competencies, and social connections. Due to the project and the alliance, the rural school administrators invited P01ed, OM, and P04lm to a professional learning event facilitated by director of university centre housed in faculty of education. Although P01ed and OM felt the director’s model address several of the unfamiliar situations, a change in government and a downturn in economy slowed the provincial grades 6 to 9 curricular redesign of an elective course. P05ec continued to research teacher requirements and professional development.

Suddenly, everything that was a stop turned to a go: provincial grades 6 to 9 curricular redesign of an elective course ready and advisory board approved the assigned task. Reviewing the research and connecting with members of the ecosystem, P01ed and OM realized beyond the team’s comfort zone to develop an organization-based resolution. P05ec contacted director on behalf of OM to discuss possibility of consulting with team as a change agent to provide professional learning for teachers. Director accepted and Cycle #2: Develop began.

As Cycle #2: Develop began, P01ed, OM, and P04lm recognized two domains of unfamiliar situations involving knowledge, skills, competencies, social connections outside their personal and professional comfort zones: inquiry-based approach learning activities reflecting curricular learning outcomes and the Maker Movement in the classrooms. “We knew we didn’t have all the answers, would need to tap into expertise we didn’t have. This meant building a trusted relationship with change agents due to expertise and the respect we gleaned from the director’s learning event we attended” (P01ed-SV1-D1-SI). During Cycle #2, the team planned and implemented two parts to the organization-based resolution: two professional learning events for educators and two in-class making learning activities for grade 6 to 9 students. The professional learning events provided the structure for P05ec to plan and implement the two in-class making learning activities for grade 6 to 9 students.
For planning and implementing the two professional learning events, P02em, P04lm, and P05ec became the team that planned the RIPL events with the change agents. In planning these two events, my role as research project coordinator did not deviate from my daily job functions. I supplied the pre-event planning, sample agenda for the day, and post-event debriefing. The logistics of the events became the team’s responsibility. The facilitation at the events became the responsibility of the change agents. The target audience for the two events included a broad-based approach inviting kindergarten to grade 12 provincial educators: teachers, librarians, and administrators. The pre-planning by the team included other members of the organization team:

- P03pl to inform sponsors and donors;
- P10rc to register educators; and
- P08ecc to create branding for the event.

P11om attended the first event. P09pec attended both events. P10rc collected evaluations to all participants. P01ed, P02em, P03pl, P04lm, P05ec, P09pec and the change agents debriefed in the evening of each two events. The organization team debriefed the following Tuesday of each event. OM attended the first event and left for new job with international organization before the second event. During the pre-planning phase with the change agents, P01ed directed P05ec to plan and implement two in-class making learning activities for grade 6 to 9 students with the support of P02em and P04lm. These in-class making learning activities replicated the classroom activities suggested in the change agents’ consultancy RIPL model. Although well-attended and successful evaluations received for the four trial events (two professional learning events and two in-class making learning events), the organizational team considered the time and resources required to sustain the resolution of Cycle #2 Develop were prohibitive. Directed by P01ed, P02em, P04lm, and P05ec consulted with the change agents to adapt the facilitation of their
RIPL model and to develop a prototype that meet the organization’s goal of serving youth and provided support for classroom teachers and their students attending a collaborative learning event. The team members observed two events with a locally organized event using the change agents’ RIPL model. From these observations and debriefs with the change agents, the team formulated an organization-based resolution informed by using what they know, grow, and show of the RIPL model in Cycle #3 Prototype.

Cycle #3 Prototype tested the organization-based resolution as a distributed interactive learning model including an in-class design challenge process in preparation for a collaborative learning space event. During Cycle #3, the team, P05ec, P02em, and P04lm planned and implemented one distributed interactive learning model. A teacher guide for the in-class design challenge process was available on the organization’s public domain website. P05ec with the support of P02em facilitated in-class activities involving a design challenge process for teachers, administrators, schools, and school districts. The organization team planned and implemented the collaborative learning space event as a core event.

During the planning, P02em, P04lm, and P05ec continued with phone meetings with the change agents to discuss any unfamiliar situations, processes, or practices. The logistics of the collaborative learning space event became the responsibility of the team. Due to the positive response from schools and school districts, the team decided to offer back-to-back collaborative learning events. Their decision meant 400 grade 6 to 9 students participated over the two days. The facilitation of the events became the responsibility of the team. The target audience for the prototype included grades 6 to 9 students and the educators responsible for the provincial grades 6 to 9 curricular redesign of an elective course. The pre-planning by the team included other members of the organization team:
• P03pl to inform sponsors and donors;

• P10rc to register teams; and

• P08ecc to create branding for the event.

P09pec and P11om attended the two-day collaborative learning space events. P10rc collected evaluations of all participants (youth, teachers, parents, station leads, and volunteers). P02em, P03pl, P04lm, P05ec, P09pec and the change agents debriefed the evening of the two-day event. The organization team debriefed the following Tuesday of the event. As consultants, the change agents attended the collaborative learning space events to observe the team’s implementation and facilitation, to analyze the participants’ evaluations, and to prepare a report of the events. After the debrief with the organization team and the presentation of the report to the advisory board, the organization moved to Cycle #4: Evaluate. During Cycle #4: Evaluate, the organization team successfully replicated the Cycle #3: Prototype independently. The team moved from formulation to facilitation of the organization-based resolution as part of the organization’s core programming and events. The team will continue to facilitate the organization-based resolution as part of their organizational roles and responsibilities.

5.4.4 Memo: Intrinsic question additions.

Within the organization, the participants “tend to talk in cycles since our programs and events roll out that way rather than over years” (P02ec-SV1-D1-S1). Briefly, every participants’ roles and responsibilities follow the organizational cycle. After planning, the organization implements the planned programs and events. At the end of the cycle, the team members evaluate the cycle and prepare to present iterations of programs and events or proposals for new programs and events. As an iterative cycle of planning and implementing, the participants recognize and acknowledge a sense of autonomy as the person accountable for specific
responsibilities, a sense of directed support from membership in the appropriate teams, and a sense of alignment to the overall organization cycle. Thus, with all team members’ work and efforts on the same organization schedule of programs and events, the concept of iterative cyclical processes became part of the team’s pattern to formulate the organization-based resolution with four cycles.

From the data collections with participants, the following figure represents the cyclical nature of the organization’s core programming and events with the assigned task on the peripheral of their bounded area set by the advisory board. While describing their contributors to the assigned task, the participants did not identify any of the advisory board members and their affiliated organizations. The quarterly advisory board meetings provide the team with purposeful checks and balances. First, participants consider the advisory board as separate from the ecosystem. They describe the four meetings like points on a compass to ensure the team operates within the bounded areas which are set participants did not consider the advisory board as part of the ecosystem. The advisory board meeting between the last cycle debrief and next cycle planning set boundaries for the organization team’s planning. The other three advisory meetings act as a compass centering the organization’s tasks throughout the cycle. They described the advisory board meetings as opportunities to ensure the organizational team was on the right track.

The Partners Team (orange between slices) work constantly through the cycle with partners, sponsors, and donors. P02em (turquoise) manages the Education Team and Regional Event. P08pec (blue) manages the Provincial Event. The planning and reporting of the Assigned Task while the team formulates their organization-based resolution are on the peripheral of the organization cycle. The collaborative learning space event is within the organization cycle as all
organization members participate in the event.

**Legend:**
Green: Executive Team (directed by Advisory Board at 10,000 feet) bounds planning and implementing (managed by P01ed)
Orange: Partners Team (directed by P01ed; managed by P03pl) informs partners and donors (coordinated by P07pc)
Turquoise: Education Team (directed by P01ed; managed by P02em) implements in-class design (coordinated by P05ec; facilitated by P06ef)
Navy Blue (Provincial Event): P09pec and P10rc (managed by P04lm) largest competitive event with winners of event going on to National Event and potential for International Event.

**Figure 5.13 Organization cycle with assigned task**

The team’s experiences include iterative processes through their core programming and events. While completing the assigned task, the team considered a series of cycles to tame the wicked
problems across the ecosystem rather than an expectation of “a totally rational approach… [of asking] decision-makers to define their objectives clearly, analyze information rationally, predict consequences, and be consistent” (Gelatt, 1989, p. 252). The team has the approval of the advisory board members to complete the assigned task with their support and guidance over the cycles. Although not a totally rational approach, the team has demonstrated their effectiveness throughout their descriptions of the assigned task.

The first task in Cycle #1: Design completed by P05ec began with an inquiry about the unfamiliar situations created by the assigned task over a statement of how the organization fixed the problem. Through their reports and processes, they answered their inquiry and created an organization-based resolution while continuing to be accountable for their core roles and responsibilities. When offered the services of the change agents with a consultancy model, they determined the facilitation was beyond their organizational boundaries set by their advisory board. They tamed their formulation by advocating for the change agents with a consultancy model to adapt to their organizational development. They asked change agents who know the model to adapt it to their organizational parameters. Their resolution became a distributed learning model including an in-class design challenge process for teachers and students in preparation for a collaborative learning space event. By adding social construction, the team offers a process within the classrooms and within the category specialist committees to recognize and acknowledge potential barriers arising from the buzz about changing practices and workflows.

Once established, they evaluated their core responsibilities and decided how to eliminate several tasks to provide several resources to continue offering the resolution until the ecosystem is ready to take the assigned task back. Over five cycles, they have remembered that the assigned
task belonged to members of the ecosystem, not their organization. Further, they willingly shared their retrospective views and discussed their contributions, individually and collectively. They participated while I probed their stories, the narratives, and the graphical representations we created together. Section 5.3 describes the conceptual framework of the organization-based resolution. Using cycles to formulate – design, development, implementation, evaluation – an organization-based resolution is often considered in projects with a leader and a loosely-formed team of members assigned at various times to take on the roles of knowledge workers (Drucker, 1959) and learning workers (Morgan, 2014).

5.4.5 End: From formulate to facilitate.
Guided by the success of Cycle #4 Prototype, the team procured the advisory board’s approval to change the organization-based resolution from a peripheral assigned task to the organization’s core programming and events. The team will plan and implement two separate events to cover the province using the organization-based resolution, a distributed interactive learning model including an in-class design challenge process in preparation for two collaborative learning space events. The approval from the advisory board increases the boundaries of the youth served by the organization to include grades 6 to 9 youth. The team addressed the barriers and concerns of the four unfamiliar situations. The following table summarizes the new tasks and change-of-practices from the organization-based resolution with comments.
<table>
<thead>
<tr>
<th>Unfamiliar Situations</th>
<th>Description</th>
<th>Organization-based Resolution</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Youth Group</td>
<td>Grades 6 to 9 students registered in provincial grades 6 to 9 curricular redesign of an elective course</td>
<td>New Task (P10rc): Registration for each day: 200 students (50 groups of 4) plus waitlist. (P04lm-SV1-D2-SI) Result: Teachers, Schools, School Districts register number of teams with organization. Team members, teachers, and parents determined by registrants. New Task (P10rc): Before event, P10rc connects to confirm numbers attending. Has a waitlist. (P04lm-SV1-D2-SI) Familiar Situation (Exploration Days): Transportation from school after attendance taken at school.</td>
<td>Provincial Coverage: Two separate events with 2 days back-to-back to cover province. (Each event: 400 students; 100 groups). Cycle #1 identified the logistics for the new youth group: Age of students and travel becomes a barrier – cost of overnight stays prohibitive to schools and parents New Task (P05ec): Create cycle for second event with 2 days back-to-back with support of P06ef, P09pec, and Management Team (P02em - Education; P04lm, - Logistics; and P03pl – Budget, Partners, Sponsors). Additional Work to Organization Task (P10rc): Parents’ Consent to travel and photos (P10rc-SV1-D1-SI)</td>
</tr>
<tr>
<td>Unfamiliar Situations</td>
<td>Description</td>
<td>Organization-based Resolution</td>
<td>Comments</td>
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<td>-----------------------------</td>
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<tr>
<td><strong>In-Class Preparation for Event</strong></td>
<td>Creating Learning Outcomes: Various classroom practices; Teachers and Students consider some common challenge to complete before coming to the event</td>
<td>New Task (Education Team): Education Team develops in-class design challenge and schedules in-class or in-school workshops for classes. Change-in-Practice (P06ef directly; P02em and P05ec indirectly): Scheduling of P06ef’s visits sometimes limited when teachers, schools, school districts register – P02em and P05ec not always able to assist.</td>
<td>Designing in-class design challenges requires coordination of curricular ties, organization-based literacies, and availability of station materials for the collaborative learning space event.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Elephant</td>
</tr>
<tr>
<td>Unfamiliar Situations</td>
<td>Description</td>
<td>Organization-based Resolution</td>
<td>Comments</td>
</tr>
<tr>
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<td>----------</td>
</tr>
</tbody>
</table>
| **Working in Groups** | Collaborative - working in groups  
Youth explore volunteers’ professional work and practices | New Task (P04lm):  
School proposals for mobile tools kit – P04lm works with donors to supply simple prototyping tools (drills, hammers, etc.) for schools in need of support  
New Task (Station Leads):  
Morning of Event:  
Each Student scheduled into 3 Learn-A-Trade activities. Group of 4 students have experienced all 12 stations  
Change-in-Practice (Station Volunteers):  
Afternoon of Event:  
Student groups prototype their solutions to design challenge using simple prototyping and as many of the stations as possible. | Morning of Event:  
Station Leads take Rote Practice approach to Skills starting with safety and project to complete. Scheduling students maintains flow to each station  
Afternoon of Event:  
Students determine prototype and require thoughtful repetition exploratory opportunities with Station Specialists. Bottlenecks at stations may occur requiring a group of volunteers to discuss alternatives with students. |
| **Collaborative Learning Space** | Stations:  
Leads from Competitive Category Specialists develop and design stations exploratory activities for youth to learn-a-trade activities (mornings); for youth to prototype using some materials and skills from stations; and for youth to explain their choices during a design charrette including competitive category specialists (afternoons) | New Task (P09pec):  
12 stations per Event – P09pec ask for leads from Category Specialist Committees (P09pec-SV1-D2-SI) | Elephant | Potential Volunteer Burnout: The station leads and volunteers for these events are from the same pool as the organization’s core programming and events (P09pec-SV2-D2-AI)  
Afternoon event is new practice for many of the station leads and volunteers requiring additional discussions and potential training from the team |
5.4.6 Memo: Competitors and collaborators?

Sub-question #7 inquires as masters of summative assessment in competitions (end of a learning process in competitive events), how does the teams and team members encourage and engage the formative assessment (feedback dialogues applied in learning-in-process) and diagnostic assessment (what participants know at the beginning of a learning process) in the current resolution?

Crafted while analyzing the first data set from the public domain website and prior to the first site visit, this final sub-question illustrates how the data collected from the participants have enriched the public domain perspective of the team and organization with their shared living stories. From the data sources, I learned the team and the team members benefit from social constructionist viewpoints (Papert & Harel, 1991). For example, as the team members build social relationships (Gergen, 2015) across the ecosystem categories of investors and advocators, the team expands the activities into networks of communities of practices across the ecosystem (Wenger-Trapner et al., 2014). As the Education Team formulates their learning activities for the classroom workshops, the Logistics Team prepares materials and volunteers for the collaborative learning space event (Papert & Harel, 1991). In turn, as the Partners Team develops partners and sponsors, the Education Team and Logistics Teams adjust their activities and preparations.

However, from the interviews, the team’s roles do not include the responsibilities of the masters of summative assessment in the competitive events. P04lm and P09pec from the Logistics Team support the volunteers from the category committee specialists that design and develop the assessments for the competitors. Similarly, the Education Team serves the teachers and their classrooms to prepare to participate for the collaborative learning event; however, they leave all the formative and diagnostic assessments to the classroom teachers. From the data collected, synthesized, and analyzed, P01ed explains:
The assigned task might bring unfamiliar situations and considerations of new processes. We have *excellence* in our plans and *engagement* in our implementations. We will tend those roots while we plant new seeds. Who knows what will happen when we return our organization-based resolution back to the members of the ecosystem? It’s the world in which we live - a plethora of information exchanges, it’s experience that creates the *spark*. (P01ed-SV3-D3-SSI).

Within their organization-based resolution, they craft and cultivate preparations for a collaborative learning space event with their investors and advocators. The ecosystem memberships experience one way to modify their practices and experiences based on the identified disruption, independent of how they serve youth as category specialists, classroom teachers, or partners. At the collaborative learning event, the team increases the social interactions of intergenerational participants by implementing authentic engagement. At the end of each organizational cycle, the team discusses how to *spark* those experiences again grounded in the organization’s governing variables: planning, implementing, excellence, engagement, competition, and collaboration.

The model of outward-looking schools, as an SHA, provides a widely applicable template for a team tasked with creating an organization-based resolution across an ecosystem coevolving due to a problematic situation involving a provincial grades 6 to 9 curricular redesign of an elective course. In this case, to create an organization-based resolution, the team formulates and facilitates a resolution that opens opportunities to explore knowledge, skills, and competencies through social connections with members of their category specialist committees to meet the demands of the provincial grades 6 to 9 curricular redesign of an elective course and the needs of the teachers, parents, and grades 6 to 9 students. By adding social construction, the team begins a
process within the classrooms and within the category specialist committees to recognize and acknowledge potential barriers that may arise from the buzz about the practices and social issues.

5.5 Imagining the Future: 5D AI cycle

During a 5D Appreciative Inquiry (AI) Cycle, the team designed and developed two blueprints for new resolutions by naming elephants and situating dragons that create barriers to their future success as they continue to facilitate their organization-based resolution. The AI approach provides a change management framework and process to develop and to learn changes in workflows by members of an organization or social system (Cooperrider, & Avital, 2004). The 5D AI Cycle provides a process to foster imagination, creativity and innovation among team members (Barrett & Fry, 2005; Cooperrider, & Avital, 2004).

5.5.1 Two future blueprints.

The two blueprints illustrate the team’s expectation for the future of the assigned task to be taken up by mutually supportive roles across the ecosystem. During the 5D AI discussions, the team revealed they will continue to facilitate the current organization-based resolution of the assigned task for the next organizational cycle.

Ten team members participated the 5D Appreciative Inquiry (AI) cycle. Before the process began, P02em chose partners within the team that rarely worked together. Although the Education Team uses design thinking processes in their practices, none of the participants had experienced the 5D AI Cycle. The Cycle was facilitated as described in the research design. Team discussions included the impact, potential, and possibilities regarding next steps of the organization-based resolution involving the collaborative learning space. The cycle finished in just over an hour. Like the Tuesday organization meetings, informal groups and hallway conversations continued for another hour. The following figure fills the empty shell of the Venn diagram with emergent living stories.
The results of the process reinforce the findings from the interviews that although several of the team members contribute infrequently to the assigned task, the team continues to discuss the assigned task and the organization-based resolution with regular updates during Tuesday organization meetings. Unlike the Tuesday organization meetings, the answers filling the empty create antenarratives. Antenarrative refers to “the team’s bets on the future … based on their
various relationships between the organization’s narrative and their living stories” (Boje, 2014, p. xxi). Neither blueprint mapped to the organization structure supporting the current core programming and events. By the end of the 5D AI cycle, the team’s two new blueprints included schematics of content, skill sets, and competencies for members of the ecosystem to consider.

The first, on-wheels to travel to rural and remote areas, addressed the challenge of grade 6 to 9 students traveling to a collaborative learning space event (P09pec-SV3-D3-SSI). The second, Regional Skills Towns, enhanced the current core programming events with the nine regional districts (P02em-SV3-D1-SSI). The team shifted their roles and responsibilities from following 25 years of organizational excellence to curating knowledge, skills, and competencies across an ecosystem. During the group processes, team members began thinking like designers with few judgments and many supportive comments to eliminate any fear of failure with other group members. Traditionally, designers focus on enhancing the look and functionality of products (Norman, 2013) while system thinkers attempt to resolve social messes with far-reaching institutional policies and procedures that derail any progress. During the 5D AI cycle, the team members illustrated both types of thinking by As the team continued through the 5D AI cycle process, the participants generated stories, questioned elephants in the room, situated dragons, and then represented these stories in purposeful ways to consider those barriers. During the group discussion at the end of the cycle, the team recognized and acknowledged three elephants and four dragons.

5.5.2 Elephants.

Team members agreed on three elephants in the room: volunteer burnout, a need for specialized classroom resources, and a balance between resources and requests. Team members discussed volunteer burnout while considered the impact on the entire organization and the
collaborative learning space event. The same volunteer pool resources all the core programming and events. The Education Team creates the design challenge and the teacher resources for the in-class workshops to prepare for the collaborative learning space event. With the success of the organization-based resolution, teachers, schools, and school districts have begun requesting other resources. The Executive, Management, and Education Teams are discussing how to address several requests for specialized educational resources. Finally, while team members contribute to either the in-class workshops or the collaborative learning space event, time and resources are removed from core programming and events. Once surfaced, every team member mentioned thinking at one point or another of these potential barriers. Interestingly, as quick as these barriers appeared, they seemed to disappear. Other than P09pec who works directly with the volunteers, participants did not mention these elephants during Data Set #4.
Figure 5.15 Naming elephants

One set of stories and subsequent discussions ebbed and flowed between the members that situated four dragons during the 5D AI Cycle.

5.5.3 Dragons.

The participants discussed the consequences of changing a date for the collaborative learning space event without consultation. A group of teachers accelerated their change in their practices independently and did not participate in the resolution. Another group lagged too far
behind to participate. The stories from the discussion illustrate how members of an ecosystem apply self-organization and co-evolve without warning. In turn, the team situate dragons. In this instance, how the dragons were slayed by the team overtook the discussion. The stories became how other team members appreciated and valued what they had learned and developed more than the dragons themselves. Returning to the data, four dragons emerged: time, communications, external logistics, and internal logistics.

Between answering *what is it now* and *what might it be*, the team members discussed how they recognized and acknowledged the creative-thinking-in-action required during the in-class workshops facilitated by the Education Team and during the collaborative learning space event. By the end of the 5D AI Cycle, the participants agreed they appreciated the value of these processes in collaborative places and spaces. Concurrently, they agreed when facilitating the in-class workshops and the collaborative event the processes created a *time dragon* the team had not experience in their past programming and competitive events.

Between answering *what might it be* and *what should it be*, the new team members and those members with intermittent contributions to the assigned task recognized and acknowledged the value of sharing past, present, and future stories between team members and their contributions to understand the potential of the assigned task on the organization. By the end of the 5D AI Cycle, the team agreed they appreciated the value of the stories. They considered the teams within the organization team created a *communication dragon* team member had not experienced in their past organizational structure with an Organization Manager.

Between answering *what it should be* and *what will it be*, team members not on the Logistics Team recognized and acknowledged the added requirements and time commitments for the Logistics Team while preparing for the collaborative learning space event. By the end of the
5D AI Cycle, the participants agreed they appreciated the value of the stories. They considered as the organization-based resolution became part of the core programming and events for at least one more, possibly four more cycles, created an *external logistics dragon* the team had not experienced in their past organizational planning and implementing.

Finally, after answering *what it should be* and discussing *what it is*, the team members recognized and acknowledged the acceleration of change in the assigned task during one organizational cycle. They considered as the organization-based resolution became part of the core programming and events for at least one more, possibly four more cycles, created an *internal logistics dragon* the team had not experienced in their past organizational planning and implementing. The following figure illustrates the points during the 5D AI Cycle when the stories of appreciation and value sparked the recognition of how team members slayed the dragons.
Several hallway conversations followed after the 5D AI cycle. They included ways to address these situated dragons in the next cycle of planning and implementing.

5.6 Summary

The data collected and synthesized throughout this chapter provide the organization’s public and participant landscapes of professional practices (Wenger-Trayner et al., 2014). The overarching question guiding this case study shows how a team working adjacent to K-20 education systems and associated workplaces within an ecosystem retrospectively describe the impact on organizational learning (OL) as they generate appreciative individual and group
professional stories of their daily practices and workflows after leading a successful resolution. From the data collected, the team members described, explored, discovered, and examined how they know, grow, and show an organization-based resolution to an assigned task.

The team adapted the roles and responsibilities of effectively planning and implementing multiple organizational initiatives, programs, and events in familiar situations. Despite unfamiliar and problematic situations, the team discovered ways to create excellence in formulating and engagement in facilitation. For example, engaging a grade 6 to 9 student in a design thinking process in the classroom and then producing a collaborative prototype with an intergenerational group of category specialists involves an interplay between the student’s body and mind (Dewey, 1938/1967). This interplay between student, content, and an intergenerational group of category specialists produces different learning results than the student imagining through lectures, brainstorming with peers, problem-solving with current knowledge, or digitizing the prototype with design software. This mind-brain-body system of learning has the potential of the student developing awareness of the category specialists’ knowledge, skill sets, competencies, and social connections (Cross, 2011; Papert & Harel, 1991). As team members contributed to the assigned task, they addressed this dual process of social learning in complex and uncertain social learning contexts. Concurrently, the team members recognized the diversity of workflows and practices across the ecosystem and the subsequent barriers. Thus, they maintained engagement in complex workplace contexts involving teams, communities, and expanding destinations across the ecosystem.
Chapter 6 Emergent Findings

The findings emerging from the study inform the literatures discussing teams functioning in ecosystems while representing their organization and completing an assigned task as ecosystem leaders. The organization’s narratives and the living stories shared by the participants illustrate their personal, professional, and team ways of knowing when facing adaptability, complexity, and uncertainty in problematic situations; facing ecosystem processes like self-organization, emergence, and coevolution; establishing new knowledge, skills, competencies, and social interactions with ecosystem members; and remaining accountable to their organization through an advisory board. Working as a team across the ecosystem with a shared purpose offers team members opportunities to make sense of what was once a familiar or resolved situation to what has become unfamiliar or problematic situations as ecosystem leaders.

6.1 Team Reports

Crafting and curating team reports require making sense of multiple experiences including influential factors, individually and collectively. External team reports illustrate representations of narrative coherence to the assigned task (Smith, 1999). Internal team reports illustrate perceptions of team members’ sensemaking of works-in-progress (Turkle, 2015). When determining how the key components of these reports commingle, a team applies ecosystem processes to their interpretive processes: self-organization, the emergence of patterns, and coevolution. For example, team members participate in iterative team processes to address identified changes and influential factors as they formulate an organization-based resolution (Cross, 2001). Given time and space, elephants remain in the room while immediate influential factors emerge. Simultaneously, interdependences or interconnections within or outside the team
situate dragons during facilitation. Dragons become representations of conflicting resolutions, additional governing policies, or unknown professional practices.

The interpreted representations of team members’ perceptions illustrate how a team addresses the problematic situations and disruptions over time and space. The interplay between team interpretations evolving and team reporting hold few correlations and various disruptions. Applying the ecosystem processes of self-organization, the emergence of patterns, and coevolution, the disruptions happen due to time and space. Given time and space, team members offer their stories to make sense of their experiences, to share information, and to foster social connections (Smith, 1999). The stories prompt variations in reporting by individuals, teams, organizations, and social systems across an ecosystem. Examples include determinations of how the team identifies the disruption before considering any changes (Barrett & Fry, 2005), social connections to evolving solutions or resolutions across the ecosystem (Gergen, 2015), or results of the formulation or the facilitation of the current organization-based resolution (Papert & Harel, 1991).

6.2 Team Processes

Over time, a dual process of social learning illustrates a landscape of professional practices (Wenger-Trayner et al., 2014). Applying approaches and processes to socially construct knowledge while introducing a resolution has its advantages. First, as teams diverge and converge translations, mobilizations, and transfers, they apply creative-thinking-in-action. Second, learning and developing together, practice-based social learning results in a diversity of workflows and practices across ecosystems. As the team’s context expands, the potential of recognizing adjacent practices and workflows allows for smoother boundary crossings. This dual process of social learning describes the notion of a network of communities of practices.
On the one hand, team members in the ecosystem facilitate their current organization-based resolutions. On the other hand, team members formulate how they produced the physical and conceptual artifacts by applying common terminologies, appropriate tools, concepts, methods, stories, documents, events, or links to purposeful resources. Regardless of the approach or process to problem finding, team members and their participants engage with creativity-in-action. As process thinkers, they apply problem finding that identify emergent patterns through the interplay between the applications of convergent and divergent thinking. Regardless of the approach or process to problem finding, team members engage their expanding communities as they explore, discover, and examine the many possible solutions resulting from creative-thinking-in-action.

The findings emerging from the study surrounding team processes include three filtering processes of the team: aggregating designerly ways of knowing, expanding the team’s contexts, and maintaining a team habitat. While engaged in filtering processes, the team apply higher-order cognitive functioning to make sense of the interplay between the assigned role of ecosystem leader and the daily job functions. As this intrinsic case study illustrates the team began knowing the evaluative judgment and standards of quality of the organization. They honed their designerly ways of knowing through the assigned task by applying three team influential factors: excellence in planning, engagement in implementation, and a sense of familiarity of how best to serve youth in programming and competitive events within an organization with over 25 years of success and still counting.

6.2.1 Aggregating designerly ways of knowing.

Gathering and filtering knowledge, skills, competencies, and social interactions disrupt the predictive qualities from bounded linear processes and outcomes. Unlike an institutional or
industry solution to solve a problem, the answers to the sub-questions become dependent on how the team members situated the question and then the answer through narratives and stories. For example, when considering replication of the journey with diverse or similar ways of knowing, the answer depends on whether the new team members have access to the organizational narratives and the team’s living stories.

During the assigned task, the access to narratives and team’s living stories happens constantly as the team situated the assigned task into the organizational cycle. Moreover, with the teams within the team using the same organizational cycle, new team members across the organization became oriented to the current organization-based resolution through both the organization’s narratives and team member’s living stories. Concurrently, making sense of the organization cycle answered part of my intrinsic question - *when formulating and facilitating a resolution for an ecosystem, what is it that makes this team feel unique to me?* By maintaining the organizational cycle for the assigned task, the team members illustrated how to introduce a practice-based shift to *lifelong learning* (Elfert, 2015; Lindeman, 1926/1989; Yeaxlee, 1929).

First, by considering the assigned task as a part of the orientation to new team members, the entire team discussed impacts of informal learning opportunities involving the coevolving ecosystem with rapid technological changes and global interconnectivity (Groen & Kawalklak, 2014). Second, the team illustrated how maintaining the professional habits of team effectiveness take work, effort, and social connections with new team members throughout an organization cycle. Finally, while the team facilitates the organization-based resolution and expands its contexts, the work and efforts of the entire team bridge the gaps as they make sense of their problematic situations through processes like collaboration and social reasoning resulting in creative-thinking-in-action (Resnick, 2017; Robinson, 2017).
6.2.2 Expanding the team’s contexts.

When considering how to expand the team’s contexts, some way to make sense of the collective impact of the resolution becomes necessary. The team members considered how the assigned task created a common agenda for members of the ecosystem and shared their measurement system of excellence in planning and engagement in implementing. They discovered mutually reinforcing activities and maintained constant communication with members through various team members. The team learns through social construction and adjusts through participatory development. However, the team’s work and effort represent a similar danger as a one-narrative report. Focusing on one resolution invites “stereotypes that limit and shape our thinking” (Ngozi Adichie, 2015, p. 3). The boundaries of the team’s work and efforts begin as a single story set by the advisory board of the federation.

Federations “represent unique ways in which interdependent organizations attempt to reduce both environmental uncertainty and complexity (Provan, 1983, p. 87). Volunteers from affiliated organizations act as an advisory board to set a common agenda, a shared measurement system, and constant communication. The federation’s management, like an independent backbone support of the collective impact framework, autonomously manages certain activities within the parameters set by the advisory board. Working within the federation model, the advisory board has set limitations as to the team’s organization-based resolution for the ecosystem.

One similarity of design thinking processes, collective impact frameworks, and federation models is while they espouse to lessen the risk, complexity, and uncertainty of the broader economic environment, the individuals managing the activities and applying results may consider additional strategies in response to adaptability outside the set boundaries (Toubiana,
Alternatively, depending on the scenario, members of the advisory board develop a clearer picture of potential gaps across the ecosystem before team members have time to make sense of unfamiliar situations. Regardless of similarity or difference, the advisory board frames the potential of resolutions across the ecosystem before team members start their explorations. Maintaining engagement in these complex workplace contexts, team members filter the possible expansions with like-minded practitioners within the K-20 education system across the ecosystem.

Before accepting the assigned task, the team planned and implemented competition events that assessed the completed classroom teaching and learning. Transferring socially constructed knowledge in the assigned task implies moving the social learning interactions between team members and the ecosystem to social educational transactions (teaching and learning) within the grades 6 to 9 classrooms. As a process, education considers a worthwhile subject and process; students who are self-aware of what and why they are learning; and a connection of the educational parts to answer ‘why’ (Cross, 1982, pp. 222–223, adapted from Peters, 1965). The provincial grades 6 to 9 curricular redesign of an elective course provides the opportunity of a worthwhile subject and process to grades 6 to 9 students, educators, and school administrators across the ecosystem.

With rapid technological emergences and socio-economic interconnectivity, team members encounter risk, complexity, and uncertainty when traversing across all economic communities in an ecosystem (Moore, 1996/2016). To recognize the continual developing and learning across an ecosystems, researchers and practitioners add the descriptor new to both roles: new knowledge workers and new learning workers (Delors, 1996; Kania & Kramer, 2011; Moore, 1993; Ramírez et al., 2010; Romanow, 2002). The questions become new to who? What
happens to new knowledge and learning? Together, collaboration (social learning) and organizational learning (social reasoning) provide some tools for teams and communities to conceptualize and implement a PD/PL formulation based on a theoretical framework. Thus, despite the best intentions of knowledge workers and learning workers to transfer knowledge, skills, competencies, and social connections, barriers to authentic and collaborative transfers arise due to continual knowledge and learning updates within social systems. Alternatively, these barriers represent an educational concept, transactional distance (Moore, 1993).

Transactional distance refers to “a psychological and a communication space to be crossed, a space of potential misunderstanding between the inputs of instructor and those of the learner” (p. 23). In a learning environment, the consequences of inputs between an instructor and the learner determines a range of outputs. Teachers and youth in grade 10-12 classrooms consider a small range of transactional distance between inputs when preparing for competition events. Alternatively, teachers and youth in grade 6-9 classrooms consider a broad range of transactional distance when using an inquiry-approach to explore careers. At a collaborative learning event, the transactional distance of inputs between instructor and student regarding safety around welding torches potentially remains at zero or no distance for misunderstanding due to consequences. The following duplicate figure of the federated model reminds readers how many pieces the team addresses while considering transactional distances and their consequences between the outputs of their organization roles and the assigned task roles.
Legend:
Blue: Advisory Board Influence - International Event and Youth Engagement
Green: P01ed (directed by Advisory Board)
Orange: Partners Team (directed by P01ed; managed by P03pl)
Turquoise: Education Team (directed by P01ed; managed by P02em)
Navy: Logistics Team (directed by P01ed; managed by P04lm)
Gradients: Influence and Responsibilities Blend

Figure 6.1 Federated model and team responsibilities (Duplicate Figure 4.7)

In social learning processes, learners initiate a knowledge transfer from instructors who hold the knowledge required. In essence, an inquiry opens an opportunity for dialogue. In socially constructed knowledge transfers, individuals hold pieces of information and alternate between
the roles of the instructor and the learner. In these cases, team members require a degree of self-directed and purposeful dialogue or inquiry with any transfer (Hanson, 2013; Langer, 2014). As individuals’ practices, experiences, and contributions across organizations begin to vary, the potential of know-doing gaps returns. These gaps might occur due to the adaptability, complexity, and uncertainty of how knowledge transfers transpire. Additionally, a wide variability of potential learning outcomes and transactional distances exist across an ecosystem.

Regardless of the choices, processes, or abilities; some events involving collaboration or social constructions might not effectively build new knowledge. On the one hand, team members or other participants asked to collaborate may lack domain-related knowledge or social relationships to draw upon social constructed opportunities when addressing wicked problems within social messes (Jennings, 2000). On the other hand, simply transferring learning without any context does little to move individuals, teams, organizations, or societies forward to accepting a new normal (Gergen, 2015; Papert, 2005). In the next section on maintaining a team habitat, addresses the necessity for the team to have uninterrupted time to conceptualize frameworks for the organization-based resolution and underpin the team’s designerly ways of knowing in familiar situations.

6.2.3 Maintaining the team habitat.

In the Introduction, I described how my curiosity about this team as a change agent crafted my intrinsic research question: What is behind the public ways of the team? As a change agent at their event, I observed how each team member recognizes and acknowledges their contributions with satisfaction. As a visitor at their organization site, I observed how the team members appreciate and value each member’s professional contributions during team reporting with open communication channels, individually and collectively. As a researcher, I discovered
how the team processes create a safe and secure working environment to encourage discussions that interplay between the organization and assigned task situations.

Throughout their discussions, they recognize and acknowledge the temporary distractions from the new knowledge, skills, competencies, and social interactions influencing their organization-based resolution. As an informal leadership style, all the participants describe or show instances of the eight dimensions of effectiveness (Rubin & Plovnick, 1981), knowing-in-action or reflecting-in-action (Schön, 1983), and creative-thinking-in-action (Resnick, 2017). From these descriptions and instances, the eight dimensions of team effectiveness become apparent through three characteristics of the team habitat: (a) appreciating and valuing each team member’s contributions, (b) the boundaries defined within the federation model, and (c) the organization site representative of a studio-based space.

First, while describing their roles and responsibilities in their interviews and reinforced during the Tuesday weekly meetings, each participant offers other team members ways they feed forward required information to complete tasks and feedback how they appreciate the completed tasks of the participant during the cycle. In turn, the expectation of everyone taking part in the weekly meetings opens immediate opportunities for dialogue when participants were struggling. When using the six governing variables (excellence, engagement, competition, collaboration, planning, and implementing), the participants’ descriptions and usage were uniform. In these ways, the first four dimensions of team effectiveness: (a) clear and shared goals or purpose, (b) clear and shared roles/responsibilities, (c) supportive and empowering relationships, and (d) clear and shared procedures.

Second, the operations of the organization as a federation illustrate the next three dimensions: (a) nurturing and supporting leadership, (b) evolving energy and spirit, and (c)
productivity and performance. The federation operates with an interested and informed advisory board sets context-based and resolution-driven boundary for the team to work and play through a well-defined and team-supported cyclical process to plan and implement core programming and events. The factor provides the blend of autonomy with board boundaries and alignment to afford a Pan-Canadian presence. The weekly meetings maintain the ebb and flow between planning and implementing. Each participant recognizes and acknowledges the final dimension, complete, purposeful and uplifting communication, as they describe their work and efforts as a team.

Finally, I observed the importance of the organization site to provide the team opportunities to ebb and flow between their public and private practices. As their habitat, the site provides the form and structure for team members to rest, reflect, and energize before and after their public appearances throughout their cycles. It provides the team members the individual spaces and places to discuss personal issues which impact the future development and learning of the organization. Seven themes discovered in the interviews represent the particularization of opportunities in the team habitat including:

- deliberately practicing what they value as they retain excellence in planning and engagement in implementing (P02em-SV3-D1-SSI; P04lm-SV3-D1-SSI);
- completing the assigned task even when the team members felt out of their comfort zones as they experienced unfamiliar and problematic situations (P05ec-SV3-D3-SSI; P06ef-SV3-D3-SSI);
- seeding their practices in new situations as they add bits and pieces from their roots as the team considers changes the current resolution with additional personal and professional networks (P01ed-SV3-D1-SSI);
- rest and run as they add the assigned task to the cyclical operations from their organizational roles and responsibilities (P03pl-SV3-D1-SSI);
• supports from the organizational structure to determine future practices to changing workflows (P08ecc-SV3-D1-SSI; P09pec-SV3-D3-SSI);
• integration and flow of professionalism (P07pc-SV1-D2-SI; P11om-SV1-D3-SSI); and
• assessing the needs of the expanding contexts involving professionals, educators, faculties, institution and governing bodies (P10rc-SV1-D1-SI).

The combination of appreciating and valuing each team member, the federation model, and the organization site as a studio-based space represents the team’s internal habitat within the ecosystem. In this habitat, they thrive and flourish while they formulate and prepare to facilitate. In these ways, they connect their interpretations of wicked problems with organization-based resolutions. Although the situation was unfamiliar to the organization and problematic to the ecosystem, the team applied their proven organizational processes to address the assigned task. When their proven processes were insufficient, they consulted with change agents to provide a model to fit their designerly ways of knowing. Standard applications or known methods of the RIPL model provided the necessary pieces to formulate an organization-based resolution.

Although the organization-based resolution seems incomplete, contradictory or inadequate, the team has cognitive spaces and social places within the team habitat to consider the necessary changes in tasks or environments. Using the four cycles, the team members framed the assigned task, asked questions, researched answers, created more ideas, and chose an organization-based resolution that met the needs of ecosystem. Additionally, team reporting quarterly to the advisory board informs and fosters the progression of the assigned task. When shared and discussed with members outside of their daily routines, these reports act as developing and learning artifacts to locate and socially construct patterns, sensemaking, and shared values. Once professionals recognize these gaps and bridges, long-term changes to personalized meanings, beliefs, or values become stable with emergent satisfying relationships.
In their habitat, formative assessments and feedbacks benefit the team members, individually and collectively. Team members plan and implement new knowledge, skills, competencies, and social connections before they facilitate core programming and events as a cohort of professionals. They anticipate adaptations and discussions rather than replications. For example, social interactions or transactions with schools, school districts, and teacher professional development conferences provide the Education Team opportunities to better understand individuals and the collective they serve. Concurrently, the Partners Team provides feedback from partners and sponsors during their meetings. The Logistics Team provides registrations, evaluations, and analytics of past, present, and future events. The Logistics Team informs donors and the category specialists committees about how the assigned task is progressing. These social interactions or transactions vary in form and structure requiring an individual, a pair, a team, or the whole organization participate. Weekly meetings serve to find necessary processes with appropriate and timely feedback from team members. In such cases, the team develops an inquiry of possible authentic activities rather than a single voice answering concerns.

Professional practitioners and organizational leaders experience and discuss changes to daily practices across a landscape of professional practices, more commonly called a social system by systems theorists or ecosystem by management theorists. Collectively, professional practitioners, organizational leaders, system theorists, and management theorists intuitively “talk more about innovation than creativity … a culture of innovation depends on cultivating three processes, each of which is related to the others … Imagination … Creativity … [and] Innovation” (Robinson, 2017, p. 186). One comment from participants that would pop-up consistently was their surprise that I would choose them to study because they didn’t consider “anything we did as unique or different. There is a possibility that everything offered from us
just sounds like common sense” (P02em-SV1-D1-SI). From the findings, team members involved in complex and chaotic social transactions with other colleagues across an ecosystem require frequent opportunities to report knowledge creation and knowledge transformations; process learning and developing through reflective and collaborative practices; and discuss representations of individual and collective thinking. The team habitat, or organizational site, offers these frequent opportunities.

6.3 Team Roles

Individually, participants expressed through their ways of knowing why excellence or engagement appears by describing their contributions to the assigned task. As a team, they have designerly ways of knowing how and when excellence or engagement appears guided by team dialogues, information exchanges, and debriefs. As an organization, they know how to plan excellence or how to implement engagement guided by the organization’s model that sets “their autonomy with board boundaries and their alignment to afford a Pan-Canadian presence” (P01ed-SV1-D1-SI). Within the ecosystem, members recognize how the current team effectively represents the organization’s 25-year tradition of planning excellence and implementing engagement. Recognizing their strengths and limitations, the team recognized “they were out of their depth of expertise and would require connections beyond their usual scope” (P01ed-SV1-D1-SI).

Participants describe disorder and sensemaking while completing the assigned task in diverse ways. Several participants made sense of disorder in their organizational roles and responsibilities with disruptions in unfamiliar or problematic situations. For example, during Cycle #1: Design, P04lm did not see the significance of participating with P01ed and P05ec in the facilitation of the change agent. From P04lm’s perspective at the time, P01ed participated in
the assigned task discussions with OM and ecosystem members organizing the change agent’s event. OM assigned P05ec research and design tasks for *Cycle #1: Design* in addition to organizational role and responsibilities. P05ec understood how the change agent’s event might address some of the unfamiliar situations in the assigned task. Unaware of and not a participant of either P01ed’s or P05ec’s experiences, P04lm expressed a delay in seeing the purpose of the change agent’s event. During the change agent’s event, P04lm did not consider that the RIPL model might address the logistics of the unfamiliar situations in the assigned task. When the team started *Cycle #2: Develop*, P04lm reflected on the experiences during the change agent’s event and made sense as to the contributions of the change agent’s model to the logistics of the unfamiliar situations in the assigned task. By experiencing the unfamiliar situation, P04lm was prepared to answer some of the volunteer concerns about competitive versus collaborative events. Knowing now that the team situated a *communication dragon* due to the organizational structure change during the 5D AI Cycle brings another piece of sensemaking to P04lm’s and the other participants’ living stories about disorder. Whether the pieces fit requires another inquiry and further dialogues.

P04lm’s living story illustrates that the team members consider how they establish social connections reaching beyond the organization and include varying historical underpinnings, philosophical orientations, and sociocultural influences (Goffman, 1959; Hawley & Valli, 1999). Concurrently, forms of *happenstance learning* (Krumboltz, 2008) and entanglements with naming elephants or situating dragons influence their choices of tame formulations and impact the facilitation of the resolution. The team members may misinterpret or deviate from the assigned task or the resolution guided by their personal knowledge, skill, competence, and social connections. When adapting or establishing team reports, processes, and roles to aggregate designerly ways of knowing, the team members seem to integrate an organizational process of
sensemaking (Weick, 1993). Once the team completes the tame formulation or facilitation across the ecosystem, the process of sensemaking transfers with the tame formulation or facilitation. The individuals working in the problematic situations apply the team’s resolution to their daily tasks based on their practices, organizations, and social systems.

For example, increasingly researchers, provincial policymakers, and K-12 curriculum specialists ponder change management in 21st century learning environments within their bounded system. Their solutions include the development of personalized skill sets and the learning of competencies through authentic and social learning activities (i.e., Alberta Education, 2014; BC Ministry of Education, 2015). The solutions call on many classroom educators to teach in ways in which they never experienced in their learning or development (Jacobsen & Crichton, 2003). For some educators these classroom activities radically change their professional practices to integrate 21st century teaching and learning (Trilling & Fadel, 2009). Thus, provincial curricular redesigns task kindergarten to grade 12 (K-12) educators with developing, designing and sustaining authentic, personalized learning environments based on system-wide curricular plans outlining global skill sets and competencies (Handel, 2012; Trilling & Fadel, 2009). The findings emerging from this intrinsic case study suggest that organizational teams working as ecosystem leaders may provide successful organization-based resolutions to outward-looking schools or school districts. Further, by applying an inquiry-based approach and aggregating designerly ways of knowing, the team may begin expanding its organization’s contexts.

6.4 Summary

Throughout the synthesis of the data collected, stories of social construction and participatory development of the current organization-based resolution emerged from experiences in unfamiliar situations. Through these and other examples of how the team aggregated their designerly ways of knowing, team members made sense of their roles through
their experiences as they venture across the ecosystem. Before the team started the adventures of social construction and participatory development to formulate and facilitate the resolution, the advisory board accepted the proposal and bounded the assigned task based on their organizational context. Finally, the team, individually and collectively, described their struggles to make sense and create order in unfamiliar and problematic situations with emergent living stories and ways of knowing within their organizational site situated as a team habitat. The findings emerging from the study illustrate how before embarking on a similar journey, determining individual and team processes for each component – aggregating designerly ways of knowing, expanding team’s contexts, and maintaining a team habitat – serves as ways to know the team functions.

Their organization-based resolution changed as the team learned and developed a sense of familiarity with their problematic situations and their ecosystem membership. When crossing inter-organizational and systems boundaries, the team remained representative of the organization while fostering social cohesion through collaboration. The findings emerging from the study inform literature discussions involving how the team functions as ecosystem leaders, team reports, processes, and roles as ecosystem leaders in an ecosystem including K-20 education systems. Informing the discussions of potential changes-in-practice to team reports, processes, or roles applied by professionals or practitioners experiencing unfamiliar or problematic situations, the synthesized data collections from the organization’s public domain website and participants, graphics (tables and figures) represent “the individuals, and the social processes and group dynamics through which they interact that may [impact] organizational learning” (Crossan, Lane, & White, 1999, p. 534). Throughout the participant data collections, the participants describe their contributions and explore how as a team they formulate through growing their ways of knowing and facilitate by showing an organization-based resolution.
As organizational representatives of an ecosystem leader, the team experiences far-reaching institutional policies and procedures that derail their progress. The team moves forward with the reliable feedback from a 360-degree view within their team habitat situated in the organization. They discuss social cohesion and collaboration with team members, the advisory board, the category specialists’ committees, and the investors and advocators across the ecosystem within their organization context.

Externally, within the ecosystem, alternative resolutions or opposing forces apply tensions that cause a resolution to drag or lag. Further, internally, within the organization, elephants and dragons create similar effects of chaos and complexity. Despite these forces, the team continues to facilitate the current organization-based resolution effectively. During the 5D AI Cycle, the team provides at least two future forms and structures for members of the ecosystem to consider. Thus, when aware of barriers, individuals or teams consider the knowledge, skills, competencies, or social connections closing the interorganizational boundaries (Boje, 2014). Alternatively, individuals resolve to mark the spots where the barrier appear in the future and return to these barriers once a cycle of the resolution completes (here be the dragons).

The findings emerging from the case study illustrate how the team members remain grounded in their individual organizational roles and responsibilities as they formulate and facilitate an organization-based resolution. As team members at organization events, they act remarkably similar. When in their team habitat, they think very differently. As representatives of an ecosystem leader, the team members learn and develop their roles as knowledge workers and learning workers that authentically shows their practices and then combines the cognitive presences of other professionals. In these ways, the team members develop their competence with collaboration and social cohesion.
Chapter 7 Fostering Cognitive and Social Refreshment

As I explore the collective paths of the retrospective narratives and living stories, I discover an emergent living story to examine: the team continually stepped back into the team habitat and internal team processes before they stepped forward into wickedness, the resistant nature of social issues to a single solution. I wonder how a step-back-to-step-forward process might foster cognitive and social refreshment breaks for team members completing the assigned task. Might these breaks offer team members an iterative refresh process that “organizationally amplifies the knowledge created by the individuals and crystalizes it as a part of the knowledge network of the organization” (Nonaka, 1994, p. 17)? Further, might part of the iterative refresh process foster refreshment inquiries of the assigned for team members to “re-learn, re-evaluate, and re-solve the Wicked Problem at hand … [through re-creating] consensus, choosing specific actions, and determining responsibilities for implementation” (Horn & Weber, 2007, p. 27).

What I discover from a step-back-to-step-forward process, the team members foster cognitive and social refreshment breaks from the assigned task. At times, the team steps back into familiar daily job functions before team members step forward into unfamiliar situations of the assigned task. From this discovery, I offer two inquiry questions for teams to consider as they inquire how to foster cognitive and social refreshment breaks from their assigned task as ecosystem leaders ending with future considerations. To begin, an overview of the step-back-to-step-forward process that I discovered.

7.1 Step-back-to-Step-forward

Participatory social development within participatory social learning construction offers learning artifacts to develop resolutions that represent (a) knowledge as the new passport to success, (b) ubiquitous information sharing that builds relationships and fosters harmony, (c) rapid transformations that produce opportunities to adapt in complex and uncertain situations,
and (d) foster ideas that are improved when shared through collaborative action (Bonk, 2009).

However, as a team formulates and facilitates, team members must consider careful attention to unintentional mind fields. Unintentional mind fields refer to the unexpected judgmental attitudes of team members feeling the constant burden of providing socially inclusive linkages between knowledge and social change across ecosystems (Kabat-Zinn, 2005; Langer, 2014).

Characteristics of unintentional mind fields leading to chronic burnout include lackadaisical attitudes, cynicism, and a lack of achievement (Bakker & Costa, 2014).

While fostering harmony through tasks and relationships, team members require timeouts to break the tensions of continual mental chatter and interpersonal dynamics. Concurrently, applying participatory processes disrupt the predictive qualities of bounded linear processes and outcomes from organizational or professional processes. Like social media, participatory tools and technologies occur at just the right time providing flexible, fast, and fluid solutions to events that rarely repeat in exact circumstances (Turkle, 2015). In general terms, a challenge may manifest from any storyteller’s attempt to locate a reader’s “level of interpretation prior [to what has] been read in relation to other settings in which we have been writing or talking about” (Smith, 1999, p. 177). From the findings emerging from the study, team members discover opportunities to make sense of what the team considers as common sense before and after actively participating in unfamiliar or problematic situations (Weick, 1968, 1993, 1995).

Gathering data from the team, one comment that would pop-up consistently was “there is a possibility that everything offered from us just sounds like common sense” (P02em). When listening to the hallway conversations, I realized a hum of social interactions. Depending on the reader’s experiences, several of the points are common sense and easy to envision as a hum while others remain a buzz. The graphics provide opportunities to consider a way of knowing
and an activation of learning. The second part, the installation of learning, becomes difficult to determine: how members of the ecosystem choose what to change in their practices and workflows. Then, how the team determines the members’ ways of knowing and act consistently within the moment-by-moment conversations after formulations and facilitations. Old habits take little cognitive and social construction when struggling to make sense of unfamiliar and problematic situations in the moment.

It seems like common sense that intellectually experiencing the concept of change is much different from the actual experience of change. It tends to make sense as team members offer their stories and narratives of being and doing in unfamiliar or problematic situations. At certain points in their stories and narratives, team members clearly understand what common sense is telling the team (Weick, 1969, 1993, 1995). When everything is always changing, then why do team members hold so tightly to their professional forms and practice patterns? The findings emerging from this study outline how when team members recognize that a team needs opportunities to learn to be, do, know, and live together in unfamiliar or problematic situations, it makes sense to share purposeful professional forms and practice patterns as representations of positive cores to illustrate, explore, and examine potential resolutions and address the context (Cooperrider & Avital, 2004).

What to do in activities across an unfamiliar or problematic situation requires creative-thinking-in-action. How to act while representing an organization in unfamiliar or problematic situations is “one more way of understanding the new reality, providing additional input for us to bracket and assign meaning” (Weick, Sutcliffe, & Obstfeld, 2005). When the results of sensemaking and creative-thinking-in-action of team members become common sense to a team through varying contributions to the assigned task, their interactivity communications about the
assigned task have reached exchanges of roles and mutual discourse (Rogers, 2003). Exchanges of roles in communications refer to” the empathetic ability of individual A to take the position of individual B … and vice versa” (p. 343). Mutual discourse refers to “the degree to which a given communication act is based on a prior series of communication acts … a sequence of exchanges affects the following message in a cumulative process” (p. 343). At this point of common sense as a collective, the team members adopt the organization-based resolution as a way of understanding a new reality of the ecosystem. From this point of common sense, team members begin to effectively manage the unexpected barriers across the ecosystem (Weick & Sutcliffe, 2007). In other words, team members begin to effectively name and train the elephants while situating and slaying the dragons across the ecosystem as they facilitate their organization-based resolution. In these ways, they illustrate their competencies of collaboration and social cohesion.

Through the reports, processes, and roles the team experiences, team members sense that little remains of their contributions stick. Further, what sticks cannot impede the flow to an optimal resolution. As the case study illustrates with the organization’s cyclical processes, sometimes, choosing to impede the flow with an authentic, collaborative, and socially cohesive resolution makes common sense. By choosing to do so, the team expects a step-back-to-step-forward process between assigned task experiences, events, and situations. Broad applications of design thinking processes illustrate a style of creative thinking-in-action through three common iterative group processes: problem finding, brainstorming, and prototyping (Seidel & Fixson, 2013). While applying a design thinking process, these group processes have an increasing influence across education and professions associated with health/social care systems. Additionally, by combining design thinking methods, novices and experts creatively address an ill-defined problem and develop multiple solutions to address their end users’ needs (Rodgers, 2013, pp. 434 – 435). However, to facilitate an organization-based resolution, team members
require ways to report the ontological dimension “to distinguish several levels of social interaction at which the knowledge created by an individual is transformed and legitimized” (Nonaka, 1994, p. 17).

The findings emerging from this study contribute to these discussions by illustrating how a team grounded in an organization structure successfully completed an assigned task as ecosystem leaders. Within the findings, two concepts emerge for members of an ecosystem assigned a task involving roles as ecosystem leaders. The first is the concept of social cohesion of the team members while a team formulates their organization-based resolution through participatory development. The second becomes the concept of competencies of collaboration while team members facilitate the organization-based resolution through social construction. The team members illustrate these concepts as they step-back into their team habitat before they step-forward into the assigned task. In this way, they fostered cognitive and social refreshment breaks from the higher-order cognitive reporting, processing, and roles.

7.2 Fostering Cognitive and Social Refreshment Breaks

The step-back-to-step-forward process for this team illustrates how team members remain in a step ahead of the assigned task by stepping back, rather than stepping away, before stepping forward. Harmony exists between the contexts of their organizational roles and their assigned task. As they step-back into their organizational roles, their roles and responsibilities mirror the activities, conversations, reflections, and other forms of personal participation involved in their assigned task roles. More often, team members step-away from their team roles, processes, and roles to return to their daily job functions.

The findings emerging from this study illustrate how on the one hand, team members in their organizational roles and responsibilities engage, learn, and develop through daily activities,
conversations, reflections, and other forms of personal participation. On the other hand, participating in the assigned task, team members produce physical and conceptual artifacts representing their collaborative projects with common terminologies, appropriate tools, concepts, methods, stories, documents, events, or links to purposeful resources. They apply social reasoning and creative-thinking-in-action.

While applying a step back-step forward process, the team learns and develops a sense of familiarity with problematic situations to facilitate an organization-based resolution. The sense of familiarity began with the team as team members ventured out from the team’s habitat to other parts of the ecosystem. They made sense of new knowledge, skills, competencies, and social connections. From the findings emerging from the study, through the team’s journey, two questions debated within the literature are answered. The next section addresses the first question surrounding epistemology and the necessity of the team to determine the effects of working in cognitive construction zones. The following question addresses the second question surrounding ontological dimensions and the necessity of the centralized organization to determine the effects of social cohesion development.

7.3 What Knowledge is of Most Worth?

From educational studies, to amplify the knowledge, skills, and competencies and to justify the encapsulation of potentially massive information networks experienced by the professionals, team leaders and decision-makers may intrinsically ask their team members Spencer’s (1859, cited in Broudy, 1982, p. 574) debated question “what knowledge is of most worth?” By making sense of the answers through social construction, the team establishes a reflective practice involving “an epistemology of practice implicit in the artistic, intuitive
processes which practitioners bring to situations of uncertainty, instability, uniqueness and value conflict” (Schön, 1983, p. 49).

In a very bounded and limited philosophical way, epistemology refers to the study of knowledge and justified beliefs. While developing a team’s designerly ways of knowing, team members generally apply their ways of knowing to reach assigned targets while interacting with their team, organization, and clientele. Throughout their chosen career path, they may choose to enhance their skill sets formally or grow their competency informally through professional, organizational, and practice-based learning (Argyris & Schön, 1974, 1978, 1996; Goodyear & Markauskaite, 2013). Alternatively, applying methods to socially construct knowledge while participating in doing become advantageous in unfamiliar situations. The team’s choices of dialogue and inquiry in complex and uncertain social systems reminds the readers of the contemporary lens of work that “cannot and should not separate thinking from doing by creating a binary of working with one’s hands and working with one’s mind” (Crawford, 2010, as cited in Crichton & Carter, 2017b, p. 16).

Schön (1983) describes the abilities to make sense originates in the reflective practitioner’s “perception of something troubling or promising” and evolving into a “production of changes one finds on the whole satisfactory, or with the discovery of new features which gives the situation new meaning and changes the nature of the question to be explored” (p. 151). With such embodied actions, professionals consider various ways to think, to act, to do, and to communicate with their clients in “the form of a literally reflective conversation” (Schön, 1983, p. 295). For the reflective practitioner, these conversations “recast the relationship between research and practice” while “the exchange between research and practice is immediate and reflection-in-action is its own implementation” (pp. 308-309). On the other hand, once established in these social learning processes and epistemologies, team members tend to hold
tight to their social interactions and specific practices rather than integrating the cognitive
presences and processes of other professionals or changing social-emotional states within their
daily social interactions and transactions (Fullan, 2015).

Senge, Scharmer, Jaworski, & Flowers (2005) suggest a team member needs to
communicate the team’s abilities to “see [the team’s] seeing” (p. 29) and then “seeing from the
whole” (p. 42). *See the team’s seeing* refers to the abilities of team members to suspend their
judgments and other habitual ways of knowing to “begin to notice [the team’s] thoughts and
mental models as the workings of [the team member’s] mind” (p. 29). Team members
communicate the team’s seeing through various channels such as governing variables, mission
statements, ways of knowing, analogies, templates, and symbols. *Seeing from the whole* refers to
developing the capacity of the team to suspend the team’s sensemaking and to “redirect [the
team member’s] awareness toward the generative process that lies behind what they see” (p. 42).

While developing the capacity of shifting perspectives from the team’s current
sensemaking to the perspectives of members across the ecosystem requires dialogues and
inquiries involving higher-order cognitive functions (Dewey, 1910; Garrison, Anderson, &
Archer, 2000). The team members make sense amongst three cognitive presences: individual
ways of knowing, the team’s ways of knowing, and the ecosystem’s ways of knowing. In these
ways, the team members prepare to embark on the inward-bound journeys and the outward-
bound journeys while completing the team journey of the assigned task. These preparations
include *cognitive construction zones* across their ecosystem and within their team. *Cognitive
construction zones* characterize learning and development of the team members and the team as
they translate, mobilize, and transfer knowledge, skills, competencies, and social connections
from their dual social learning experiences (Newman, Griffin, & Cole, 1989).
During team meetings, the team members have time to share their experiences through stories, receive questions, provide answers, and give or receive feedback. The question-answer-feedback sequence becomes a collaboration construction of similar experiences. When listening to stories about unfamiliar or problematic situations, team members switch their focus from familiar experiences to new experiences. Neuroscientists suggest there is a switch-cost (Miller, Lundqvist, & Bastos, 2018). Switch-costs refer to a lag time for team members to return to thinking deeply on something because individuals’ working memories become distracted every few minutes. While the stories of unfamiliar situations unfold, inquiry or dialogue offer team members’ thinking to catch up. Generally, overthinking creative solutions often deters sensemaking that allows ideas to arise from social interactions.

Without social interactions between the team members creating learning spirals, the potential remains for one-story narratives arising in the spirals. One-story narratives become categorized as stereotypical for the experience (Ngozi Adichie, 2015). To encourage the collaboration construction across the ecosystem and creates social cohesion, team members need to intermingle their actions with the collaboration construction, return with their stories with information about the ecosystem’s feedback and social management. In these ways, the knowledge, skills, competencies, and social connections transferred between team members become the designerly ways of knowing for the ecosystem leadership roles rather than a one-narrative report. For the team working throughout the assigned task, team members and their collaborators across their ecosystems come an acknowledgement of “the complexity of the work of [teaching and learning] and the wide variability in [learning] outcomes that [these] systems currently produce” (Bryk, 2015, p. 476).

Like the organizational governing variables applied to remind the team of the boundaries and directions of their assigned task, three 21st concepts act as governing variables while they
formulate and facilitate: authentic, social, and collaborative (Bereiter, 2014; Darling-Hammond & Rothman, 2015; Jacobsen et al., 2013; Delors, 1996; Groen & Kawalklak, 2014; Pink, 2006; Reilly & Literat, 2012; Trilling & Fadel, 2009). These concepts promote a Creative Learning Spiral (Resnick, 2017) of imagine, create, play, share, reflect, and imagine. Adapting this model to the workplace, Resnick proposes “[f]or people to flourish in this rapidly changing landscape, the ability to think creatively is more important than ever before” (p. 4). Theorists and practitioners studying the collective structure of sensemaking and creative-thinking-in-action conceptualize competence as a condition or quality of effectiveness, ability, sufficiency, or success (Elliot, Dweck, & Yeager, 2017).

To remain healthy and productive as a team, the team members require adequate breaks from the assigned task to complete familiar organizational roles and responsibilities. One small way these breaks happened for team members in the study was following the organizational cycle for team reports, processes, and social connections. For example, the team socially constructs their formal written reports for the advisory board meetings from their storytelling methods in their Tuesday organization meetings. They combine familiar and unfamiliar situations where their emergent living stories (ELSs) from working across the ecosystem interrupts the narrative coherence of the organization’s BME narrative (Boje, 2014; Smith, 1999; Turkle, 2015). When presenting the assigned task reports with their organizational reports, the responses from the advisory board varied in intensity involving cognitive presence, cognitive processing, and reflecting. The ebbs and flows between the organization roles and the assigned task roles offered times to step-back from and then step-forward with sensemaking from knowledge-in-action, reflection-in-action, and creative-thinking-in-action during organizational meetings.
7.4 How Shall We Pass from Here to a New Normal?

After World War I, Wise Wood (1918, cited in Lain, 2015, p. 50) debated with members of the United Farmers’ Association (UFA), “how shall we pass from [where we have been] to a new normal with the least jar, in the shortest time?” Since that time, determining a new normal signifies the ontological dimension that sets a baseline of expectations and experiences to disruptive events and social issues. When a team formulates and facilitates an organization-based resolution beyond their organization’s context, team members need to consider how to address members’ contexts across the ecosystem. What teams sometimes miss is the interplay between the least jar and the shortest time. The team needs to consider “specific missions, projects, policies, structures, and often complicated politics” and appreciate how the members value “different (sometimes competing) goals, represent different constituencies, and are under pressure to meet demands placed on them by their own stakeholder groups” (Wenger-Trayner & Wenger-Trayner, 2014, p. 101). By making sense of these questions, implicitly or explicitly, the team learns how to bring together the epistemological dimensions of the professionals and develops the ontological dimension “to distinguish several levels of social interaction at which the knowledge created by an individual is transformed and legitimized” (Nonaka, 1994, p. 17).

When assigned to a team project or team task, team members work interdependently within a team and, concurrently, work independently as professionals, practitioners, organization workers, leaders, or decision-makers. While situated in these adaptable, complex, and uncertain contexts with teams, organizations, and institutions; team members may be individually and collectively learning and developing life-long knowledge, skills, competencies, and social connections through various approaches (Drucker, 1959; Florida, 2002; Morgan, 2014; Pink, 2006; Ramírez et al., 2010; Wagner, 2014). Concurrently, individuals and teams may meet leaders and decision-makers who choose various change management processes across a
continuum of pragmatic-to-systematic theories (Ackoff, 1974; Argyris & Schön, 1974, 1978, 1996; Bertalanffy, 1955, 1973; Dewey, 1938/1967). Opening appropriate communication channels to discuss, explore, discover, and examine several entanglements within problematic situations becomes part of the team’s sensemaking processes. During the discussions, team members address trends or topics such as naming elephants and situating dragons within ill-formed social issues (Rittel & Webber, 1973); advance manufacturing and making (Dougherty, 2012, 2013, 2016); diffusions of innovation (Rogers, 2003); and technological hype cycles (Panetta, 2018).

As individuals, teams, organizations, or institutions, they report and resolve parts of the disorder in a problematic situation as “tool-makers, inventors, innovators, storytellers, tinkerers, and role-players” (Dougherty, 2016, p. 3) to formulate and to facilitate an organization-based resolution. When in unfamiliar or problematic situations, individuals may observe the actions of one individual and then observe something happening. As storytellers, the observers may share information about the actions and the happening. They may generate ideas as to how the actions and the happening relate to each other. However, without information exchanges, dialogue, or inquiry with individuals or groups familiar with the situation, there may be few facts about the unfamiliar or problematic situation created from their interpretations to plan, implement, or evaluate a solution to the team’s goal (Senge et al., 2005). Team members may draw their conclusions from evidence or reasoning based on their knowledge, skills, competencies, and social connections. Using these ways of knowing, team members infer connections from confounding factors to logical consequences. While team members may individually report the disorders in the problematic situations from their interpretations and ways of knowing, teams and organizations may adapt these storytelling practices to describe their collective experiences and the events resulting in an organization-based resolution (Boje, 2014; Ngozi Adichie, 2015;
Smith, 1999).

Shulman (2005) considers developing and designing within a social system includes stories from professions that comingle theories, practices, ethics, and judgments within local contexts of inherent uncertainty to determine a signature pedagogy as

a mode of teaching that has become inextricably identified with preparing people for a particular profession … [and] has three distinct characteristics: distinctive in that profession, … pervasive within the curriculum, … [and] … essential to the general pedagogy of an entire profession, as elements of instruction and of socialization (p. 57).

Based on signature pedagogies, social interactions with professionals bring certain assumptions and expectations of knowledge, skills, competencies, and social connections. Within the general profession exists specialists with signatures as a mode of working with unique knowledge, skills, competencies, and social connections. In organizations, team members and teams become recognized for their signature performances. In this study, the team’s signature includes three parts: excellence in plans, engagement in implementation, and service to youth from grades 6 to apprentices up to age 21. The signature underpins the team’s standards of quality, the shared values, and the evaluative judgment set before reports, processes, or roles begin. The signature of the team becomes more than common ground. It identifies the roots beneath the common ground that fosters social construction, participatory development, and social cohesion.

Across multiple theoretical continuums, researchers debate the definition of the social cohesion construct and the validity of research findings, public policy implications, and tentative models when including or excluding social cohesion (Jeannotte, 2003). One endpoint of a continuum refers to excluding traditional or classical theories using terms of social order, class struggle, and supply or demand (Jeannotte, 2003). At this endpoint, participants might interpret
group activities involving sensemaking of an organization-based resolution as merely replicating historical hierarchal frameworks or dominant worldviews. For example, within the contexts of professional development (PD), persistent barriers remain, and communities of practice dissipate when these types of social cohesion are applied (Marzano, 2003).

Alternatively, some theorists describe the second endpoint of the social cohesion construct as having a positively correlated relationship to performance and well-being (Joseph, 2003). One useful metaphor developed by Putnam (2002) compares the social cohesion construct to “[s]inging together … does not require shared ideology or shared social or ethnic provenance” (p. 411). When adapting this analogy to the case study, the team formulates and facilitates an organization-based resolution to harmonize the trusted voices across an ecosystem with the unique sound of the organization’s histories, knowledge domains, and skill sets (Groen & Kawalklak, 2014). Concurrently, global, national, and local interdependences of professionals introduce confounding factors (i.e., governing policies, changing demographics, aging clientele) when adding the social cohesion construct to formulate and to facilitate the organization-based resolution. From their federated model, the team becomes proficient with aligning communications with other provincial, national, and international organizations within their organizational roles. While adding the social cohesion construct with investors within the assigned task, the team and organization expand their trusted insights through the iterations of processes and resolutions. One cautionary note, professionals and practitioners within a trusted group like the investors base their feedback from a profession-centric, rather than client-centric, perspectives. While making sense of these perspectives, the team considers an interprofessional framework of social cohesion that provides “means by which professionals can practice in a more collaborative or integrated fashion” (D’Amour & Oandasna, 2005, p. 9).
7.5 Future Considerations

While making sense of unfamiliar or problematic situations collectively, a team discovers some common points, a sense of familiarity, across the various continuums of thinking and doing. However, starting an assigned task by determining the endpoints of the continuums creates complexity and uncertainty due to an inordinate number of possibilities. When a team continually spends time, energies, and resources adding points or creating new continuums, the team members have little time or energy left to enjoy the chosen activities across the ecosystem. Concurrently, members rarely follow an exact resolution of a team without some consultation in its development or construction. Cornwall (2011) contends that when professionals reflect individually and dialogue collectively, they discover a cognitive space and a social place of quiet confidence to evoke the complex questions surrounding social issues. Their discoveries provide opportunities for a team to make sense of buzzwords. Professional or disciplined knowledge domains include SHAs that use specialized language and skill sets to form a practice (Drucker, 2001; Morgan, 2014; Wenger-Trayner et al., 2014). Concurrently, perspectives from professionals and the public claim several specialized words and created SHA buzzwords for talking about these practices instead of the doing of these practices (Cornwall, 2007). One outcome of this buzz around words illustrates how words like development have become much more than a socio-economic construct. When discussing development, individuals may mean “a perception which models a reality, an analogy which comforts societies, [or] a fantasy which unleashes passions” (Sachs, 1997, p. 1). Amongst these perspectives of realities, analogies, and fantasies of team members, external members take up the buzz about the practices surrounding social issues and wicked problems, those doing the practice may be too busy to think about how the social buzz creates and transforms knowledge, skills, and competencies around the work they are doing. When thinking about the social buzz, team members discover a hum, a sense of
familiarity, that underpins what team members constitute as common sense across the team before learning and developing the harmonies of external teams, organizations, and social systems across the ecosystem.

7.5.1 Temptations and team resilience.

In recent years, the concepts of social ecosystems and ecosystem leaders have joined the discussions of researchers, systems thinkers, and many conversant persons. They explore disruptions, discover how teams learn about what constitute social order, and examine how teams develop resolutions. Findings from these discussions offer cautionary notes involving temptations. A temptation of centralized organizations and their representative teams becomes choosing a solution-driven distribution showcasing what and how works for the organization or the team without providing the why as a blueprint. A temptation surfaces from a natural tendency to consider the strengths of competition and collaboration while ignoring the potential weaknesses when not applied appropriately. A final temptation arises from a natural tendency of social systems to consider as knowledge grows, best practices and workflows follow. While working across ecosystems, current organization-based resolutions represent the team’s successful modelling of a new order that addresses the team’s context during a cycle (Ackoff, 1974). In other words, the potential of a current resolution to fail increases as facilitation extends too far beyond the team’s aggregated designerly ways of knowing or the team’s context.

As an organization considers the work and efforts surrounding the role of ecosystem leaders, team members assigned the role continually address the tensions amongst these temptations. Without addressing these tensions, researchers discover the characteristics of chronic burnout include lackadaisical attitudes, cynicism, and a lack of job achievement (Bakker & Costa, 2014). As researchers and practitioners explore high-performance teams, they discover
and examine the concept of team resilience (Bowers, Kreutzer, Cannon-Bowers, & Lamb, 2017). Team resilience refers to the collective capacity of a team to appreciate and value adaptation to meet the demands of a problematic situation. Findings emerging from studies of team resilience suggest with shifts to knowledge, skills, competencies, and social connections occurring constantly across an assigned task; psycho-social processing across a team occurs gradually and often.

### 7.5.2 Enlightened eyes.

When introduced to new social interactions, professionals unconsciously mimic postures, mannerisms, gestures and words to gain acceptance. Since adults respond positively to imitative behavior, this unconscious mimicry serves as a “signal of social competence that inaugurates trust … and is consistent with good citizenry …” (Churchland, 2008, p. 411). However, this social signal does not provide the ability for anyone to read minds (i.e., know what others intend, believe, expect, or feel). Ultimately, professionals act similarly and think differently, or vice versa (Churchland, 2008). Hence, when professionals are involved in social transactions with other professionals involving knowledge creation and knowledge transformations, building artifacts of reflective and collaborative practices provide opportunities to discuss individual thinking of these representations. In these instances, they become a group of critical friends. Thus, a limitation of this case study is all the descriptions, explorations, discoveries, and examinations came from one team, one research proposal, and one researcher. Hence, my choice of particularization rather than generalization. Without dialogue and inquiry from you the reader, alternatives to these findings abound. We do not have the abilities to enjoy reciprocity.

Alternatively, as a reader, consider the study with an enlightened eye. With an enlightened eye, we “open our eyes, pique our imagination, and encourage our critical thought”
Individuals, teams, and organizations become wiser critical consumers of knowledge, skills, competencies, and social connections during situations requiring participatory development and social construction. When overviewing the team’s graphics of designerly ways of knowing in unfamiliar and problematic situations, consider how to adjust or adapt the reports, processes, and roles as the team became effective ecosystem leaders during times of disturbances, disruptions, and disorder of their workflows and practices. Further, the reader may concur: intellectually, we know everything changes and to change requires work, effort, and social connections within individuals, teams, professions, organizations, and social systems. The importance of an incremental approach using social cohesion development and collaboration constructions shows team members, stakeholders, and the ecosystem that the current organization-based resolution represents part of a journey rather than a destination.

7.5.3 New destinations.

Facilitating disruptions of daily practice through sensemaking activities with investors and strangers provide the team members with the learning and developing opportunities to recognize the potential of unconscious mimicry or the encroachment of buzzwords, both in their ways of knowing and amongst teams. A team habitat offers cognitive spaces and social places to step-back from the assigned task to refresh social constructions and bring harmony to the team. Once refreshed cognitively and socially, team members step-forward to explore, discover, and examine the next unfamiliar or problematic feature within the resolution, the ecosystem, or the landscape of professional practices. For many teams, team members move forward prepared to name elephants and situate dragons before considering a team habitat as a refuge to appreciate and value their designerly ways of knowing across ecosystems. Within the team habitat, team members discover energies, strengths, and resources to examine how best to train the elephants and potentially slay the dragons. While expanding the sensemaking of the emergent findings...
from the study, destinations within a landscape of professional practices abound. Cognitive spaces and social spaces of current interest include teams and team members residing in organizations conceptualized as loosely coupled systems (Orton & Weick, 1990).
References


Kahane, A. M. (2017). Collaborating with the enemy: How to work with people you don’t agree with or like or trust. Oakland, CA: Berrett-Koehler Publishers, Inc.


Appendices

Appendix A: Participant Consent Form

CONSENT FORM

NAMING ELEPHANTS AND SITUATING DRAGONS:
Appreciating Designerly Ways of Knowing through
Growing Ecosystems and Showing Innovation

1. STUDY TEAM

(Principal Investigator) (PhD Candidate)

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1. INVITATION AND PURPOSE
You are being invited to take part in this research study because you have been part of a team of organizers conceptualizing and implementing a Professional Development and Professional Learning event using the research-informed immersive professional learning (RIPL) theoretical framework. This research is part of my PhD studies and will the findings will be published in my dissertation.

II. STUDY PROCEDURES

If you agree to participate, I will ask you to do the following:

- Help me develop a mapping of your journey based on an acceptable format determined by your organization
- Participate in an audio-recorded interview about your experiences (the interview will take no longer than one hour)
- Participate in a focus group with other members of your team who volunteer
- Provide feedback to my representations of the mapping, your audio-recorded interview, and the focus group

I will confirm with you your willingness to participate in each of the phases of this study. You have the right to withdraw at any time. Unless you object, the information collected prior to your withdrawal will be used.

III. STUDY RESULTS

As a case study, the descriptions of the phases will be used to help inform further design and development assessments. As part of my PhD studies, the descriptions will be part of my dissertation and made available to the public. The main study findings will be published in academic journals articles, publications, and presented at conferences. You will be given a copy of my initial publication.

IV. POTENTIAL RISKS OF THE STUDY

I do not think there is anything in this study that could harm you. While some of the questions might seem sensitive or personal, you do not have to answer all the questions.
V. POTENTIAL BENEFITS OF THE STUDY

A potential benefit of your participation in this study is that you will be introduced to a new assessment tool which you can continue to use, if you wish, after the study is completed.

VI. CONFIDENTIALITY

Your confidentiality will be respected.

All documents and digital audio recordings will be identified only by a code number. During the study, all data files and records will be kept locked in a filing cabinet or kept on the researcher’s password protected laptop. Participants will not be identified by name in any reports of the completed study. Data will be destroyed five years after the study is completed.

VII. CONTACT INFORMATION ABOUT THE STUDY

If you have any concerns about what we are asking of you, please contact one of the study leaders. Our names, email addresses and telephone numbers are listed on the first page of this form.

VIII. CONCERNS ABOUT YOUR TREATMENT OR RIGHTS

If you have any concerns about your rights as a research participant or your experiences while participating in this study, you may contact the Research Subject Information Line in the UBC Office of Research Services at 1-877-822-8598 or the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Subject Information Line by email (RSIL@ors.ubc.ca).

IX. PARTICIPANT CONSENT AND SIGNATURE PAGE

Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact on your access to further services from the software developers or assessment tool
Appendix B: Structured Interview (Preamble)

NAMING ELEPHANTS AND SITUATING DRAGONS:
Fostering Designerly Ways of Knowing and Growing through Showing

PREAMBLE
Audio Recording starts... I am with [code number] and the date is [date].

Thanks for being part of my study.

The following questions will help me understand your experiences. By better understanding your experiences, I will be able to describe the journey you have taken as team leader and community leader. I welcome and encourage your feedback.

Please be aware IF there are any questions that seem sensitive or personal, you do not have to answer.
Although we have set aside an hour to talk, we will stop the interview whenever you feel you are finished. And IF at any time you would like the audio taping to stop for some reason, just let me know.

Any questions before we start?

**QUESTIONS**

1. **Demographic Questions**

   a. Which one of the following generations are you?

      - Boomer (1945-1964)
      - Gen-X (1965-1978)
      - Millennium (1979-1999)

   b. How would you describe your role in your organization?

   c. Which one of the following categories would you describe as your *Career Cycle*?

      - Apprentice (1-3 years of experience)
      - Professional (4 – 7+ years of experience)
    
      Expert (7 – 10+ years of experience and I’m beginning to take leadership roles at work)

      - Distinguished (10+ years of experience; I am a recognized leader in my organization)

2. **Representation of Data Set #1:** This map of the project has been created through information and data provided on your organization’s website. As we go through the following questions, we will edit this representation to provide a visual representation of your journey.

3. **Describing Your Journey**

   a. **AI Principle Constructionism:** In your own words, how would you describe the collaborative learning space project?
b. AI Principle Constructionism | Team Effectiveness Dimension - Clear Shared Goals or Purpose: What are the indicators of success?

c. AI Principle Poetic | Storytelling Lens: What part of your story do you focus on with others on your team?

d. AI Principle Poetic | Storytelling Lens: What part of your story do you focus on with members in your ecosystem?

e. AI Principle Simultaneity: When did you first see a change in the project?

f. AI Principle Simultaneity: How would you describe the change?

g. AI Principle Simultaneity: How did the change happen, in your view?

h. AI Principle Anticipatory: Considering all the contributions you made to this project, what is one of the most surprising outcomes to you? What were you expecting to happen?

i. AI Principle Positive: How do you feel your expectations of the project contributed to the outcomes of the project? If possible, please provide an example.

j. AI Principle Wholeness: How does it feel after completing the project and being part of this process?

k. AI Principle Enactment: When did you know the collaborative learning space project was going to turn out as well as it did? What prompted the change in your knowing?

l. AI Principle Free Choice: During this project, how did you approach an average day at work?

m. AI Principle Free Choice: Do you have routines you follow when doing projects like this one?

4. Team Dynamics

a. Team Effectiveness Dimension - Clear Shared Goals or Purpose | AI Principle Constructionism: What are the indicators of success personally, collectively and organizationally?

b. Team Effectiveness Dimension - Clear Shared Roles and Responsibilities: What are your roles and responsibilities in this project?
c. Team Effectiveness Dimension - Clear Shared Roles and Responsibilities: What important part does each member play?

d. Team Effectiveness Dimension - Clear Shared Roles and Responsibilities: What are the shared roles and responsibilities of the team?

e. Team Effectiveness Dimension - Supportive and empowering relationships: How does the team ensure that everyone experiences are considered as part of the end result?

f. Team Effectiveness Dimension - Clear and Shared Procedures: How do members communicate with one another so that everyone has the information needed to perform at the highest individual level?

g. Team Effectiveness Dimension - Nurturing and challenging leadership: How is leadership distributed across the organization?

h. Team Effectiveness Dimension - Nurturing and challenging leadership: How is leadership distributed across the team?

i. Team Effectiveness Dimension - Evolving energy and spirit: How do the individuals and the team celebrate successes and mark rites of passages?

j. Team Effectiveness Dimension - Productivity and performance: What are the members’ connections to the larger organization and the ecosystem they serve?

k. Team Effectiveness Dimension - Complete, purposeful and uplifting communication: What systems and structures are in place to foster people’s connections to the whole and to one another?

5. Final question

Is there any experience with either this study or the assessment tool that you would like to tell me about?

Thank you for your time. ... Audio recording stopped.