Constructivist Learning Environments for Developing Leadership Capacity
Thesis Summary
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Constructivist Learning Environments

A learning environment is a place where learning is fostered and supported, where people can draw upon resources to make sense out of things and construct solutions to problems. Adding constructivist to the front end of the term emphasizes the importance of meaningful, authentic activities that help construct understanding and develop skills relevant to solving problems in the 'real world'. An authentic learning environment is one in which the cognitive demands, i.e. the thinking required, are consistent with the cognitive demands in the environment for which we are preparing students.

Constructivist learning environments provide opportunities for learning activities in which students, instead of having knowledge 'transferred' to them, are engaged in a continuous collaborative process of building and reshaping understanding as a natural consequence of their experience and interaction with the world.

Principles of Constructivist Learning Environments

Lambert identifies five principles of constructivist learning environments. First, students become actively engaged with their environment and *collaborate* with others during the learning process. Learning is an *active* rather than passive process. There is acknowledgment that learning is by nature social and is most likely to occur when students share ideas, inquire and problem solve together. Based on these individual and shared experiences, students go beyond rote learning to make sense of new knowledge and create *meaning* for themselves. They engage in *reflection and metacognitive processes,* which contribute to the construction of knowledge and the process of sense-making. Students mediate their new learning by prior *experience, values and beliefs.*

These principles are paired with a set of constructivist values which are identified by Lebow as personal autonomy, generativity, reflectivity, personal relevance, pluralism, and supported learning in safe and complex environments.

Constructivist Leadership

Constructivism is valuable as a model for designing learning; it is also a model consistent with developing leadership capacity. Lambert defines constructivist leadership as the reciprocal processes that enable participants in a community to construct meanings that lead toward common purpose. Constructivist leadership is a process shared by many, rather than a set of behaviors invested in one person. Purposes and goals develop from among the participants, based on values, beliefs, and individual and shared experiences. The environment functions as a community that is self-motivating and that views the growth of its members as fundamental. There is an emphasis on language as a means for shaping the culture, conveying commonality of experience and articulating a joint vision. Shared inquiry is an important activity in problem identification and resolution, and participants conduct action research and share findings as a way of improving practice.

Principle 1 — Collaboration

A constructivist framework identifies collaboration as intricately connected to learning, where students engage in social activity that is enhanced by shared inquiry. Students learn with more depth and understanding when they are able to share ideas with others, engage in the dynamic and synergistic process of thinking together, consider other points of view, and broaden their own perspectives.

The act of collaboration is a purposeful act of shared creation and/or shared discovery. It takes the collaborative efforts of people with different skills to create innovative solutions and innovative products.

Collaborative groups are important because students can test their own understanding and examine the understanding of others as a mechanism for enriching, interweaving, and expanding understanding of particular issues or phenomena. Other people are the greatest source of alternative views to challenge current assumptions and hence to serve as the source of puzzlement that stimulates new learning.

Collaboration and Leadership

In describing new images for leadership development, Walker describes collaboration and community building as fundamental activities. Individuals in leadership programs belong to a standing support group of classmates who share their thinking and respond to their work. They give feedback in response groups on their action research proposals, share in a fishbowl setting the successes and problems encountered in the learning community, or do reflective writing and share their thoughts. Each of these activities requires students to establish new patterns of relationships. Because a university classroom can be structured as a safe environment, these new patterns of relationships are easier to facilitate. The challenge is to have students transfer these patterns to their own workplace and thus have an effect on its culture. Collaboration is recognized as an authentic activity in organizations. Corporate community developers are interested in building collaboration across large populations by creating multiple stakeholders and constituencies; engaging, involving and mobilizing people who can move together on a common path. Collaboration does not live in the abstract. It depends on the web of

information that, in thriving organizations, flows freely in all directions. When members know what's going on in the organization and why, they can act autonomously to achieve common goals without being supervised or monitored. Collaboration develops leadership capacity throughout the organization.

In the Wisdom of Teams, Katzenbach and Smith define a high performing team as a small number of people with complementary skills who are equally committed to a common purpose, goals and working approach for which they hold themselves mutually accountable. The team has members deeply committed to one another's growth and success. Members of a high performing team understand the nature of collaboration – that at its heart is a commitment to individual accountability and interdependence.

SOLAR is an interdisciplinary action research and development centre concerned with social and organizational learning. Its contributing members include Gareth Morgan and Margaret Wheatley, both of whom have made significant contributions to creating images of new organizational forms. SOLAR describes the effective facilitators of collaborative learning as needing a range and depth of skill and artistry, while maintaining authenticity and a certain quality of presence. The skills needed include helping others build the capacity to surface assumptions; create meaning out of differences; identify and reduce constraints (in themselves and in their contexts); engage in dialogue; reflect critically and creatively and act on possibilities for learning, choice and change. These qualities also describe the facilitator in a constructivist learning environment.

Students and faculty in a leadership program have a variety of opportunities for formal and informal collaboration. Students often identify with other members of the learning community as a peak experience. Collaboration occurs in structured aspects such as seminars and Problem Based Learning (PBL) groups and during a variety of informal interactions such as spontaneous conversations, over meals, in the residence lounge over morning coffee, or on the tennis court.

Students recognize collaboration is a fundamental aspect of the leadership process. They seem to intuitively understand the relevance of reciprocal relationships that develop within a learning community which serve as a vehicle for the collective intelligence that is such a vital element of leadership in complex organizations.

Self and peer assessment provide rich opportunities for collaboration in leadership development environments. Students learn to observe and to give and receive feedback that is focused on growth and development of each individual in the learning community. Faculty serve as models for peer assessment through their provision of feedback during advisement, group work, seminars and informal activities.

Principle 2 – Active Learning
Constructivists argue that collaborative learning and cooperative problem solving groups facilitate generative learning, which promotes higher order problem solving. Wittrock states that generative learning occurs when students are asked to deliberately take action to create meaning from what they are studying. Students

engage in argumentation and reflection as they try to use and then refine existing knowledge to make sense of alternate points of view. This requires a shift in traditional roles of students and faculty. Learners become investigators, seekers and problem solvers. Faculty become facilitators and guides, rather than presenters of knowledge. It requires learners to engage in ways that duplicate the cognitive demands of the real world and validate multiple perspectives. All learners must be active, individually and collectively.

To the observer, the active or cooperative learning environment designed to foster knowledge construction may look like traditional groupwork. The difference is that the facilitator, rather than leaving it to chance or assuming that group members bring all the necessary knowledge, skills and attitudes, creates a context so that group members become important resources to each other.

Cooperative learning groups are founded on five basic elements: face to face promotive interaction, individual accountability, positive interdependence, interpersonal and small group skills, and group processing. These elements form the foundation for working within a cooperative goal structure during seminar and problem based learning groups.

Individual accountability holds every member responsible for demonstrating accomplishment of learning. Positive interdependence is achieved when students perceive that they must coordinate their efforts with the efforts of groupmates to complete a task. Face to face promotive interaction is an outcome of positive interdependence where individuals encourage and facilitate each other's efforts to achieve, complete tasks and produce in order to reach the group's goals.

In order to coordinate efforts and achieve mutual goals, learners must: get to know and trust each other, communicate accurately and unambiguously, accept and support each other, and resolve conflicts constructively. Cooperative learning groups regularly reflect on how well they are functioning. Group processing involves reflecting on a group session to describe what member actions were helpful and unhelpful, and make decisions about what actions to continue or change.

From a constructivist perspective problem based learning (PBL) provides a rich environment for knowledge construction and is a powerful vehicle for active learning. Savery and Duffy believe that PBL seems to almost ideally capture the principles of constructivism. The goal of PBL is to stimulate and hence engage the learner in the problem solving behavior that it is hoped they would demonstrate in an organization. PBL seeks to develop four areas in the learner that are relevant to the workplace: content knowledge, self-directed learning, problem solving ability and team skills.

In cooperative problem solving groups, learners are more willing to take additional risk to tackle complex, ill-structured, authentic problems which mirror organizational realities. The groups address the need for scaffolding during unfamiliar learning and problem solving activities. In other words, with the support of others in the group, members are more likely to achieve goals they may not have been able to meet on their own. There are techniques for providing the appropriate amount of structure

and scaffolding necessary for groups to work together equally, fairly and so that everyone develops individual goals and competencies.

In a cooperative learning framework, the development of a productive problem solving group is preceded by the conscious development of an effective group. To be effective, a learning group needs to have a clear cooperative goal structure, as opposed to one that is individualistic or competitive. In addition, it needs to contain accurate two-way communication among members and have widespread participation and leadership. The group uses consensus to arrive at answers, solutions and decisions, and accords power and influence based on expertise, access to information and social skills, not on authority.

Effective groups frequently engage in controversy, which exists when one group member's ideas, information, conclusions, theories, and opinions are incompatible with those of another, and the two seek to reach agreement. This differs from conflict of interest, where actions of one person attempting to maximize his or her needs and benefits prevents, blocks or interferes with, injures, or in some way makes less effective the actions of another person attempting to maximize his/her needs and benefits. Effective groups openly confront conflicts of interest among members and between group members and the facilitator.

Effective groups experience high cohesiveness, high trust, a climate of acceptance and support among individuals and among the group and the facilitator. Group norms promote individual responsibility and accountability, helping and sharing, and achievement. Members generally have high group and interpersonal skills.

Cooperative problem solving groups align with both the principles of constructivism and the complexity of the workplace by providing opportunities for learners to collaborate, create individual and shared meaning, reflect and develop metacognitive awareness and acknowledge the beliefs and experiences that others bring to the problem solving process. They facilitate high performance faster and more effectively than traditional problem solving groups.

Active Learning and Leadership
In active learning environments, learners break with assumptions and create new meanings. This is a desirable outcome in environments which seek to enhance leadership capacity by providing authentic problems anchored in real world contexts. In Faster Learning Organizations, Guns states that the essence of a team is its members' interdependence. Each team member needs the others to get the work done; a team can't succeed if even one member doesn't do his/her job. Interdependence builds collaboration, and these two qualities lead to a high performance team. A team focused on innovations repeatedly breaks set with old assumptions to create meanings that extend outward to facilitate organizational learning.

The use of more active/cooperative groups provides scaffolding for learners; they learn the behaviors inherent in high performance teams, develop higher order thinking skills, more effectively solve problems, and develop leadership capacity. As individuals gain these skills, they develop greater self-direction and shift to

collaborative learning in groups, where less structure is required and members are assumed to have team skills. These actions are authentic to the realities of complex learning organizations.

In the constructivist problem solving process designed to develop leadership capacity, the facilitator models higher thinking order by asking questions which deeply probe learners' knowledge. Except for housekeeping tasks, the facilitator's role should remain at the metacognitive level and he/she should avoid expressing an opinion or giving information. The facilitator does not use his or her knowledge of the content to ask questions that will lead learners to a correct answer.

The second role of the facilitator is to challenge the learners' thinking. The facilitator challenges both the level of understanding and the relevance and completeness of the issues studied. Learners take over this role and become effective self-directed learners.

When structured as active learning environments, seminars provide a dual opportunity for learners and faculty to engage in dialogue, reflection and meaning making. They are cooperative and participatory places in which learners can deepen understanding of difficult conceptual issues, practice facilitating group process and share leadership.

The intricate balance of content and process in a few short hours per week presents a variety of challenges for faculty. It is difficult to meet both sets of objectives when in the role of instructor-expert. A shift from the role of 'sage on the stage' to 'guide on the side' enables the faculty member to create a context for the development of both content and process.

Principle 3 – Metacognition and Reflective Practice
Metacongition and reflection are essential parts of constructing knowledge and meaning. Learners clarify their understanding when they are able to reflect on their learning and analyze the ways they construct knowledge. Constructivism suggests a more complex and dynamic process for learning than is traditionally described. Students develop as learners when they are aware of the processes they engage in as they "come to know". Metacognitive awareness means that learners are thinking about the learning strategies they are using during learning activities. This awareness enhances their ability to learn and make sense of new information.

Reflective learning involves a continuous process of surfacing assumptions. There is a potential for transformation whenever assumptions are found to be distorted, inauthentic, or otherwise invalid. Transformative learning occurs when, through critical self-reflection, an individual revises old or develops new assumptions, beliefs, or ways of seeing the world. Cranton describes the transformative process as one of freeing ourselves from forces that limit our options and control over our lives. The cognitive conflict, puzzlement or dissonance that one experiences in reflective practice can be a difficult and painful process, particularly if, in response to a challenge to assumptions, learners entrench themselves more firmly in their belief systems. Learners who seek deeper levels of awareness move through cognitive dissonance to new levels meaning-making in a continuous and spiraling process.

Reflective Practice and Leadership

The role of reflective practice in leadership development is to help individuals form new beliefs and images that replace old assumptions about themselves and their organizations. This can be accomplished by coaching learners through four levels of metacognitive thought: tacit use, aware use, strategic use, and reflective use. Tacit use involves using a skill or strategy without consciously thinking about the fact it is being employed. Aware use of a skill or strategy results in an assessment of how particular behaviors impact on the environment. Strategic use involves deliberate, conscious, mapped out use of skills and strategies. Finally, reflective use is the most sophisticated and involves incorporating reflection and self-evaluation into the use of a strategy or skill. An individual in this stage forms a number of viable strategies and after reflecting on choices and evaluating chances, selects the one he/she feels is most appropriate. This self-awareness leads to self regulation and personal change.

A goal in adult education and in leadership development is to help adults become more critically reflective, participate more fully and freely in rational discourse and action, and advance developmentally by moving toward meaning perspectives that are more inclusive, discriminating, permeable and integrative of experience.

In order to bridge the classroom-workplace gap, and engage in on-the-job problem solving and decision making under ill-structured and complex circumstances, higher education students have to be involved in problem solving and higher level thinking activities. Schon identifies that self-reflection is vital to learning and performance, and leads to continued growth over time. In management literature, he describes this process as reflection in action. The major reason reflection is important is that those engaged in leadership acts must be able to see the big picture. One of the primary functions of leadership is to engage people in this big picture, or vision, and the processes that create the conditions for individual and organizational learning.

As facilitators of reflective practice, faculty pose issues or ask questions for consideration; ask for other ways to frame issues; probe to get participants to expand or build on responses; provide additional information or ideas as appropriate; model learning behaviors by reflecting and commenting on the learning process itself. The faculty must not take over thinking for the learner by telling the learner what to do or how to think, but rather teaching should be done by inquiring at the 'leading edge' of the learners thinking.

The role of metacognitive guide and model of reflective practice presents a significant challenge to faculty. Far from the traditional teaching role, the faculty member needs to step back from their own content knowledge and act as coach to learners moving through the thinking, acting, reflecting and meaning making process. It is essential that the faculty member value as well as challenge the learner's thinking.

The learning environment needs to be designed to provide adequate time for reflection. Whether structured or unstructured, time for reflection should be viewed as a valid aspect of a program that aims to develop leadership capacity.

Principle 4 — Meaning Making

Meaning making is at the heart of constructivism. This is the space where all of the other elements of a constructivist learning environment converge. If the learning environment has built and sustained a generative learning community, has created active learning environments that are collaborative and reflective, then it will see learners' capacity for self-directed meaning making grow exponentially. It will have created a framework for developing leadership capacity that is authentic to the emerging images of organization for the twenty-first century, where leadership focuses on relationships, common purpose and shared meaning.

Lambert describes leadership as the reciprocal processes that enable members of a community to construct meanings. The values and beliefs they have already formed help learners to assign meaning, as do their interactions with others in the learning community. Thus two members of the learning community attend the same seminar or session, yet the meanings and images are determined first by each learner's personal schema, and second by the interaction with the perspectives formed by the other learners' schemas.

Learners in constructivist learning environments describe a process of meaning making *about* meaning making that provides a significant *aha* moment. They talk about 'getting it' as they develop a sense of accountability for self-direction that is a primary component of leadership development. As self-direction grows, new meanings or patterns of understanding deepen and new work practices evolve. Jarman and Land refer to this as being 'pulled into the future'. This future orientation is consistent with images of leadership in complex organizations.

Principle 5 — Beliefs, Values and Experience

Rather than considering learners as 'empty vessels', constructivist learning theory assumes that learners bring experience and understandings to the classroom. Thus they do not encounter new information out of context, but apply what they know to assimilating this information; or they reframe what they know to match new understandings they have gained.

Participants come to constructivist leadership programs and engage in the learning community as learners and faculty. Each member brings a lifetime of acquired beliefs, values and experiences. These fall into three broad categories: epistemic, what we have learned; sociolinguistic, how and where we grew up; and psychological, how we view ourselves. It is through these meaning perspectives that all members of the community experience their program.

Mid-career professionals may enter the learning environment seeking an alternative to traditional education and organizational life. These learners are attracted by the overarching value that is present in a constructivist environment: authenticity. In simple terms, authenticity can be described as genuineness, reliability and trustworthiness. In the constructivist sense, it refers to the real-world nature of the learning environment. Learners consider this value to be a non-negotiable, and it is also a foundation of sustainable learning communications.

Authenticity shapes the culture so that every action, interaction, task, and process unleashes the ability of individuals and teams to be vulnerable, take risks, and engage in learning that will lead to knowledge construction, shared meaning, and ultimately, to action.

Learners see educators as authentic when: their words and actions are congruent, they admit to errors and fallibility, they allow learners to see something of them as people outside of the educator role, and they listen to learners' concerns, comments and suggestions. There is a critical balance between authenticity and credibility.

Learners identify a number of more specific faculty attributes and actions that combine to demonstrate the overarching value of authenticity. It is desirable that faculty become actively involved in the formal and informal aspects of the learning community. They engage in reciprocal relationships, and are not interested in control or power. They are genuinely interested in their own and others' learning, and participate, listen, and observe in order to develop in their role.

Faculty articulate clarity and consistency about the program and their role. They are willing to break set with their own assumptions, are confident, flexible, and can adapt to complexity and emergent self-organization. Faculty possess current and relevant knowledge in their own content area and are able to step back from it in order to create the learning environment.

Faculty model the program philosophy and values from a place of humility and low ego need. They have the ability to assess the environment, are responsive to feedback from all members of the community, and modify actions based on that feedback. Faculty demonstrate a passion for learning and living, which is evidenced by a willingness to be vulnerable and take risks. They recognize that they are engaged in a personal journey, transformation, or lifelong learning along with the learners. They have a sense of humour and the ability to laugh at themselves.

Most important, faculty demonstrate and model a commitment to teamwork. They approach relationships within the community with a values/service orientation, welcome diversity in the community, and demonstrate ethical behavior. Faculty create a context of safety and trust which fosters risk-taking.

Learning Communities—The Container for a Constructivist Environment
Lambert and Wilson both describe a learning community as foundational to the creation of a constructivist learning environment. Lambert describes the community as a web of reciprocal relationships sustained and informed by purposeful actions. These communities are made richer by their diversity, openness and flexibility to feedback and unexpected surprises. The shared growth of participants is propelled by joint construction of meaning that involves continual creation and adaptation.

Wilson notes that the quality or depth of one's understanding can only be determined in a social environment where we can see if our understanding can accommodate the issues and views of others and if there are points of view which we could usefully incorporate into our understanding. The importance of a learning community where

ideas are discussed and understanding enriched is critical to the design of an effective learning environment.

The building of a learning community is intricate and an initial structure is necessary to promote sustainability. This structure acknowledges the developmental nature of a community. Instructional approaches that are used involve strategies for organizing the activities of students (creating a context for knowledge building) rather than strategies for delivering information.

Community building is a continuous and complex task. An unsophisticated approach to community building may result in pseudocommunity, where members remain unable to engage in and resolve conflict or cult-like characteristics where respect for diversity and inclusion of ideas and people suffers. A developmental sequence for building, maintaining, and ending the community can be developed as a spiraling sequence that is repeated often throughout a program. The modeling of this approach to community building is valuable in a leadership developed program. Learners (mid-career professionals) are then in a position to begin to create sustainable learning communities in the workplace.

Summary

Constructivist learning environments provide authentic and generative contexts for developing leadership capacity. In constructivist environments activities are structured which encourage learners to participate actively, collaboratively and reflectively in a way that acknowledges the beliefs, values and experiences they bring to their learning. These elements converge to encourage learners to become self directed and construct meaning which they can transfer to other environments. The knowledge, skills and attitudes developed in a constructivist environment prepare learners for the challenge of developing sustainable organizational communities.

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