A CASE STUDY OF STUDENTS’ LEARNING THROUGH DIALOGUE IN A TEAM-BASED LEARNING ENVIRONMENT

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A CASE STUDY OF STUDENTS’ LEARNING THROUGH DIALOGUE IN A
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Abstract

of

A CASE STUDY OF STUDENTS’ LEARNING THROUGH DIALOGUE IN A TEAM-BASED LEARNING ENVIRONMENT

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Tiffanie Ho

This case study explores the communicative practices that occur within student teams in a team-based learning (TBL) classroom. Symbolic interactionism serves as the theoretical framework to explain human social activities occurring on a global level while activity theory is introduced to provide a more microscopic examination of human interactivity on a local level. The intricacies of human interactivity invite an analysis of students’ situated learning, within the TBL community of practice, using dialogue as distributed cognition and the primary tool for helping students learn within small teams. A qualitative analysis of dialogue, using communicative projects (CPs), from a student team enrolled in a TBL-driven humanities and religious studies course provides insight for how dialogue functions with the development of CPs to help negotiate shared meaning among students. Results from this study can further inform the development of student assignments that function to guide meaning-making in the learning process.

________________________, Committee Chair
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________________________
Date

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DEDICATION

To my parents and siblings, whose faith in me kept me going.

To my husband, who was (mostly) there when I needed someone.

To Tini, my beloved Chihuahua, whose loyalty and companionship made the long nights bearable.
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Chapter 1

INTRODUCTION

Far too often do educators measure student learning using empirical approaches, often taking the form of pre- and post-test examinations/surveys, but these types of measures and studies are insufficient in capturing and fully explaining how learning really occurs among students. Largely, the findings of these studies assess learning through interpretation of scores and indirectly measure learning, let alone indicate how and whether the students have achieved through their interactions with peers, instructor, or textual materials. Real learning occurs from in-the-moment interactions that students have with the “things” they are learning and cannot be captured sufficiently by closed-ended measures or personal reports that provide indications of learning. Communication studies need to attend as much as possible to communication phenomena. Therefore, as a study of an instructional design reliant on interactions with peers, instructor, or textual materials, this study features analysis of significant samples of students’ talk.

Of particular interest in this work is the emergence of team-based learning (TBL), a teaching and learning pedagogy that balances the in-class, teacher-to-student, and student-to-student interactions through the use of small learning groups. Learning in small groups and teams has become an area of focus in the past few decades as educators have begun to question the effectiveness of traditional teaching strategies and whether they optimize learning effectiveness for students.
Team-Based Learning: An Alternative to Traditional Learning

In the late 1970s, Larry Michaelsen, a faculty of the University of Oklahoma, was forced to triple his class size from 40 to 120 students (Michaelsen, Knight, & Fink, 2002). With the considerable increase of students in the classroom, Michaelsen’s colleagues advised him to abandon the small group activities he once used in his class of 40 students and turn to traditional lecture as an alternative. Michaelsen, however, strongly felt his group activities and assignments were beneficial in teaching his students to apply concepts rather than merely learn about them (Michaelsen et al., 2002), so he experimented with group work in a larger class. Michaelsen’s ambitious employment of group work appeared to be effective. The students were taking responsibility for their own and their peers’ learning, and Michaelsen was enjoying designing his group-based student assignments (Michaelsen et al., 2002). With some modification, Michaelsen’s experiment eventually served the foundation for TBL, a unique pedagogy involving collaborative learning that primarily occurs in small student teams.

Unlike the traditional teaching and learning pedagogy, TBL is a unique type of pedagogical strategy that employs a blend of learning techniques where students master course concepts in an iterative process, as described in Michaelsen et al.’s (2002) work. Students first attempt assignments individually to expose themselves to the concepts introduced in the course. Following this initial exposure, students engage in a series of team-based exercises to further their understanding of the concepts in application exercises that become increasingly more complex. These exercises draw from students’ collaborative efforts to work together and are designed to optimize learning using a
student-focused approach. Both formative assessments (i.e., individual readiness assessment tests) and summative assessments (i.e., team application exercises) are used to benchmark student learning of concepts throughout the process. The most notable characteristic of TBL is that students work together in their same groups for an extended period of time (e.g., one semester or more).

As defined by Fink (2002), “[t]eam-based learning is a particular instructional strategy that is designed to (a) support the development of high-performance learning teams, and (b) provide opportunities for these teams to engage in significant learning tasks” (p. 8). A couple of distinctive features of TBL include the following: learning activities are part of a sequence that work together to create a high level of energy among students and students in the class are arranged into teams where members within the team work collaboratively over the course of a designated duration (e.g., one semester, one year). TBL provides a particular structure by which instructors design their courses. Instructors restructure the course content into units, approximately five to seven, that represent major topics that students will study in depth (Fink, 2002). Within each of these units, a three-phase sequence occurs: preparation, application, and assessment (Fink, 2002) (see Appendix A for course structure and sequencing).

The preparation phase requires students to read assigned materials before the start of a unit, then complete the readiness assurance process (RAP). The RAP is comprised of a readiness assurance test (RAT), or a mini quiz on the assigned readings, that students complete individually. Immediately after submitting their individual RAT quizzes, students complete the same quiz again with their team (Fink, 2002). At the conclusion of
the team test, teams have opportunities to make appeals to questions they answer incorrectly but have reasons for why the answers they selected should be correct (Fink, 2002). Finally, the instructor offers corrective instruction by clarifying key concepts that he/she feels need to be addressed to the class (Fink, 2002). By the conclusion of the preparation phase, students are expected to have a moderate level of understanding of the assigned course material.

The final two phases require students to apply concepts they have learned. The second phase is the application phase where several successive class sessions are devoted to application exercises (Fink, 2002). Each team in the class receives the same exercise. Students are asked to use the content they learn to answer questions, solve problems, create explanations, make predictions, etc. The exercises become increasingly more difficult, as they are designed to extend the students’ thinking and application of the concepts in the unit. At the conclusion of each exercise, the instructor devotes some class time to compare responses from each team and provide feedback. The final phase is the assessment phase where the students complete an exam that seeks to test the extent to which they are able to apply the concepts, for the final time, they had been learning (Fink, 2002). Students’ performance at the final phase is counted toward their grade in the course.

In addition to the logistics of a TBL course as described above, TBL emphasizes three things in the curriculum: all students work on the same problem or assignment, all students are required to make a specific choice, and all teams should simultaneously report on their choices (Michaelsen & Knight, 2002). TBL is built upon four essential
principles provided by Michaelsen (2002) based on his experience with the pedagogy: student teams must be properly formed and managed, students must be accountable for individual and group work, group assignments must promote learning and team development, and students must receive timely performance feedback from their instructor and their peers as evaluations. These principles ensure that each team member functions as an integral part of the team and contributes to the overall performance of each member’s learning. Michaelsen’s principles suggest that TBL is a student-focused pedagogy.

The use of TBL has surfaced in multiple disciplines, including fields in business management such as accounting (Lightner, Bober, & Willi, 2007), marketing (Chad, 2012; Laverie, Madhavaram, & McDonald, 2008), and finance (Lam, 2007). The pedagogy has been used in the social sciences in courses teaching psychology (Haberyan, 2007); English and literature (Harde & Bugeja, 2012; Roberson & Reimers, 2012); history, culture, and religion (Dubois, 2012; Restad, 2012); and social work (Gillespie, 2012). The pedagogy has also been used in health-related fields, including nursing (Clark, 2008; Clark, Nguyen, Bray, & Levine, 2008), medicine (Engle, 2008; Janssen, Skeen, Bell, & Bradshaw, 2008; Parmelee & Hudes, 2012), and pharmacy (Ofstad & Brunner, 2013). TBL has even ventured into the delivery of mathematics curriculum where instructors are discovering the pedagogy’s usefulness in enhancing student comprehension of concepts (Paterson & Sneddon, 2011). The pedagogy has also been adopted in specific work settings, such as in health professions, residencies, and
clerkships (Al-Mateen, 2008; Petty & Means, 2008) where professional training and learning are heavily emphasized.

**Statement of the Problem**

Many of the studies noted above have focused on the benefits that TBL provides, such as better student test scores or general learning. The literature concerning student performance with TBL documents higher test scores (Carmichael, 2009; Fatmi, Hartling, Hillier, Campbell, & Oswald, 2013) and improved student participation and engagement (Carmichael, 2009; Clark et al., 2008; Persky, 2012). Many of the TBL-related studies published in the literature generally describe how educators implement TBL in their courses, illustrating the types of activities they incorporate (Cragin, 2002; Dana, 2007; Harde & Bugeja, 2012; Ofstad & Brunner, 2013).

TBL is recognized as a pedagogy that has shown improvement in student test scores where students either perform better collectively than individually or perform better individually after having been exposed to TBL opportunities (Carmichael, 2009; Chad, 2012; Lam, 2007) than not having been exposed to TBL. The pedagogy is also widely noted as one that promotes engaged student participation and learning (Carmichael, 2009; Chad, 2012; Clark et al., 2008; Haidet, Schneider, & Onady, 2008; Lightner et al., 2007). TBL clearly has had its successes in the classroom. As a result of the generally positive and consistent research findings, TBL has become accepted as a pedagogical strategy that benefits student performance outcomes.

In the literature documenting the success that TBL has had in classrooms of different sizes, TBL has surfaced repeatedly as the preferred pedagogy. Educators who
have adopted TBL in their curriculum have conjectured that most of students’ learning has come from discussions in group assignments because students have opportunities to reflect on one another’s contributions (Carmichael, 2009; Lightner et al., 2007).

Interestingly, research of TBL does not explore the *communicative practices* that occur within the TBL classroom. Specifically, student-to-student or student-to-instructor symbolic interaction that comprises the TBL experience is absent from the literature. No discussion or analysis is included that properly treats TBL as a pedagogy that can best be understood and explained for *how* it works from a functional, communication perspective studying student-to-student interactions in small groups and student-to-instructor interactions in a team-based classroom setting. Little has been published to explain the most critical aspect of the pedagogy – *how* it works to promote student learning.

**Rationale**

It is not enough for educators to willingly accept and acknowledge that student-to-student interactions are central to the learning process without really knowing the social processes involved, as this does not provide any guidance to educators for how to ensure that learning will take place if students are left to interact and learn on their own. Having a deeper understanding of student interactions will better equip educators for designing and conducting TBL courses. Intimate knowledge and exposure to TBL at the communicative, micro level can help educators better evaluate the effectiveness of assignments and strategies they use in TBL in order to continuously design and modify them for improvement. The most promising aspect for ensuring that student learning occurs is when educators have awareness and understanding of the functions of student
communicative acts and can create a classroom environment most appropriate for achievement of learning.

In achievement of learning, students in TBL environments work in small groups and become part of a community where learning can be observed through how they talk about what they know or do not know. Through dialogue with peers and instructors, students make conscious actions, or gestures, in response to the meanings derived from their peers’ gestures. As Blumer (1969) notes, “The meaning of anything and everything has to be formed through a process of indication—a process that is necessarily a social process” (p. 12). Broadly speaking, “indicators” consist of verbal and nonverbal “gestures.” These gestures, within a speech community, have meaning for both the student making them and to those gestures are directed. The joint action where students are constantly redefining and reinterpreting one another’s gestures to create and share meaning is a process that most appropriately invites the principles of symbolic interactionism to provide theoretical foundation for examining social interactions in TBL.

In addition to the framework that symbolic interactionism provides, Blumer (1969) argues that it provides researchers the opportunity to employ the research methodology most appropriate in treating the issues behind what is generally shrouded by empirical studies’ designs. However, Blumer (1969) advocates that symbolic interactionism engages the researcher in the heart of the study, the point at which meaning-making cannot be derived from quantitative scrutiny, but through the researcher, as a human being, conducting specific observations of other human beings’ communicative actions. Studying TBL through the lens of symbolic interactionism
affords researchers the opportunities to understand the richness of social interactions and the processes of sense-making used by students that is lacking in empirical research. Given Blumer’s (1969) advancement of this perspective, symbolic interactionism would serve as a starting point for studying student dialogue and meaning-making in TBL.

Because TBL is a unique pedagogy that enables students to learn collaboratively, it places focus and emphasis on student interactions. This area is worthy of exploration because it can provide insight for how TBL instructors can better structure and coordinate team assignments that ensure student interactivity at the level needed for student learning. It is most critical to examine the communicative aspects of these interactions to gain a better understanding of what processes transpire. Hence, the main purpose of this study is to offer a thorough exploratory examination of how student dialogue and students’ roles developed and undertaken within their teams, and within a learning community, function to help students, in a TBL classroom, learn by negotiating shared meaning.

Students are central to the TBL process, as expectations are placed on them to be responsible for their own learning. To fully understand the extent to which students are heavily involved in facilitating their own and one another’s learning, there is a need to explore theories that investigate student communicative processes occurring within the teams. This will provide a starting point most valuable in the discussion for instructors and educators in general to consider how best to use TBL. Results from this thesis will have transformative value for group-based student activities that promote learning even beyond the TBL pedagogy, where group-based work is the primary means in which student learning is the intended outcome. Furthermore, findings from this thesis can be
used to inform the quality of course instruction and design using student groups as a primary medium for guiding student learning.
Chapter 2

LITERATURE REVIEW

This chapter offers an in-depth review of the concepts and theories most appropriate in informing the study of communicative perspectives within a team-based learning (TBL) environment. To begin the discussion of the role that human interactions function within a community, symbolic interactionism is introduced to set the framework for how individuals come to understand their world and derive meaning from it. While symbolic interactionism contextualizes this study, activity theory is included to give background and understanding for how students work together in groups. Finally, distributed cognition is offered to help explain how students use resources and social elements within their groups to solve problems in the team-based environment, and a discussion of the role of learning communities is offered to contextualize the dialogic nuances arising from the groups.

Collectively, symbolic interactionism, activity theory, and distributed cognition can be taken as concepts embedded within the larger social context that need to be given careful treatment in helping us understand how global and local communicative contexts influence and define one another to inform our understanding of this study and the value it contributes to creation of a meaningful learning context. Preceding any discussion and examination of how a communicative perspective can be taken to study the interactions among students working in small, team-based groups, we need to characterize the global context of meaning-making among individuals in coexistence.
Symbolic Interactionism

The broader context for how people come to know and understand the world around them must be addressed starting from the ideas of sociologist Charles Horton Cooley and social behaviorist George Herbert Mead. Cooley (1907) and Mead (1913) are foundational figures in social science research who study how consciousness is formed in the social context. Cooley (1907) provides that the consciousness of the individual, the self, is formed in relation to social consciousness, the awareness of society. Similarly, Mead (1913) offers that the self acts in reference to others and becomes conscious of the objects about it. He asserts that humans must recall experiences to become aware that they have been involved in order to produce the self-consciousness that builds into the larger context of experience (Mead, 1913). The self is socially constructed, and what the self comes to know and understand is dependent on society.

Furthering the ideas of Cooley (1907) and the foundation of social behaviorism that Mead (1913) offers, Blumer (1969) defines and explicates his version of symbolic interactionism that is most appropriately used to study specific social activities. While Mead (1934) discusses that symbols used in communication contribute to the development of the sense of self, Blumer (1969) extends Mead’s work further through his conception of symbolic interactionism. Blumer (1969) argues that individuals develop a common community of symbols to help them create shared meaning toward which they act.
The principles of symbolic interactionism hinge upon meaning, language, and thought (Blumer, 1969), all of which contribute to creation of the community of symbols that participants share. The major premises that humans act toward things on the basis of the meanings that the things have for them, meanings are derived from the social interaction, and meanings are modified through an interpretive process (Blumer, 1969) provide an in-depth examination for how individuals derive meaning from social experiences. Blumer’s (1969) ideas within symbolic interactionism offer a narrower framework in which communicative practices among individuals can be given attention to its function as a social activity.

The study of student learning through dialogue in a team-based context characterizes, on a microscopic level, what Blumer (1969) would assert is the epitome of how symbolic interactionism is useful in studying the intricacies of human group life. Blumer (1969) introduces the concept of “root images” (p. 6) that can be applied in the analysis of student dialogue arising from student teams. Blumer lists the following as “root images” [or root concepts]: “human groups or societies, social interaction, objects, the human being as actor, human action, and the interconnection of lines of action” (p. 6).

These “root images” function as a system within TBL groups where meaning among students is created and shared. These meanings are “social products” (Blumer, 1969, p. 5) derived from the context of social interaction and the individual involved in the interaction. Following is an explanation of these “root images.”

**Human groups or societies.** Foundational to symbolic interactionism is the idea that human groups or societies are defined by action. The members of such human
groups or societies act in ways where such actions are ongoing and complementary, resulting in structure and organization. Ultimately, these ongoing actions constitute human group life.

**Social interaction.** “Social interaction is an interaction between actors and not between factors imputed to them” (Blumer, 1969, p. 5). In other words, individuals interacting with one another act either in response to or in relation to one another. Of note is symbolic interaction, a type of social interaction, where interactions involve interpretation of the action (Blumer, 1969). This means that an individual’s actions must align with the actions of others. Informed by Mead’s perspectives, Blumer notes that the idea of symbolic interactionism is a construction of gestures and responses. A gesture is “any part or aspect of an ongoing action that signifies the larger act of which it is a part” (Blumer, 1969, p. 9) and has meaning for both the individual who initiates it and to the individual it is directed.

**Objects.** Defined by Blumer (1969), “[a]n object is anything that can be indicated, anything that is pointed to or referred to...” (p. 10), and they may be physical, social, or abstract. Meaning associated with the object arises from the individual who defines the object through which he perceives it and is prepared to act toward it. Meaning may also be derived from the way in which the object is defined to the individual by those members who the individual interacts with. Hence, meaning associated with the object is socially created and transformed through members’ gestures.

**Human being as actor.** Mead’s (1913) notion that an individual possessing a sense of “self” allows him/herself to respond on a symbolic level because one is able to
perceive oneself as an object toward which one acts. Because individuals have a sense of “self” and are “social” in that they interact symbolically, they not only respond to others’ actions, but they also initiate action. To act, one engages in a process of self-interaction, or interpretation, where one makes an object of what one notes and gives it meaning. Based on the meaning of the object, which one derives from the indications one makes to oneself, one uses the object’s meaning to guide one’s actions.

**Human action.** Prior to the actions that the individual takes, one considers and accounts for a variety of things, including one’s wishes and wants, one’s objectives, the available means for their achievement, the actions and anticipated actions of others, one’s image of oneself, and the likely result of a given line of action (Blumer, 1969). The individual’s determination of action is accounted for as one makes indications to oneself and acts upon them based on those actions of others. The resulting outcome of interpretative actions among the individual and those around the individual is joint or collective action.

**Interconnection of lines of action.** When the conduct, or actions, of various members are involved, “joint action” results from the organization or interlinkage of those actions. Beyond mere aggregation of actions, the interlinkage of all separate acts from various members form joint action of the collectivity. Interlinkage carry particular implications that are noteworthy for discussion. First, joint action is repetitive and stable because it is dependent on the common, pre-established meanings of what is expected from the members, but new and changing situations require that joint action be formed and reformed through an interpretative process of the individuals involved. Second, the
connection of diverse actions of diverse members comprise the human group life. Members within this network who are invited to act do so based on how they interpret and define the situation. The ever-changing situation inherently invites members to undergo a social defining process. Third, the instance of joint action is shaped by the participants’ backgrounds and previous actions. Hence, the action each member makes is influenced by his/her prior objects, interpretations, and meanings.

These “root images,” as discussed, provide a general framework from which to characterize the student teams from a communicative perspective. The application of symbolic interactionism is most appropriate when studying how individual interactions within teams contribute to students’ learning process. Foremost, the TBL groups within the classroom form the learning community that characterizes human group life Blumer discusses. As students participate in team discussions and activities, they function as actors possessing senses of “self” to account for the results of their actions. During this process of consideration, the students make indications to themselves and to others (e.g., peers and instructor) through symbolic interactions. Such actions are the result of how students choose to treat themselves, others, and the subject of their discussions and activities as “objects” of the situation they may act toward. Consequently, each student’s actions must align with those of others to form an interlinkage of acts, or “joint action.”

The components of Blumer’s “root images” function collectively to help form the definition of the context that this study treats—the communicative dynamics involved in student teams within a TBL environment. As can be inferred from the discussion thus far, the context is complex and certainly undergoes change as dictated by students’
interactions. However, the extent to which the communicative context in a TBL group undergoes a continuous process of change is best examined through the local context of those interactions.

As a distinctive feature of TBL, the active participation required of students to contribute to team discussions and activities, primarily taking the form of dialogue, draws attention to the communicative practices concerning student-to-student interactions central to the TBL environment. While symbolic interactionism provides the foundation in which human, social activity can be conceptualized within a community, the concepts alone are insufficient in explaining the occurrence of interactions on a more local, and less global, level. Symbolic interactionism informs the direction of this study to the extent that it provides a theoretical framework for how we can think about participants’ roles and interactions within a defined community, such as a learning community. However, because my aim in this study is to fully examine the interactions among students involved in a group context, the boundaries of this study are more narrowly focused and specifically defined than those of symbolic interactionism.

In exploration of student interactions in groups, and what can be recognized as occurring in the local context, I propose that concepts provided in Engestrom’s (2001) activity theory is most appropriately introduced to explain the communicative processes that occur in student groups. Concepts associated with activity theory will function to help us understand how students in teams work together to accomplish their tasks.
Activity Theory

Activity theory illustrates many of the concepts that are appropriate and applicable in understanding how participants work together, collectively, in teams to achieve shared understanding. Activity theory focuses on the local nature of activity systems (Peim, 2009). Taking this conceptualization of activity theory into consideration, students working together in a collaborative effort would be characteristic of a local event, as it illustrates what is occurring at the moment students interact with each other. Hence, examining student teams from the perspective of a mini, local system will be beneficial in explaining how resources for learning are shared among members of small teams and provide insight for how they function to work collaboratively to learn. To understand the framework of activity theory and its application within the team-based context of this study, a brief discussion of the theory’s development is noteworthy.

Development of activity theory. Activity theory is first built upon Vygotsky’s (1978) notion that tools, or artifacts, mediated the relation between subjects and objects. People gain understanding of something from the very act and process of using resources (e.g., writing, speaking, gestures) to help them do so. The first-generation activity theory model represents the activity system, or the ways in which people, the subject, use artifacts to achieve their goals, the object (see Appendix B, figure 1). Actions are object-oriented. The artifacts can be physical tools that people use. Artifacts may also constitute language, or words, that people use to express themselves in order to achieve their goals. The first generation activity theory model illustrates the simplistic, human cognitive functions, focusing on the individual, but it lacks to account for the more
complex, collective nature of human activities. This is the first generation of activity theory upon which succeeding generations of the theory was built.

The second-generation activity theory model includes other critical elements. Engestrom developed the second-generation model based on the ideas of Leont’ev, who distinguished action and activity. While the first-generation activity theory model illustrates action, which is some act conducted by the individual to fulfill a goal (Bakhurst, 2009), the second-generation model reflects a collection of individuals’ actions, known as activity. Activity is some act undertaken by a community, deploying a division of labor and other means of production, and has an object and a motive to act toward (Bakhurst, 2009) (see Appendix B, figure 2). The community represents the individuals and subgroups that share the same object, or goal. The division of labor includes tasks, powers, and responsibilities negotiated among community members (Cole & Engestrom, 1993). Rules, then, are the regulations and norms constraining the actions and interactions in the activity system.

The second-generation model is an improvement from the first in that it provides a basic unit of analysis that leads to critical points that ought to be considered. The model provides a conceptual map in which human cognition is distributed. It includes people, other than the subject, who should be accounted for in the human activity system, and it captures the dynamism of human activities (Cole & Engestrom, 1993). In other words, activity systems are constantly reorganized such that tensions and disturbances are the engine for change (Cole & Engestrom, 1993). Despite what the second-generation model can offer, it still only represents one activity system and does not explain the
presence of multiple activity systems. Hence, further development of the second-
generation model yielded the third-generation model of activity theory which represents
the conditions of interactions for at least two activity systems (see Appendix B, figure 3).

The third-generation activity theory model helps “develop conceptual tools to
understand dialogue, multiple perspectives, and networks of interacting activity systems”
(Engeström, 2001, p. 135). The third-generation model shows that the object of activity
is a moving target and cannot be represented by short-term goals (Engeström, 2001).
Unlike the object represented in the second-generation model that is unreflected and
given “raw material” (object$_1$), the object in the third generation becomes meaningfully
constructed by the activity system (object$_2$) and potentially becomes shared or jointly
constructed (object$_3$) between the activity systems (Engeström, 2001, p. 136). This third-
generation model is most complete in depicting the complexity of interacting activity
systems.

**Principles of activity theory.** Given the stages of development that activity
theory has undergone, the third generation of activity theory reveals five principles that
are central in explicating the functions of the theory and what insights it may uncover.
The first principle is that the activity system can be considered as the prime unit of
analysis (Engeström, 2001). The collective activity system is the focus among the
network relations to other activity systems. The second principle is that activity systems
are multi-voiced where multiple points of views, traditions, and interests exist
(Engeström, 2001). The division of labor places individuals in different positions.
Individuals bring with them their own diverse histories while the activity system carries
its own history, embedded in the artifacts and rules. The third principle is the historicity of activity systems where they take shape and are transformed over a period of time (Engestrom, 2001). Problems and potentials that may arise are understood only against the system’s history, ideas, and tools that have shaped the activity (Engestrom, 2001).

The fourth and fifth principles of activity theory concern the mechanisms involved in the transformation of activity systems (Avis, 2009). The fourth principle references the role of contradictions that drive change and development (Engestrom, 2001). Contradictions arise when structural tensions accumulate within and between activity systems, generating disturbances and conflicts while simultaneously providing innovative opportunities to change the activity (Engestrom, 2001). The fifth principle anticipates expansive transformations in activity systems where individuals in the system question and deviate from established norms, resulting in reconceptualization of the object and motive of the activity (Engestrom, 2001). New forms of practice may occur.

Activity theory illustrates many of the concepts that are appropriate and applicable in understanding how teams function when members work together. Activity theory focuses on the local nature of activity systems (Peim, 2009). A collaborative effort among students in a team would be a local event, as it illustrates what is occurring at the moment students begin working together. Because a team in a TBL course is generally comprised of five to seven members working together for an extended period of time, the interacting activity systems among all the members become increasingly complex. But, before we visit what the activity systems of an entire group may appear to be, we need to examine two interacting activity systems as the unit of analysis. Once we
have some notion of how these activity systems work, we can then superimpose these concepts into multiple interacting activity systems to represent the complexity of one TBL student group.

As shown in the diagrams of the evolution of activity theory (Appendix B) and the elements involved in the diagram, there are various factors that mediate the subject (the student) and the object (the student’s understanding of what is taught). In other words, to better understand how a student’s understanding of some concept (the object), which then becomes transformed into a product of his/her knowledge in the form of completing an assignment (the outcome), for example, we need to take into consideration the mediating artifacts, rules, community, and division of labor that are involved in the production of the outcome. Ultimately, the goal of situated learning is for the students to be able to transform the ideas, or those they gain new perspective of, through application to achieve some sort of result, or outcome, as a product of their newly-formed knowledge.

While activity theory provides a sufficient background for explaining how interactions among students in a team may produce dialogue, the evidence of cognition in action, a review of distributed cognition itself is necessary to further inform our understanding for how we should interpret the meaning of the dialogue that arise among students.

**Distributed Cognition: Team Members as “Tools”**

In the broadest sense, distributed cognition “occurs when one cognitive task [...] is distributed among individuals and tools such that no one individual must carry out the
entire extent of the cognition required to complete the overall task” (Belland, 2011, p. 583). Salomon (1993a) offers that cognitions are context-based tools that arise from a situation, such as when solving a problem, dealt by teams of people and tools available to them. Distributed cognition is useful in examining the role that cognition plays among students functioning in a team. Evidence of how cognition is distributed is best characterized in the dialogue that occurs among students as they are working in groups. The important thing to note is that when students work together in a team, what each student contributes to the team can be understood as a system of cognition that is distributed as an activity system. Distributed cognition is valuable in examining how the collective effort of a student group can be understood at a microscopic, granular level, such as those unique contributions of individuals.

It is important to acknowledge that the meaning of “distributed cognition” is not universally shared by scholars, and varying degrees of conception for the term exist. Perkins (1993) and Salomon (1993b) both view distributed cognitions as distinguished from each other and arise from interdependent dynamic interactions, called a person-plus perspective (Salomon, 1993a). Cole and Engestrom (1993) and Pea (1993) take a more radical conception and perceive cognition as being generally distributed where the unit of analysis should be focused on socially mediated activity in the cultural context, called a social-only perspective (Salomon, 1993a).

Perkins (1993) explains that thinking and learning begin with the individual who utilizes his/her surroundings to help him/her, hence cognition in this situation is person-plus. The individual uses the surround, the immediate physical and social resources
outside of him/her (Perkins, 1993). The surround serves as a vehicle of thought and participates in the cognition as the source of input and a receiver of output (Perkins, 1993). What the individual learns, or the residue left by thinking, is present in both the mind of the individual and in the arrangement of the surround (Perkins, 1993). For instance, a student attempting to learn about how the brain works may draw diagrams (the residue), becoming the surround the student can utilize as a resource for his/her learning. The person-plus system has learned something, and part of the learning achieved resides in the diagrams.

Essentially, the thinking and learning in a person-plus system can be described as a knowledge-processing system that creates a framework for how information flows through it. The flow-through involves knowledge, representation, retrieval, and construction to operate within the system. Such a system takes into account the knowledge that is available, such as procedural knowledge, facts, strategies, and skilled routines (Perkins, 1993). How the knowledge can be transported and recorded relates to how the knowledge is represented, and the system’s ability to locate the knowledge representations is the retrieval process at work (Perkins, 1993). The extent to which the system is able to assemble the knowledge bits into new knowledge structures is the construction at work (Perkins, 1993).

Salomon (1993b) asserts the importance of individuals and their cognitions as the focus when examining how cognitions are distributed. He argues that if the individual’s input or situated actions are disregarded and emphasis is placed only on the socially or culturally distributed nature of cognitions, then only an incomplete picture of the process
is captured (Salomon, 1993b). However, Salomon (1993b) also explains that cognitions do not necessarily reside “inside” the individual but are “stretched over” and are part of the system (p. 112). Cognitions are mediated by the culture, community, tools, and symbols in the activity system (Salomon, 1993a). He offers that the cognitive process is more completely portrayed when it takes into consideration distributed and individuals’ cognitions interacting because independent entities influence one another (Salomon, 1993b).

The cognitive system cannot be fully understood when examining isolated parts of the whole system. Each individual in the system has inputs and qualities to contribute (Salomon, 1993b). Adopting ideas from Phillips (1976), Bandura (1978), and Altman (1988), Salomon (1993b) proposes a model for how individuals’ and distributed cognitions interact. Activities that individuals engage in provide opportunities in which cognitions are shared because the individuals’ skills enter into partner-like situations (Salomon, 1993b). In other words, individuals’ inputs influence the nature of the joint, distributed system that, in turn, influence individuals’ cognitions (Salomon, 1993b). The relationship between individuals’ cognitions and distributed cognitions is best described as one that is reciprocal, where they contribute to one another’s development. The consequence of this relationship is cognitive residues, or improved competencies (Salomon, 1993b).

Salomon’s (1993b) conception of the development of cognition is the point from which Pea’s notion of cognition is advanced. Pea conceptualizes distributed cognition in a more radical sense, emphasizing that it arises from social situations. Rather than using
the term “distributed cognition,” Pea (1993) uses “distributed intelligence” (p. 50) to convey that people execute action, such as those that are cognitive. Pea (1993) notes that intelligence is something that can be accomplished rather than possessed. Intelligence is “distributed across minds, persons, and the symbolic and physical environments” (Pea, 1993, p. 47). Pea (1993) focuses on intelligence not as an attribute the individual carries in mental representations of symbols, but something that is an outcome of individuals being situated in an environment where physical artifacts or tools can be used and social relations form.

Central to Pea’s (1933) conception of distributed intelligence is the critical function of activity, or the configuring of distributed intelligence. Activity is enabled by intelligence both from the individual and the distributed resources across people, environments, and situations (Pea, 1993). People use the artifacts as resources that guide their activity they engage in. Activity, then, occurs through “means-end adaptation,” and in the process, intelligence arises from the activity connecting the means and ends (Pea, 1993, p. 50).

In addition to the importance of activity, Pea (1993) stresses that distributed intelligence is aided by the individual’s use of artifacts as a way to expand intelligence. The artifact simply provides “affordance,” a term offered by Gibson (1979), meaning the “perceived and actual properties of a thing, primarily those functional properties that determine just how the thing could possibly be used” (as cited in Pea, 1993, p. 51). Pea (1993) asserts that although the individual is given the artifact that affords him/ her to use it for the purposes of task achievement, how he/ she uses it is largely dependent on his/
her prior experiences and exposures. The individual does not inherently know how to use the artifact without the context in which it is situated. This notion aligns with that of Cole and Engestrom (1993) who assert that the goals, tools, and setting constitute the context of behavior and the ways in which cognition can be distributed in that context.

As explained, cognition occurs on two levels, residing both in the individual, as Perkins and Salomon offer, and in the social world, as Pea has illustrated through the relationship of activity and intelligence. In sum, cognitions are context-based tools that arise from a situation, such as when solving a problem, dealt by teams of people and tools available to them (Salomon, 1993a). In the context of teams where students work together to solve a problem, examining distributed cognition would be useful and necessary in understanding just how students use their intellectual resources as tools. Evidence of how cognition is distributed and is best characterized directs our attention to the dialogue that arises among the students as they work together to solve their problems. But, thus far, the discussion has been focused on the individual and distributed cognition that arise among students working together.

The notion of cognition that Perkins (1993), Salomon (1993a, 1993b), Cole and Engestrom (1993), and Pea (1993) share is that its emergence is dependent on the situation or context that the individuals are a part of. Although the ultimate focus of this study is on understanding students’ dialogue, in which cognition can be observed, the aspects constituting the context are factors that must be considered in the mediation of the student (the subject) and what the student aims to achieve or learn (the object). Both the person-plus and social-only perspectives of cognition are important to the analysis of
dialogue between at least two individuals. And, as both of these perspectives suggest, the
cognition that arises within the individual both influences and is influenced by cognition
external to the individual, resulting in what is known as distributed cognition. The
interdependence of individual and distributed cognition is a concept that is paramount to
the consideration for how students come to create knowledge through dialogue with one
another because the context is the primary motivator for how dialogue arises, and thus
knowledge created.

I want to now shift the discussion to focus on specific aspects of the context that
have been diagrammed in both the second-generation and third-generation activity theory
models—the components of activity theory that advance the multi-voiced nature of
activity involving community, rules, and division of labor. Specifically, the discussion in
the following section will center about the role that the community, of which the student
is a part, is critical in shaping the individual and distributed cognitions that arise among
the student team. As Engestrom’s (2001) activity theory model suggests, community
contextualizes and influences student interactivity with one another at a microscopic
level. This suggests the significance of community in examining contextualized
interactivity. In the examination of community, the following section will first address
situated learning, then it will discuss the role of community, with respect to rules and
division of labor, hence enabling the development of an activity system and allow for
multiple activity systems to interact.
Community: Social Learning within the Team

Because the nature of group work in a TBL classroom allows students to discuss and work together to complete team assignments, I find it appropriate to bring into this discussion how a collection of student teams can be characterized as a learning community in order to give a stronger explanation for how this study is structured to approach the examination of student dialogue. These student teams come to form a learning community that is characteristic of Blumer’s (1969) notion of human group life. Such a learning community possesses the traits and aspects articulated in Blumer’s (1969) “root images,” as defined in a previous section of this work. When student teams are formed, they inherently become part of a learning community of practice where they engage in practices that are defined by the social context. Before giving attention to what a learning community means and is comprised of, a discussion of the social nature of learning itself is warranted.

Situated learning. Lave (1991) asserts that “learning [is not] a process of socially shared cognition that results in the end in the internalization of knowledge by individuals, but as a process of becoming a member of a sustained community of practice” (p. 65). This notion of situated learning suggests that individuals learn by being immersed and being a part of a larger social fabric—where learning occurs primarily and solely through social practice. Specifically, we can begin to think about learning and knowledge as having relational character, meaning arising from negotiation, and the participatory nature of learning activity for individuals involved (Lave & Wenger, 1991). This idea is supported by the social theory of learning Wenger (1998) advances.
The social theory of learning focuses on social participation as the key process of learning and knowing. Wenger (1998) notes that learning is encompassed by how individuals talk about their experiences in the world around them (meaning), how individuals talk about perspectives that engage them in action (practice), how individuals talk about the social configurations to which they belong that enable their actions (community), and how individuals talk about themselves within the context of their communities (identity). Taking these elements into account, it makes sense, then, that “...learning as increasing participation in communities of practice concerns the whole person acting in the world” (Lave & Wenger, 1991, p. 49).

Learning itself is a participatory process in that it is always continuously evolving—where the person, the actions, and the world are mutually constitutive of one another (Lave & Wenger, 1991). This perspective of learning is likened to the theory of social practice. The theory of social practice emphasizes the “interdependency of agent and world, activity, meaning, cognition, learning, and knowing” (Lave & Wenger, 1991, p. 50). Social practice, then, suggests that learning and meaning arises from the negotiation of the constitutive, interdependent elements. This view promotes the idea that thinking, learning, and knowing are relational and arise from the socially and culturally structured world (Lave & Wenger, 1991). At the very core of the theory of learning and social practice, participation is based on the (re)negotiation of meaning in the world (Lave & Wenger, 1991). Hence, the division between cognitive knowledge and the lived-in experiences of an individual is abated—no longer are the two treated as
discrete levels of achievement in the pursuit of learning. Knowledge and experience become one in the same.

The holistic nature of the social practice theory of learning can be observed in the meaning of legitimate peripheral participation, which helps describe the conditions in which learning occurs. Legitimate participation references the way of belonging, and peripheral participation is the way of being located in the social world (Lave & Wenger, 1991). Legitimate peripheral participation speaks to power relations and dynamics within and among communities of practice. Members may be afforded the opportunities to fully participate in or choose to be somewhat removed from interchange among their communities of practice, from the broader perspective of society at large (Lave & Wenger, 1991). “‘Legitimate peripheral participation’ provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artifacts, and communities of knowledge and practice” (Lave & Wenger, 1991, p. 29). The power dynamics arising in participation speaks to how individuals advance from peripheral participation to “full participation” (Lave & Wenger, 1991, p. 37, italics in original) where membership is pertinent to the extent that individuals become involved in the community’s sociocultural practices. Hence, understanding the process in which members become fully participatory is grounded in the process by which they first become a member of a learning community of practice.

**Community of practice.** As defined by Wenger (2007), a community of practice is “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (para. 3). Wenger (1998) first introduced
“community of practice” to reference a community on a global level. The expanse of the definition encompasses those individuals, not necessarily bound by proximity, who are involved in or participate in particular tasks and develop internal language for describing and understanding their tasks (Wenger, 1998).

The term “community of practice” is not to be confused with the casual use of the term “community.” The use of the term “community” in the phrase “community of practice” means there is “participation in an activity system about which participants share understandings concerning what they are doing and what that means for their lives and for their communities” (Lave & Wenger, 1991, p. 98). As Wenger (1998) puts it, “the concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do” (p. 47).

When students are placed together to work in a team, the concepts associated with a community of practice can be applied. Wenger’s concept of “practice” can be applied to construct the frame from which I would like to study the “doing” that students participate in and the “meaning” that arises from the “doing.”

Communities of practice can be observed in almost all areas of human life, such as in school, work, and home, and it is a phrase specifically used to describe the nature in which meaning can be derived and shared among people. A few traits, in particular, make a community of practice a unique and distinct unit of analysis. A community of practice advances mutual engagement of its participants (Wenger, 1998). Mutual engagement is defined by participants’ membership centralized about the tasks they do. Each member brings unique skills and occupies different roles that are complementary to
those of other members. Mutual engagement is built upon shared competence among different members. A community of practice also constitutes a joint enterprise (Wenger, 1998). This enterprise is negotiated in that the members communally agree on what is meaningful to them and form responses appropriate to the situation. Such responses are influenced by the community’s production of practice. Finally, a community of practice requires a shared repertoire (Wenger, 1998). The repertoire can be diverse and constitutes the “…routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions, or concepts that the community has produced or adopted in the course of its existence…” (Wenger, 1998, p. 83). Such is the historically negotiated sense of meaning, but it is dynamic and can be altered to produce new meanings.

Central to the dynamism of meaning production is rooted in what social practice suggests of the members who are part of this community of practice. Social practice focuses heavily on the individual as a member of the sociocultural community (Lave & Wenger, 1991). Learning requires the person to be intimately involved in the social process where situated practice is not just located somewhere and reifiable (Lave & Wenger, 1991). Rather, learning is part of social practice that is embedded within the everyday, lived experiences of the individual. This process of engagement called upon the individuals where learning results as an essential component and is inherent to social practice is where the concept of legitimate peripheral participation, discussed previously, is most relevant.

Considering the definition and traits of a community of practice, they appear to support that the notion of a community of practice can be applicable in examining and
characterizing learning among students. It also suggests that because learning is a social process that requires the involvement of all members, the process of learning itself is continuously shifting and dependent on the engagement of members, enterprises members seek, and repertoires used by members.

One noteworthy issue of community of practice is that while it does not focus on the specific interactions, or narrowly defined activities, it provides clues for the social context from which specific interactions arise. In this work, I am most interested in the meanings that students derive, negotiate, and renegotiate through their dialogue when interacting with one another. While the focus of this work will be the interactions that students demonstrate through their TBL teams, the concepts provided by communities of practice will serve as a background for the observed interactions. After all, communities of practice are basic building blocks of social learning. They provide the features and elements needed to fully understand the context in which learning, whether intentional or not, arises.

Student TBL groups become a learning community where they provide support for each member’s learning. The learning community, formed for the primary purpose of learning, comprising of all members in the team comes to form a particular type of culture within which all members operate. While members are part of the community and interact regularly, members behave in accordance with those rules specified and expected in the community. The rules associated within this community are formed as a result of a number of factors. The rules and norms are based on members’ negotiation of them. Each community develops its own rules, whether explicit or implicit, that guide
how participants, or interacting activity systems, may function. The division of labor is an element of the activity system that also requires negotiation among members. For example, how members decide to distribute tasks, balance the use of power within the group, and assign responsibilities to each member must all be agreed upon, in some way, whether implicitly or explicitly. Groups may gauge the intellectual resources of each member in order to determine which tasks are most suitable for each member to accomplish.

Thus far, the discussion of what comprises a learning community of practice hinges upon the concept that meaning arising from the work that members participate in are intertwined with the lived-in, social experiences of the members. Meaning does not constitute absoluteness from the perspective of a single member. Rather, meaning is created from the unique experiences of each member of the community, and the experiences that are shared among them are continuously negotiated and renegotiated. What members essentially “learn” are the negotiated meanings resulting from the interactions they have within the community. Hence, as Lave and Wenger (1991) note, this is why learning is not merely an internalization of knowledge but calls on the individual to act within the world.

Most of the concepts discussed in this work that are associated with a community of practice, such as a learning community, reference learning not necessarily arising from formal education or as an intentional or unintentional consequence of everyday, lived-in experiences of individuals. This is not to say that more contrived learning environments, such as formal schooling occurring in a classroom, do not invite learning to occur in a
natural manner. Rather, such environments are specifically designed to invite learning. One perspective taken by Hoadley (2012) is that learners who are part of traditional schools that value institutionalization of uniformity and order generally are not granted the liberty to participate and explore in ways where discovery and learning grow organically and genuinely from the process. This perspective is initially acceptable because the traditional form of classroom learning hinges upon lecture-based instruction where the unique perspectives of students are not a critical element that translates into learning. Hence, it appears that any learning that can possibly result from classroom instruction is not in alignment with the notion that learning is embedded within social practice—a way of being where “agent and world, activity, meaning, cognition, learning, and knowing” (Lave & Wenger, 1991, p. 50) are interdependent and function to enrich the learning community of practice.

However, I make the assertion that a TBL classroom can, in fact, be perceived as a community of practice in itself, despite its learning environment being generally perceived as institutionalized education. As explained in the first chapter of this work, the TBL environment is distinct from traditional lecture classrooms. A TBL classroom invites individual participation from students where they are encouraged to share their perspectives with their peers in the form of team discussions when completing team application exercises. This is possible because all students in the class are taught to learn with a specific pedagogy, and the learning environment in which they are immersed help the participants develop situated and distributed cognition, all within the context of a supportive learning community.
Research Questions

Given the foregoing discussion, I offer the following research questions as a means for guidance in examining how dialogue arises and functions within TBL student groups as the primary means for learning:

RQ₁: When students are working on team application exercises in a TBL environment, how do their uses of the division of labor and rules within their learning community guide their discussion of the object(s) under study?

RQ₂: When students are working on team application exercises in a TBL environment, how do their uses of the team’s distributed cognition function to help negotiate shared meaning of the object(s) under study?

The following section highlights the data gathered and the method used in my exploration of these research questions.
Chapter 3

METHODOLOGY

The focus of this study is to examine, in depth, the dynamics of dialogue when students come together in their teams to discuss and work on specific problems. The emergence of dialogue is a result of many factors influencing the individuals’ choices to contribute to the discussion, and the context can provide clues for how meaning is made and shared among individuals. My aim is to build an explanation and understanding for the dialogue created among students within the team-based learning (TBL) context. I am most interested in analyzing the dynamic process of dialogue creation as opposed to text analysis that largely ignores semantic multifunctionality of authentic discourse.

Data Collection

I want to emphasize that student dialogue and the context from which it arises, as indicated in the observable interactions among participants, are inseparable. The nature of this study requires extensive examination of student dialogue in its context to find clues that are useful in answering the research questions proposed. The research collection process used in this study was approved by the Human Subjects Committee of the Communication Studies Department. Permission from the instructor, in which data from the course observed, was granted, and informed consent from student participants was obtained.

Participants. Data was captured from a humanities and religious studies course taught using TBL during Fall 2014 at an undergraduate university. The course was 16 weeks long and students met twice a week for 75 minutes per meeting. I gathered student
dialogue from one team formed in the course that was willing and able to participate. The team was comprised of seven members, of which there were four females and three males. All participants enrolled in this course were either of Junior or Senior status.

**Procedure.** Twice a week while the team met, both video and audio recordings of the team’s dialogue and interactions were captured. Specifically, the recordings captured student dialogue and team interactions during the team’s completion of a team application exercise. Following the collection of the data, dialogue from the team’s meeting devoted to completing the team application exercise was transcribed.

**Analytic Framework**

What is needed in this study is a framework that allows for the analysis of the dialogue from a communication perspective. Such a framework must account for the sociocultural nature of dialogue creation and the situation types surrounding it (Linell, 2010). Utilizing an appropriate framework is critical because the mediating artifact of primary interest in this study is the dialogue, and the associated distributed cognition, that students produce when working together in teams.

However, the meaning of the dialogue cannot be fully understood and accurately interpreted without some knowledge of the larger, societal context, which the discussion of a community of practice, or learning community, that the students are a part of is appropriate to supplement our understanding. While the application of a community of practice is an analytical tool at a midlevel category—where we may look beyond narrowly defined activities (such as interactions) but not to the extent of a broadly defined aggregate that is historical and social (Wenger, 1998)—the participant
interactions are most critical to this study. Hence, the elements in Engestrom’s (2001) activity theory will be foregrounded against the concepts of a community of practice when analyzing the data. But, to contextualize the data in a manner where we can make sense of the interactions at a local level where shared understanding among participants arises, the use of communicative activity types and communicative projects in the analysis is most appropriate.

**Communicative activity types and communicative projects.** Communicative activities occur when individuals experience encounters involving discourse and paralinguistic accompaniments in contexts where interactions are focused (Linell, 1998). And, communicative activities can be classified into particular activity types, allowing participants in the situation to know what is happening so that the dialogue arising from them are lodged within a comprehensive whole (Linell, 1998). Taking the discrete pieces of communicative activities and activity types into consideration, a communicative activity type (CAT) can then be conceptualized as a tool for analyzing talk-in-interaction where “...a comprehensive communicative project [is] tied to a social situation type” (Linell, 2009, p. 201).

CATs provide an appropriate framework from which to study dialogue because of the following: they are related to a social *situation* and *encounter*, generally associated with some sort of conventional name (Linell, 2009, 2010, italics in original); they are framed by specific expectations and purposes (Linell, 2009, 2010); they are generally accomplished with specific participants (Linell, 2009); and they are associated with institutions or specific organizations (Linell, 2009, 2010).
Because CATs are meso-concepts, covering a global perspective of dialogue that specifies what kind of social communicative situations occur (Linell, 2009), what is also needed in this study is a concept that specifies what functions verbal actions and interactions have in a local context—communicative projects. Linell (1998) offers that discourse can be examined in smaller units called communicative projects (CPs) that can arise from speakers’ utterances that contribute to a larger society (Luckmann, 1992, 1995; Linell, 1998). Linell (1998) defines CPs as something which “...aims at solving a communicative ‘problem’ of some kind” (p. 218). The “problems” that CPs reference in the study of natural dialogue among at least two participants is what occurs in situ, or at the very moment of dialogue exchange, where people are trying to coordinate their mental and interpersonal activities (Linell, 1998). CPs are focused on the purpose or goal behind the interactions (Linell, 1998). What is most unique about CPs is that they aid the researcher in focusing on the collective aspect of interactions that emerges from the participants and helps to explain what is going on in the dialogue.

CPs are suitable units of examination for this work because they are “comprehensive units of meaningful action” (Linell, 1998, p. 233) involving more than one person participating in a joint and collective action, which precisely describes how members function within a small, TBL group to accomplish team application exercises. For a CP to occur, participants must engage in complementary actions that are dynamic, in situated problem-solving, participate asymmetrically to achieve collective accomplishments, and make utterances that are multi-functional in order to fulfill various communicative acts. CPs are nested and embedded within other larger projects (e.g., CPs
may cover a series of encounters between participants, or they may cover the entire encounter where such are at the level of a CAT), providing the contextualization needed to analyze the complexity of social encounters. CPs also vary in size, or extent, where complex tasks may require a whole encounter or series of encounters with other people (Linell, 2010). Using the lens of CATs, and primarily focusing on the CPs embedded within a CAT, I am able to examine the various dialogic encounters in my data from both global and local perspectives.

**Data Analysis**

In analyzing the data, a global perspective for how the dialogue should be studied is best guided by defining the CAT. In this study, the overarching CAT of interest is the team discussions that took place when the students were attempting to complete the team application exercises. The discussions that occurred were bounded by the time allotted by the instructor, as he directed the groups to begin and conclude their discussions.

Once the overarching CAT from the data was isolated from the remainder of the classroom activities captured on video and audio, phases (subactivities) were identified within the CAT. Identifying the phases are important because in group activities, students are likely to engage in social talk even when they are directed to engage in discussions of the subject at hand—in this study, the team application exercise. Hence, team discussions will not necessarily and continuously be focused on the exercise. Such phases of “on-task” and “off-task” talk will be contiguous. For the purposes of this study, “on-task” talk is defined as dialogue that is relevant to the object, the team application exercise, whereas “off-task” talk is any dialogue unrelated to the object.
Following the identification of these phases in the CAT, the “on-task” talk was then examined for the existence of core CPs. CPs were identified retrospectively in the data based on the “aboutness” of the dialogue within the teams. Because the focus of this study is to analyze how students’ learning results from the discussions they have with their peers, any discussions from the students pertaining to their thought processes that would help them complete their team application exercises were noted as a CP. I studied the transcripts to note remarks from members that could have possibly contributed to their own or their team members’ cognitive understanding for how to approach and complete the exercise.

Additionally, after CPs were identified based on the dialogic remarks, I then studied the transcripts in conjunction with the video recordings to observe each team’s dynamics that emerged from their completion of the exercise. Specifically, I examined roles that the members took upon to contribute to the exercise. Rules that the team either followed (e.g., classroom norms) or developed (e.g., informal and implicit norms based on team membership) were also noted. I reviewed the data holistically to identify patterns and themes that emerged.

**Validity and reliability.** I also conducted a check to ensure that my findings from the analysis were valid. In doing so, I trained two assistants (communication studies graduate students) to analyze the transcripts. During the training process, I gave each assistant guidelines for how CPs are defined and identified. I asked them to identify CPs in the transcripts based on how they thought student dialogue and student tasks (e.g., referencing articles, finding supporting quotes) functioned to contribute to the team’s
process of completing the application exercise (e.g., proposing new ideas, challenging majority opinion). I compared my identification of CPs with those of my assistants, and we discussed reasons for how and why we thought our independent identifications of the CPs were noteworthy. We also discussed how the dialogue and tasks observed within the team did or did not function together to help the team build consensus and/or make decisions. After my assistants and I reached consensus on our observations and reasons, I compiled a list of explanations for how dialogue and task function, within the TBL context, to guide my interpretation and response to each of the research questions.
Chapter 4

RESULTS AND DISCUSSION

This chapter provides a discussion of the findings to the research questions posed and provides explanations to support the interpretations of the results. A brief overview of the course structure and content is first provided to help contextualize the results of this study and to supplement the reader’s understanding for where and when within the course students are asked to complete their team application exercises. All names of students who participated in this study have been changed to protect their privacy and confidentiality.

Structure and Content of Humanities and Religious Studies Course

The humanities and religious studies (HRS) course in which the student participants of this study were enrolled followed the basic team-based learning (TBL) course structure articulated by Fink (2002). This course introduces cultural history of ancient and medieval Asia by incorporating examples of art, literature, philosophy, and religion from China, India, and other distinct cultures of surrounding areas (Sacramento State University, 2014, sec. 4). The primary goal that this course seeks for students to master is to describe elements of practice, its social web, and the reflection of individuals who practice, and explain how these aspects interact in all forms of human culture. The HRS course includes six separate units with each two-week unit focusing on a particular time period in history on Asian cultures where specific religious practices are common. Time periods in Asian history covered in these two-week units include the following: ancient India, the Classical Period of medieval India, the Classical Period of ancient
China, medieval China, early medieval Tibet and Southeast Asia, and early medieval Korea and Japan.

At the beginning of the unit, students are given independent reading assignments, mostly consisting of articles chosen by the instructor, to familiarize themselves with the new concepts introduced in the unit. The students convene and take a team readiness assessment (TRA) individually, then again in their teams. The TRAs are aimed to evaluate students’ comprehension of the key ideas outlined in the readings. Immediately following the TRA, the instructor discusses the materials with the students.

The next couple of class meetings are devoted to giving students time to further familiarize themselves with the readings by closely re-reading the articles with the help of instructor-created reading guides that ask students to pay attention to key terms and concepts. Students complete these re-readings independently as homework assignments that require them to annotate their assigned reading materials, which the goal for doing so is to help the students develop critical comprehension of the course materials. The students bring their annotated reading homework to class and share them with their teammates as the team completes mini team exercises.

To conclude the two-week unit, the students take a multiple-choice examination that they complete individually. By now, the students should be familiar enough with the concepts in this unit to complete a team application exercise, which is where I capture results for this study, to test their comprehension and application of the course materials in the unit. (See Appendix C for a visual outline of the assignment cycle for each two-week unit).
The TBL pedagogy provides instructors with some flexibility in designing the course, so instructors may choose to develop student teams based on particular criteria (e.g., self-identified student skills, interests, career goals) and even assign roles within the teams (e.g., appointing a team leader). The instructor from which data was gathered for this case study created the student teams in his class by randomly assigning his students to teams at the start of the semester. He did not assign each student in the team with formal roles, nor did he request the team to formally establish roles for each student within the team. Hence, all team decisions, as discussed in this chapter, have been formed at the discretion of the team.

The nature of this study is highly situated within the classroom environment, such as the way in which course materials are delivered, the points within the term at which the instructor allows students to work with one another, the types of assignments that students are asked to complete, etc. The situatedness influences students’ decisions for how they interact with their teammates and respond to their surroundings in the TBL classroom. While examining distributed cognition is the ultimate goal for understanding how students’ dialogue emerges organically, as a mediating artifact, to help students negotiate shared understanding, some attention to the students’ learning community ought to be given. How students choose to interact with one another within the community is valuable in further examining the elements of this context that invites a process-oriented study of students’ learning through dialogue. In examining the learning community that my student participants are a part of, I provide a response to my first research question.
Research Question 1: Division of Labor and Rules within the Learning Community

When students are working on team application exercises in a TBL environment, how do their uses of the division of labor and rules within their learning community guide their discussion of the object(s) under study?

As discussed in chapter one, a reason why the TBL pedagogy is embraced by instructors among various disciplines is the learning environment that it cultivates for the students. TBL affords students with opportunities to learn to work with their peers in order to complete assignments and, more importantly, develop the team skills most valuable in the workplace, an authentic setting in which TBL is aimed to prepare students for. How students develop a discussion about the object of study is partially mediated by the way in which they decide to use the resources available to them within their teams, situated in the TBL classroom. Guided by Engestrom’s (2001) activity theory, two cultural-historical elements that should be discussed in examining the students’ use of resources include the team’s division of labor and rules developed within the activity system.

**Division of labor within the activity system.** The division of labor, as observed in the data, is dispersed but subtly balanced among the team members through the roles that the members adopt. The team does not formally assign task roles to its members, but the members either voluntarily undertake roles or the team pressures certain members to undertake roles. In some cases, a few of the team members undertake multiple roles. Since analysis of the data was guided by noting actions members took that actively and
directly contributed to the team’s completion of the team exercise, the identification of student behaviors and roles was limited to only those that guided the team’s discussion.

The types of member roles that most frequently surfaced from the data include facilitator, recorder, and timekeeper. Those members who verbally contributed to the team discussion quite frequently (Betty and Andy) became the team’s facilitators. Betty usually initiated work on the team’s tasks, such as locating the application exercise from the team’s file and reading the directions to the team. Andy helped keep the team focused on its tasks in various ways (i.e., verbally summarizing team decisions made, encouraging the team to consider how it will justify its decisions, and encouraging the team to construct its diagrams with relevant and accurate details). Betty’s undertaking of two additional roles, as recorder and timekeeper, complement Andy’s role as a facilitator. Betty pushes the team along by taking the initiative to write out the team’s response on paper, except during instances where the team is required to create a pictorial diagram and the team volunteers Carla to use her artistic skills, and to maintain the team’s use of time by benchmarking its progress against those of other teams in the classroom. These task maintenance roles are necessary in ensuring that the team is making progress on the assignment.

Other valuable roles that emerged from the team include reality checker and devil’s advocate. These roles surfaced less frequently. In addition to occupying the facilitator role, Andy was also the reality checker. Andy would listen to his teammates’ suggestions then offer his rationale of the proposed solutions by assessing their practicability. Andy’s teammate Mike also helped the team carefully consider its
decisions by playing the devil’s advocate. On two occasions, he questioned the logic behind his teammates’ suggestions by asserting his reasons for why he thought an unpopular answer choice may be the correct one.

The various roles that the students undertook were mostly self-appointed, and the occupation of these roles by specific members remained relatively stable throughout the semester. Analyzing the team’s division of labor independent of other elements in the activity system reveals only a partial picture of what is going in the team. Equally critical are the rules that emerge from the activity system, as they provide indications for how members’ actions are shaped by boundaries established within the team.

**Rules within the activity system.** The rules that the team must follow in completing its application exercises are not well defined. Because TBL provides instructors much flexibility for how they can implement the application exercises, instructors’ rules pertaining to the process in which the teams discuss and share their ideas, make decisions, and report them both to the instructor and the class are left to the discretion of the instructors. The instructor associated with the team used in this case study instituted very few formal rules for the team to follow. The instructor’s only requirement for the team is to present an answer to the application exercise within the time allotted (generally twenty minutes)—selecting an answer from a prescribed list and supporting the selection with annotations from course readings or creating a pictorial diagram on a white board to share with the class. The video recordings do, however, show that informal rules developed among the team members throughout the semester.
Informal rules established among the team primarily include unspoken norms that are generally understood and expected of each student member to abide by. Such rules include the expectation that all student members should complete their homework prior to the team meetings. Specifically, each student should have read the assigned articles associated with the unit and have annotated them and/or produced independent responses to specific assignments. Essentially, students are responsible for all independent, preparatory work prior to the team meetings, and they are expected to be ready for team discussions. Both the formal and informal rules of the team within the TBL classroom function to create a semi-orderly structure that make it possible for the team to complete the application exercises.

**Division of labor and rules functioning within the learning community.** Most of the students’ interactions with one another are taking place at a local level where their decisions are guided by the immediate needs of the team and the situation. Using Engestrom’s (2001) activity theory model which focuses on examining activity at a local level, we can conceptualize the use of this model to study the team by first accounting for the smaller activity systems that comprise the team’s activity system. Because each student in this study adds a unique perspective and contributes differently to the team, each student can be thought of as a separate activity system. As the students work together to solve their application exercises, their activity systems interact, ultimately creating one, large activity system representative of the team.

Each student’s activity system shares common characteristics with those of other students’ activity systems. Each student’s membership in this team inherently associates
the student with the same learning community. The TBL learning community can be
defined at two levels—any and all students across various disciplines who embrace TBL
as the primary practice for guiding their learning (global level) and all students enrolled
in the HRS course who are using TBL practices instituted by the instructor (local level).
The learning community is the defining characteristic binding the students in the team in
their learning pursuits. Since all students in the team are situated within the same local-
level learning community, the division of labor they decide upon and the rules they
establish are shared.

The team’s activity system, comprised of smaller, individual ones interacting with
one another, is heavily influenced by the shared division of labor and rules. Specifically,
the team’s discussion (and understanding) of the object of study is guided by the shared
division of labor and rules because these dictate the dynamism of the team’s exploration
of the application exercise. As mentioned in the previous sections regarding the division
of labor, it can be seen that some task maintenance roles (i.e., facilitator, recorder, and
timekeeper) merely keep the team abreast of its tasks. These roles were focused on task
completion, but the substance of the team’s discussion was drawn more heavily from the
reality checker and devil’s advocate roles. These roles were instrumental in helping the
team produce rich, meaningful, and thoughtful considerations as the team was forced to
scrutinize the quality of its answers. The concerns of the reality checker and devil’s
advocate invite all members to reflect, debate, and reconsider initial decisions.

The team’s rules also contributed in guiding the team’s discussion. One member
in particular, Tim, repeatedly violated the informal rule, or norm, that he must attend his
team meetings fully prepared with his homework completed. Tim’s repeated offense became apparent to the team when he was asked to share his responses and he offered vague, confusing responses that he could not provide definitive support for. Although the team did not openly confront Tim about his lack of preparedness, the team mostly ignored Tim’s contributions to the discussion by referencing others’ ideas as opposed to Tim’s. Those members who followed the rule for being prepared ultimately gained power within the team because the team gave more serious considerations to the ideas and contributions that appeared to be relevant and sensible to the exercise and was understandable to the majority. Hence, weaker ideas that were poorly supported were mostly ignored or overlooked, even if they had potential merit for being the topic of the team’s discussion.

As defined in the HRS course, the goal within the local-level TBL learning community is to develop an understanding for the applicability of how ancient, religious Asian practices have transferability to modern-day cultural practices. The team masters this goal through exploratory team application exercises, and in doing so, it relies on the team’s activity system that is comprised of multiple activity systems of individual members holding unique perspectives to share with others. Division of labor and rules are important to consider in the examination of activity systems, but a more direct, influential element is the students’ cognition involved in helping them make sense of what they are learning. In the next section, I explore the results and discussion to the second research question.
Research Question 2: Cognition as a Mediating Artifact to Negotiate Shared Meaning

When students are working on team application exercises in a TBL environment, how do their uses of the team’s distributed cognition function to help negotiate shared meaning of the object(s) under study?

As established in my answer to the previous research question, it is no doubt that the individual is central to any discussion of how he/ she may work together to accomplish learning of any sort. To demonstrate the importance of how an individual’s cognition is critical to the foundation of the team’s distributed cognition, I would like to first briefly discuss the concept of how students manage to establish their individual cognitions before they engage in distributed cognition. This discussion will be valuable in helping us first understand how students, individually, come to learn on their own using resources accessible to them before they participate in a team environment to further their learning. To explain the learning process in communication terms, I will first rehearse relevant ideas from Vygotsky and present a complementary notion of the person-plus perspective offered by Salomon.

The basic principle in Vygotsky’s conception of activity theory (see Appendix B, figure 1)—the process in which the student uses mediating artifacts to achieve some understanding of the “thing” to be studied—provides the foundation for explaining how the knowledge-processing system functions to aid knowledge creation. Vygotsky’s establishment of a “triangular model” of action (Engestrom & Miettinen, 1999, p. 4)
introduced the concept of mediation, featured in the first-generation activity theory model where the artifact is used as a mediating tool.

Vygotsky (1978, 1981) distinguishes the mediating artifact as either a technical tool or a psychological tool, both of which mediate activity. The technical tool “serve[s] as the conductor of human influence on the object of activity” (Vygotsky, 1978, p. 55). The psychological tool (e.g., those embedded within a complex system such as language, symbol systems, writing, maps/diagrams, etc.) are “directed toward the mastery or control of behavioral processes—someone else’s or one’s own” (Vygotsky, 1981, p. 137). The psychological tool requires the individual to be reflective and conscious of using and controlling the technical tools (Engestrom, 1987). Vygotsky’s (1978) explanation of the relationship between technical and psychological tools also suggests that a hierarchy exists between them. An individual’s use of a combination of technical tools and psychological tools functions to broaden his/her range of activities, thus allowing for “higher psychological function[s]” (Vygotsky, 1978, p. 55) to transpire. This means an individual who acquires and applies new tools “broadens” and “elevates” (Engestrom, 1987, p. 79, italics in original) influence on shaping meaning of the object under study.

Clearly, what students (do not) know is not tangible to observers because what students (do not) know cannot possibly be seen by observers, as cognitive ability resides solely in the minds of the individuals. However, what can be seen by observers is what students can demonstrate of their learning as a result of the cognitive abilities gained. Such demonstration is evidence that students do, in fact, know or have learned the
“thing” they strive to master. Observing what students demonstrate is, perhaps, the best, or at least, the most accurate way of really knowing whether they learned the “thing” they were determined to learn. While students may initially attempt to learn about the “thing” by engaging in deep thought about it through, for instance, reading and reflecting, both of which are, inherently, independent activities occurring within the minds of the individuals, the learning does not conclude at this stage. This is where Salomon’s (1993b) person-plus perspective is helpful in offering an explanation for the processes that transpire in the learning but cannot be readily seen by observers, in as much as learning is experienced as individual cognition.

Person-plus provides appropriate concepts to apply to the discussion of individual cognition because it references coded systems by which resources are made accessible to individuals to manage their learning. These systems are comprised of the knowledge, representation, retrieval, and construction characteristics created by the team that taken together form the access framework (Perkins & Simmons, 1988; Perkins, Crismond, Simmons, & Unger, 1995) from which information flow is possible. The access framework affords information flow, and analysis of it provides clues for explaining how individuals utilize this framework as a knowledge-creating system (Perkins, 1993). Some examples are provided in the following section to illustrate that specific characteristics of the framework are resources that students utilize to develop their cognitions and, hence, that the person-plus perspective is most appropriate for guiding this discussion.

**Establishment of individual cognition.** Through careful review of the video data, the most common instance of person-plus at work within the team is the reference
of physical and social resources by participants in the immediate surround of the team itself and within the classroom.

For example, during the team’s completion of an application exercise, the team was asked to respond to a modern-day, community-based, social issue where current practices implemented within the community can inspire individual engagement and, thus, result in positive changes to the community as individuals become more involved in the community’s practices. The team was asked to select one scenario from a list of prescribed scenarios that it thought best illustrated the conditions necessary for participatory engagement. The exercise also required the team to defend its answer with evidence from the course readings, which required the team to include quotes from the readings as annotations that supported the team’s answer. In this instance, the individual must utilize the retrieval and knowledge characteristics of the access framework. The task of selecting appropriate quotes tests his/her abilities to retrieve appropriate, relevant information from the readings. Following this retrieval, the student must analyze an author’s arguments and interpretations to determine how certain points asserted in the readings can be used to support the team’s answer. This is a demonstration of high-level thought processes resulting in knowledge construction. Using person-plus, we can say that learning has occurred within the system through a complex relationship of extant discourse (quotation from text), group talk (regarding the meaning and relative value of quotations) and students’ cognition. This is a rather basic example that illustrates the extent to which the access framework is utilized among students.
The level of difficulty of the application exercises influences the individual’s extent of reliance on the access framework of the person-plus system. During the completion of a different application exercise, the team was asked to create a drawing that represented and explained the connection of neurochemistry within the human body when an individual is practicing martial arts movements—forms of reflection inspired by ancient practices. The team had previously been assigned readings of cultural and ancient practices that relied on martial arts movements. Toward the end of the drawing session, the team was encouraged to look at how other teams within the class created their drawings. Members of the team circulated the classroom, observed how other teams decided to compose their drawings, and brought these ideas back to their own team. In this example, the retrieval, knowledge, construction, and representation characteristics of the access framework are in use. Creating the team drawing required the student to retrieve appropriate content from the readings and employ his/her knowledge by sifting through the readings to synthesize information that can help explain the neurochemistry connections. The student’s synthesis of the assigned readings includes discrete bits of knowledge that he/she must piece together to construct new knowledge structures, evidence that the individual has gained new understanding. Finally, these new knowledge structures are translated into physical representation, the drawing itself that the member is contributing to within the application exercise. In a fashion almost identical to the case above, students, individually and collectively, drew upon the coded systems of talk, text, and diagram—the access framework—to foster change (learning) in their cognitive schema.
In another, more complex and advanced instance where the person-plus perspective can be argued to have occurred, students in the team were required to provide independent responses to the team exercise prior to the meeting. The students were required to develop a hypothetical scenario that connected concepts from multiple readings throughout the semester (e.g., building social webs among diverse groups, deepening and inspiring reflection about everyday issues) that showed their relationships to one another. During the team meeting, the students were asked to share their scenarios with one another. Following some discussion about their individual scenarios, the team was required to create a pictorial diagram that best connected the concepts by using each member’s individual scenarios to guide their collaborative work.

In the example above, the individual also uses all of the resources of the access framework, but the use occurs in two contexts. In the first, the student composes his/her independent response, retrieves appropriate key themes in the course readings, applies the themes in ways that would demonstrate higher-level knowledge by arranging them in a way that allows for meaning-making, and represents them within a hypothetical scenario that appropriately demonstrates the meaning. In the second context where the student meets with the team to discuss each student’s scenario in order to create a team diagram, the student must be able to retrieve only the pertinent points from his/her peers’ scenarios that relate to the course readings, assess these points to ensure they are applied in a way that demonstrates critical thought and knowledge of some sort, arrange this knowledge by constructing a sensible scenario that encompasses key pieces of knowledge, and determine appropriate symbols to use to represent the complexities of the
knowledge structures. This example features the person-plus system in two related, and recognizable stages: first, the student’s intrapersonal talk necessary to the analysis and production of a scenario; second, the group’s interpersonal talk articulating individual’s understandings of the prompts, coupled group talk engaging in meta-analysis of patterns of scenarios contributed in order to construct the pictorial diagram of the team scenario. The person-plus system is expansive in this example, but such a system captures the essence that learning is an on-going process that can be refined when the individual is exposed to new and additional resources. In these examples, the person-plus system is, in essence, a knowledge-processing system (Perkins, 1993) that aids the student’s knowledge creation.

As can be seen in the student’s completion of the application exercises described in the examples above, the student’s mediating artifacts include course readings and diagrams compiled by the student and the team. These types of artifacts are likened to the tools that Vygotsky (1978, 1981) references. From a Vygotskian perspective, the moment at which readings are referenced (e.g., specific sentences and words) and diagrams are created, the student (either individually or as a team) is using psychological tools to help facilitate his/her understanding of the subject. Generally speaking, the student must engage in some level of reflection and interpretation for what certain words mean or what arguments are being made within the readings, all of which help the student develop higher psychological functions when using the assigned readings, a psychological tool. When the student is asked to construct a diagram based on interpretations of the assigned readings, this activity further invites the elevation of
psychological functions within the individual because the creation of the diagram is an additional activity and tool directly influencing the student’s understanding of the object.

Considering the importance of how Vygotsky’s account of language as mediating artifact, highlighted in the first-generation activity theory, functions to facilitate the individual’s understanding of the object, or subject under study, it makes sense that the knowledge-processing system aids knowledge creation. The construction and representation activities comprising the knowledge-processing system inherently require the individual to carefully utilize conceptual tools for learning. Construction occurs when the student makes mental connections among discrete pieces of knowledge drawn from the readings, and representation also occurs when the student uses symbols to present ideas in a diagram. Collectively, these characteristics enable the student to build a system of cognition comprised of the learning embedded within and residing in the “residue”—the mind of the student and in his/ her surround that can be accessed at a later point. Essentially, the very act in which the student builds a system of cognition implies that some occurrence of the knowledge-processing system has facilitated the student’s learning.

As discussed, individual cognition is achieved by the individual who proactively seeks to find and utilize resources, such as those tools in the activity theory model, in order to develop “in-the-head” (Salomon, 1993, p. 116) cognitions that are also shared within the surround. Consequently, description and analysis of the process of collaborative learning, in which is foundational to the TBL classroom, becomes very complex because the intrapersonal and interpersonal symbolic behaviors of multiple
individuals must be accounted for. In such case, we must consider the development of distributed cognition, a result of jointly constructed (individual) cognitions.

Distributed cognition is a result of multiple individuals being involved in examining or studying the same “thing” where their individual cognitions are coordinated. Students’ communicative, and non-communicative, decisions must be complementary so that the team may function properly. The coordination of these decisions is ultimately managed by all the students within the team, and how they choose to do so to complete their application exercises can be seen in the way that cognition is distributed among the team members. Distributed cognition implies that the context in which individual cognitions are jointly coordinated is critical because learning is situated (Brown, Collins, & Duguid, 1989). Hence, the discussion of cognition continues to be grounded within activity theory and its principles.

**Distributed cognition within the team’s activity system.** Much like individual cognition where the learning that an individual attains is “stretched over” a system, comprised of cognitions “in-the-head” and in the surround, distributed cognition is also “stretched over” a system, but specifically one where there are multiple individuals involved, each with their own cognitions to share. Distributed cognition cannot be discussed without acknowledging the contributions of the individual (Salomon, 1993b), as the individual is an actor within and who comprises of the system. Thus, the resources, including the individual, being distributed across the system, in situ, as people are acting in the settings lends to the idea that intelligence can be socially constructed (Pea, 1993).
The social construction of intelligence is partially aided by the tools, or mediating artifacts, that the individuals use. As discussed in the previous section, such tools included technical and psychological ones. A foundational communication tool most accessible to students working together in a team, and specifically in a TBL environment, is the dialogue that arises within team discussions about the application exercises. The dialogue is what shapes each student’s understanding for what is, broadly speaking, “going on.” Ultimately, the students must negotiate meanings lodged within their dialogic exchanges in order to comprehend what they are doing. The dialogic process in which the students engage is, truly, centered about cognition that is being distributed among the team because the shared dialogue is being “stretched over” multiple students. Thus, cognition is not only established within individuals, but it is also established among individuals and within their surround, resulting in distributed cognition. Since dialogue is created in situ, this also means distributed cognition itself hinges upon the specific learning context and should be treated accordingly. The analysis, as follows, will frequently account for the nature of the application exercises.

The formation and development of distributed cognition within a student team was primarily analyzed for communicative projects (CPs), and its functions, emerging from the team’s dialogue. The data suggest that the emergence of dialogic interactions resulting in identifiable CPs are moments, in situ, where we can see traces of the team’s cognition being distributed. The process in which this occurs supports the assertion that dialogue is, in fact, the mediating artifact guiding students’ comprehension. Because dialogue is symbolic and representative of meanings constructed by interlocutors,
explanations following the examples of particular CPs provided below are necessary to clarify my interpretations of the data.

**The nature and functions of communicative projects (CPs).** The goals of participants’ CPs vary depending on the type of application exercise the team was asked to complete—be it selecting a response or creating a diagram. With exercises requiring students to select a response, the central goal of the CP is selecting the best or correct response by exploring the reasons for why a particular choice is suitable. The following exchange is taken from dialogue shown in Appendix D:

Example A (see Appendix D)

15 Betty: I think “A” is the best, I guess.
16 Katie: Yeah, “A.”
17 Betty: The directions are going out. The other ones are just like...
18 Katie: Yeah, because I think for the...it says to consider, um, having participants come out...
19 Betty: Yeah...it has the people.
20 Katie: And it states roles and social webs. So, “A” sounds like it’s the only one where they have everybody come out and play a part.
21 Betty: And it invites neighborhood artists.

The main goal within this CP (above) is rationalizing why choice “A” is a reasonable response. Although there are only two students, within the team of seven, participating in this exchange, these two individuals are still attempting to coordinate their mental activities within their dialogue to help the team create some understanding for why “A” is a sensible choice. The mental coordination begins with Betty offering why her assertion of choice “A” is justifiable (i.e., “directions are going out”). Betty’s counterpart, Katie, responds by supporting the assertion with some commentary about “having participants
come out.” Betty’s approving response further invites Katie to rationalize her initial statement by noting that “roles” and “social webs” are somehow connected to the invitation of participants, such as neighborhood artists as offered by Betty. The dialogic pattern that is characteristic in this exchange is the elaboration and building of ideas that each student offers the other. The contribution of individual cognition, as seen in this brief exchange, is an example of how distributed cognition can be jointly formed to create basic understanding for why a particular choice is viable. The participants, using symbols to interact, further drew upon the access framework consisting, in part, in the immediate text of the question posed and the extant informational surround of prior readings, and classroom interactions.

In another CP (below), we can see that three students in the team of seven are involved in the dialogue as they compare answer choices. In the example below, members in the team propose reasons for why choice “B” is more favorable than choice “A” as they reference their application exercise:

Example B (see Appendix E)

9  Betty: What? I like “A” better than “B.”
10  Andy: “B” has um…look. “B” has state architectural work on the capitol collaborate…collaborating with the young artists…that’s…
11  Carla: It would inspire the young artist.
12  Andy: And it’s like they experience this mentoring and training.
13  Betty: “A” has reflection. And then the governor would reflect on it. Reflection, on, I don’t see…uh…
14  Andy: It’s so close. Let’s get rid of it. It’s just gone. I’d say “B” though because state architects weren’t on the capitol with young artists…
While the discussion begins with Betty’s preference for “A,” her reasons for why this choice is best do not become fully developed in this CP. Andy interjects by redirecting the team’s attention to choice “B” immediately after Betty suggests “A” as her choice, and Carla follows up Andy’s suggestion, which then further invites Andy to make the connection that collaboration inspires mentorship and training. Betty attempts to provide an explanation for why “A” is a viable choice, noting that reflection is present. Appearing to compromise with Betty, Andy acknowledges that both choices “A” and “B” are “close,” but he ultimately decides that choice “B” is best and emphasizes his reason for it. In this exchange, the assertion that choice “A” is a suitable answer is clearly lost due to lack of sufficient evidence in Betty’s explanation and the lack of support received from Betty’s counterparts in support of choice “A.” The goal in this CP is similar to that in the previous example. The students attempt to determine why choice “B” is the best answer. The manner in which the distributed cognition is seen in this exchange is similar to that of the previous example provided—the cognition is “stretched over” the system where students’ reliance of one another’s intellect and interpretation of the application exercise are shared.

In a different type of application exercise, where students are asked to develop a diagram, the students’ goals behind the CPs are slightly different. Rather than discussing prescribed answers that are suitable responses to the case, the team must craft its own response, in pictorial form. Hence, while some of the dialogue during the team’s brainstorming relates to what concepts to include and how they can be included, the team’s dialogue, or communicative activity, is heavily embedded within a non-linguistic
activity which, in this case, is drawing. This does not mean, however, that the CPs within the team’s dialogue are nonexistent. The dialogic exchange among the students merely focuses on what the students want to draw, such as follows:

Example C (see Appendix F)

8 Carla: So, I guess I can draw, like, a teacher or something?
9 Andy: No. Let us do someone in movement.
10 Betty: Yeah.
11 Tim: Or…
12 Andy: Or, we can do someone like this. Can you draw this?
13 Carla: Yeah.
14 Andrew: Oh, here. Draw a Buddha, like you were doing.
15 Carla: A Buddha?
16 Andy: Not a Buddha, but a Chinese person. Like, over here though cause we’re gonna bubble around it.

One of the striking elements of this CP is that the students’ references of “this” and “over here” are heavily context-based. It would be difficult for an observer to clearly distinguish, merely from the dialogue, what “this” is and where “over here” is. While part of the goal of this CP is to determine, spatially, where to draw something, another important goal of this CP is to determine what to draw. Determining what is important because this becomes central to the construction of the team’s diagram, as the what has some sort of agreed-upon meaning among the students as they decide what is most representative of their understanding for how discrete concepts can be connected within one drawing. Drawing a Chinese person to convey the idea of movement, as opposed to Buddha, is representative of the team’s understanding and interpretation of why this pictorial selection is appropriate for the application exercise. The diagram, which appears to be focused on the presentation of movement, becomes the residue (Salomon,
1993b, p. 124) of the team’s (evidence of) learning. Thus, cognition can be said to be distributed among the team members because the understanding of what should be drawn is accomplished by the students involved in this discussion and the evidence for this resides in the diagram.

As another example using the same application exercise (discussed in Example C), the team discusses representational indications used within the diagram:

Example D (see Appendix F)

44 Andy: Just do speech bubbles.
45 Carla: Or, we can do the pictures of the neurons coming from the brain, relaxing.
46 Andy: Okay, do a speech bubble. Then, put a picture here.
47 Tim: Or, a thought bubble?
48 Carla: Like, a …
49 Andy: Yeah. Do a…do a cloud ‘cause it’s a…

The dialogic core of this CP is about drawing a speech bubble in the diagram. The understanding formed among the students within this CP is that the speech bubble has some sort of significance that is critical to how the team would like to indicate specific concepts in the diagram. Much like dialogue that is centered about linguistic activities in examples A and B, the dialogue shown here is suggestive of cognition being distributed across the system that is primarily centered about a non-linguistic activity—a drawing.

As shown, CPs have various goals embedded within them, and the goals become apparent as the dialogue unfolds among the participants’ interactions. Examples A through D illustrate how goals within CPs can be developed quickly and within only a few dialogic turns among two students. In examples A and B, the dialogue among the
students concerns selecting a correct answer. Their goal is to find strong rationales to support their choice. In the process of rationalizing a particular choice, it becomes obvious within the CP that the development of the students’ goals are contingent on the manner in which students contribute to the team’s dialogue (i.e., students must capitalize on opportunities to build on their peers’ initial ideas; students must be able to present compelling and clear evidence to convince the team). In examples C and D, the students’ goal is centered about *what* to draw and *how* to draw the diagram that accurately presents the team’s interpretation and understanding of how seemingly separate concepts introduced in their readings are, in fact, related. However, the purpose of the student’s discussion about the *what* and *how* is truly one about finding meaning within the symbols they decide to use (i.e., human figure demonstrating bodily movement, bubbles indicating thought). These examples are brief, yet their analysis indicates the richness of the dialogue that drives meaning-making among the students.

Examples A through D also provide a foundation for the discussion and demonstration of how distributed cognition forms the core from which knowledge is constructed within a team. Distributed cognition, when “stretched over” a system, can be likened to Engestrom’s conception of the third-generation activity theory (see Appendix B, figure 3) where individual activity systems, representative of each student, interact. When students begin discussing the answer choices in the application exercises and make declarations and offer rationales for their preferences, the students are utilizing their activity systems to form a network of distributed cognitions among the team. Appendix B, figure 3, illustrates a simplified version of conjoining points (i.e., overlapping object2
from each of the activity systems that results in object, between two interacting activity systems. As a greater number of students participate in the team discussion, the number of representative activity systems increases, and cognition becomes further “stretched over.” The separate cognitions that each individual contributes to the system enables emergence of cognitions dependent upon interdependent and reciprocal symbolic relationships (Salomon, 1993b) to create an expansive system of cognition not possible for isolated individuals. This will be discussed in more detail in a later section.

The analysis of the data reveals that the negotiation of shared meaning achieved by the team is a result of how CPs emerge and function together within the team’s dialogue. When students work together in a team, the main goal of the CPs is to create “units of meaningful action” (Linell, 1998, p. 233), but the emergence of these are not necessarily isolated and linear, such as those shown in examples A through D. Rather, CPs may emerge in any fashion and wherever within the dialogue, much like the awaited “aha” moments that arise at unpredictable instances when students are grappling with challenging tasks. But, the goal of this study is to capture and study just this—seemingly muddled dialogue—in order to examine the construction of CPs and really build an understanding for how they function to contribute to students’ learning.

The messy, and even seemingly haphazard, nature of CPs is best illustrated with an example and a discussion of the organic emergence of CPs. Excerpts of the team’s dialogue during completion of application exercises are provided in Appendix G and Appendix H for reference. The dialogue presented in Appendix G is centered about the team’s selection of multiple choice scenarios. The dialogue presented in Appendix H
presents the team’s simultaneous management of discussion of homework materials that each team member prepared prior to the meeting, followed by the team’s creation of a pictorial diagram. The dialogue shown in both excerpts uncover interesting characteristics of CPs that suggest dialogue is, in fact, a valuable mediating artifact that is used for the team’s distribution of cognition as a process for facilitating students’ knowledge creation. The way in which students come to understand and “know” anything is rooted in how individuals’ contributions to the dialogue invite additional contributions. An analysis of each set of dialogue is presented, with discussion on the formation of CPs, to illustrate the intricacies of dialogue creation and function. A discussion of the dialogue featured in Appendix G is first presented to explore the presence of CPs in natural dialogue.

**Selecting a scenario (Appendix G).** Characteristic of application exercises where the team is asked to choose the best, prescribed answer, it is not surprising that most of the team’s discussion is centered about the answer choices provided. Most of the discussion becomes an exploration for why a particular choice is best. In this excerpt, the team does this throughout the dialogue where each incidence of occurrence can be marked as a CP (i.e., lines 1a-8a where the team establishes “C” as the best answer thus far; lines 11a-23a where the team attempts to differentiate between choices “B” and “C”; lines 37a-50a where half of the team has narrowed the choices to “B” and “C”; lines 37b-57b where half of the team is certain choice “B” is best; lines 65a-72a where the team makes the most compelling arguments that choice “C” is the best; and lines 77a-89a where choice “C” is revisited). Each of these CPs, identified as main ones within this
excerpt, function in a manner that is critical to the formation of the team’s argument and rationale for its final decision.

Within this dialogue and, in some cases, even within the CPs identified in the paragraph above, smaller CPs exist that contribute to the team’s comprehension about what is important and relevant in responding to the application exercise. Within the CP observed in lines 11a-23a, the exchange about whether and how social web and reflection are relevant to choice “C,” the team’s discussion appears to be de-railed at two instances—lines 15a-16a and lines 17a-18a. These two mini CPs appear to interrupt the dialogic flow of the larger CP (lines 11a-23a). The primary goal of these CPs is to clarify details in the statements of the answer choices. In lines 27a-33a, Katie is concerned about the manner in which the team is asked to present its rationale for its choices. Also, in lines 51a-59a and lines 75a-76a, the team’s focus appears to be on issues unrelated to reasons for why the team would select choice “B” or “C.” Rather, the team is more focused on ensuring that it has reached consensus on one answer. The emergence of these CPs is primarily focused on the task maintenance of the team.

One of the ways in which meaning comes to be formed within the team is that specific ideas from one CP are carried over to succeeding CPs in the dialogue. For example, in line 6a, Andy makes the statement that choice “C” references being beneath the stars. He references this idea again in line 12a when he introduces the idea of being outside. Much later in this dialogue, Katie references Andy’s idea in line 50b. In another instance, Andy, in line 22a, points out that choice “B” references “they,” and the idea behind choice “C” is centered about a “self kind of thing.” Later in the dialogue as Katie
speaks about choice “B” in line 38b, she notes that this choice references “they,” exactly as Andy pointed out, and she also asserts that choice “C” references the idea of “doing it on your own,” line 40b. Much later on, in line 69a, Mike responds to Andy’s initial declaration about interpreting choice “C” as self help. These examples show that suggestions and interpretations stemming from one team member can be transferred to other teammates in their talk.

A noteworthy observation for how the formation of CPs is part of the process in which the team comes to negotiate meaning of its understanding of the subject is the time needed for comprehensive development of a CP. A pivotal question brought up early in the dialogue occurs in line 11a, where Betty asks about the traits of reflection and social web in choice “C.” The team attempts to find an answer to this question through line 23a, but no definite answer is provided. It is unclear whether Betty herself even found a satisfactory answer as Andy then decides to change his mind about choice “C” being the best answer and declares to select choice “B” instead. Betty’s question, while seemingly important and central to the team’s discussion because the idea of reflection is mentioned consistently (i.e., lines 15a, 17a, 21a, 41a, 42a, 44a, 46b), does not become revisited until in line 70a where Andy asks Mike about it. By now, Mike is able to articulate a coherent response in line 71a to Betty’s question, and, when asked again to defend his personal selection for choice “C,” Mike is able to rephrase and elaborate his response in lines 84a and 87a.

Within the team’s exploration of the answer choices, CPs can also emerge continuously and simultaneously where the team’s discussion is clearly divided between
smaller factions of the team. For instance, a question in line 36a invited two separate
discussions among the team for why one choice is better than the other. By lines 51a-
52a, the factions reunite and discuss, as an entire team, which choice is most viable.
Interestingly, while one half of the team (lines 37b-57b) is convinced that choice “B” is
the correct answer, the other half of the team (lines 37a-50a) is ultimately undecided
about choices “B” and “C.” The choice that the team immediately settles on is left to a
team vote for choice “B” (lines 61a-65a). A closer examination of the simultaneous
emergence of these CPs shows that half of the team found similarities between choices
“B” and “C” in its discussion (lines 39a-45a) while the other half of the team found
differences between the two choices (lines 39b-52b). By the time all members in the
team reconvened their discussion, it appears that a couple of the members from the half
of the team who were unsure about the answer deferred (line 53a, line 59a) to the half of
the team who decided choice “B” was the answer. The importance of the simultaneous
emergence of these two CPs is that this allowed the students to consult with one another
and formulate rationales for their choices based on what some of their teammates said.

The observations made in this excerpt are an exploration of various characteristics
about the nature and functions of CPs. While CPs may form in an isolated and linear
manner, they are oftentimes developed organically, in situ. As CPs develop, they may be
in competition with others, especially when new CPs are nested within those that the
group has finished. As shown, CP development can be interrupted quite often,
contributing to the convoluted nature of the talk. Within such talk, ideas are formed and
carried over from one CP to another, which also evidences that the time required for CP
development is a critical component to consider in studying how dialogue may function to distribute cognition. CP formation is not necessarily conspicuous in small segments of dialogue; rather, dialogue must be evaluated in its entirety for instances where portions of a previously formed CP may resurface. And, the unique ideas that students individually generate contribute to rich discussion, as shown when a team divided its dialogic labor, and students within the team formed separate CPs simultaneously, but alongside each other.

This excerpt foregrounds some of the features and functions of CPs to provide an understanding for the nature in which they are developed. It is the process in which CPs are formed that distributed cognition is also being formed. The process of CP formation informs the way in which cognition is distributed among members of the team so that meaning can be negotiated. Discussion of this notion is provided in more detail and depth at the end of this chapter. The following example further extends the discussion of CP development by exploring other intricate complexities of CPs.

**Discussing hypothetical scenarios and creating a diagram (Appendix H).**

Most prevalent in this dialogue is the organization of CPs. Prior to creating any diagram to represent the team’s understanding of how specific activities may engage people in the social web and help inspire or deepen their reflection, the team discusses possible scenarios that each student has created. Each student was asked to create a hypothetical scenario for parts “A,” “B,” and “C” of the exercise. This process, in itself, invites the team’s dialogue to emerge in a manner where each member takes turn sharing his/ her proposed activities and create a web of CPs to drive the remainder of the team’s
discussion. The team decides to discuss part “A” of the assignment first (lines 4-133), followed by part “B” (lines 134-176), and finally part “C” (lines 176-228). Within the discussion of each of these parts of the assignment, various CPs can be identified, and the purpose or goal for each varies (e.g., task of group).

A salient feature of CP development, as observed in the data, is the occurrence in which primary CPs are started but interrupted by secondary CPs (e.g., individuals’ efforts). This feature is consistent with the principle that CPs are dynamic and emerge from the participants’ actions and inactions within the communicative sphere (Linell, 2010). The interruption of a primary CP is generally the introduction of a secondary CP, and this occurs for various reasons. These secondary CPs are important because they serve various functions, such as clarifying various rationales presented, helping the team make final decisions, and maintaining administrative tasks of the team. Essentially, all of these secondary, but important, projects compete for the attention of the team, leaving the team’s discussion to be seemingly haphazard and disoriented but, is in fact, rich and meaningful for the participants involved.

An instance of CP interruption is observed early in the discussion of choice “A” when Carla explains her fabricated scenario to part “A” of the assignment. Mike and Andy jump in almost immediately in an attempt to clarify Carla’s intent for suggesting her scenario (lines 13-20). This secondary CP is also necessary in order for Mike and Andy to clarify misunderstandings they may have of Carla’s ideas. Following this intervening CP, Carla finishes explaining her thoughts. Another intervening, secondary CP occurs (lines 73-76) when Betty questions Tim about completing homework, as
individual homework completion was expected prior to the team meeting. These two particular CPs highlight the need to clarify rationales and to seek understanding of administrative tasks completed by individual members.

Another instance of an intervening, secondary CP occurs in lines 101-130 where a combination of maintaining administrative tasks and discussing the viability of a response is observed. A closer examination of these CPs reveal the importance for how these CPs surface to guide the team in an effective manner to complete the exercise. By the time each member has finished offering his/ her individual response to part “A,” the team begins to decide what to do because there is pressure to gain team consensus on the concepts it wants to present in its response and how to present them in the form of a pictorial diagram. These concerns invite the development of secondary CPs. Members of the team raise concerns about deciding which scenario to select, either Carla’s or Betty’s, and they informally vote (lines 102, 109, 111, 112). At the same time, in line 101, Andy begins to form a verdict on a couple of the possible scenarios his teammates have offered. He focuses on both Carla’s and Betty’s scenarios without mentioning Tim’s scenario. Andy continues to explain his decision in lines 110 and 114, but no responses are elicited from other members in the team until lines 119-130. Andy’s initiation for the consideration of Carla’s hypothetical situation as one that is realistic and reflective is pertinent in assisting the team to produce a quality response. While these two secondary CPs, voting on a scenario and presenting a verdict for one, are competing for the attention of the team, a few of the members discuss how to represent key ideas
within the diagram (lines 113, 115-118). There is, undoubtedly, much verbal activity happening in this instance of the team’s dialogue.

What can also be observed from the emergence of these three secondary CPs is that while all of these separate concerns (discussed above) lead to discussion that directly contribute to the team’s completion of the exercise, the members themselves also contribute to the simultaneous development of different CPs. For instance, while Andy initiates the discussion about the quality of the hypothetical scenarios beginning in line 101, he also “jumps” CPs by responding to a different CP about the team’s vote in line 110 for the best hypothetical scenario and by responding to yet another CP in line 117 to a teammate’s concern about not being able to represent Japan on the team’s diagram. A single member may be involved in developing various CPs concurrently.

The embeddedness of CPs is another powerful feature Linell (2010) discusses that students can rely on in order to express and demonstrate their thoughts. During one instance in this dialogue, Andy discusses an idea related to storytelling (lines 183-210), which illustrates a distinctive CP in the dialogue, but he has difficulty pinpointing the particular type of storytelling (line 183). Rather than focus on the name given this type of storytelling, he attempts to illustrate what he is talking about. Andy begins the illustration by fabricating a fictitious story (line 185) that is then continued by other team members following his additional explanations of this type of storytelling and solicitation for participation (lines 186, 190, 192, 196, 197, 204-208). By line 210, the team appears to have understood what kind of storytelling that Andy has been attempting to describe.
But, an interesting facet of this CP (lines 183-210) is that the fictitious story that the team jointly creates becomes, in itself, a secondary CP that is conjured within the primary CP.

The significance of the fictitious story being embedded within the primary CP for how it functions to coordinate negotiation of shared meaning among the team is multilayered. First, the story that Andy begins telling appears to be random. He begins talking about a boy who harvests oranges for profit but unexpectedly destroys the fields bearing fruit. Andy relies on the participation of his teammates to build the story, wherein their choices for extending the story also appear to be random until Tim proposes the idea of a “flux of rabbits” (line 207) being destructive and suggests discussion of the pandemic (line 216), which he appears to explain this connection a bit later (line 222). Andy references the rabbits in line 223, but he also immediately references another story concerning a lady who birthed a goat boy (lines 223-228). No further comments from the team following this last story about the lady, the emperor, and the goat are provided, so it is not absolutely clear what the intention for mentioning this latter story is. However, the story that the team created seemingly invited the members to draw insightful connections—at least making some connections to a pandemic involving rabbits and the story about the baby goat kid, all of which appear to be course-related materials that the students have been exposed to in this class. The team’s demonstration of and participation in an interactive storytelling session enabled them to begin creating cognitive connections about how their ideas are relevant to the application exercise.

The second significant, notable trait of the CP in lines 183-210 is that it appears to have triggered one of the members to pose an important, larger question to help the team
determine relevance of this self-mediated exploratory exercise—the connection between interactive storytelling and some of the Asian practices they have studied in this course. The contiguous nature of CPs is shown here at this point when Maggie questions the connection because it leads into the development of a new, but related, CP in lines 211-223 where Andy notes the connection of interactive storytelling with a specific Asian practice. This CP (lines 211-223) is critical because the question raised here is one that the team should be considering all along, and the team only reached this critical junction by first developing the previous CP (lines 183-210). This means that the storytelling CP (lines 183-210) functioned to build some understanding among the team for the value of interactive storytelling and how it solicits participation among all members.

The observations about CPs in both dialogue excerpts indicate that CPs are multifunctional. They operate on various levels and function in different capacities to help students make meaning of what they are doing in their application exercises. Most of the decisions that the students have made in contributing to the CPs, as discussed in all of the examples presented, can be accounted for by relying on the key, theoretical concepts introduced in chapter two. The following discussion provides concluding remarks on the analysis of the results.

**Meaning negotiation among members.** Blumer’s (1969) explanation of human group life, such as in the “root images” he offers, provides insight for explaining how students working together in teams create shared, or negotiated, meaning. The key perspective that symbolic interactionism provides is that meaning arises from symbolic interactions among individuals (Blumer, 1969), and this precisely characterizes how
students develop meaning within their own teams. After all, the social interactions that the students engage in help form the “social products” (Blumer, 1969, p. 5), or the meanings, that they share, and these social interactions shape the meanings that students derive from the social situation. While Blumer’s concepts are mostly applicable at a global level in explaining the occurrences of human interactions as it relates to meaning-making, we can utilize them to characterize the progression of CPs as highly specific instances within the sphere of human group life where meaning-making through negotiation is achieved.

Through the origination, formation, and completion of CPs, we can see that the process in which they progress affords the distribution of cognition among the members. Cognition is heavily context-driven because the individual relies on the surround as a resource so that the person-plus system may achieve learning (Salomon, 1993b) by employing the knowledge-processing system (Perkins, 1993). As showcased in the examples, CP development requires contributions from various members of the team where the members are actively solving a “problem.” Since each student comprises of the physical surround, students’ interactions with one another become part of the system, and their actions contribute to the team’s formation of distributed cognition. The process in which meanings can be drawn from such interactions by each individual student is guided by the nature of symbolic interactionism.

Most of the interactions that the students have within the team context occur as dialogic exchange. Given that social interaction is a process that forms human conduct (Blumer, 1969, p. 8, italics in original), the actions that each student makes must be in
alignment with those of his/her peers in the team to be meaningful. The actions that one student makes within the team must account for the actions of other students within the team. Such actions are not random but are rather consciously chosen by the students. This contributes to the explanation for why student teams are able to function in a manner where they may develop CPs that allow them to explore their team application exercises to the extent that is necessary. And, it is in this process of exploration through students’ dialogue, a psychological tool, where the distribution of cognition is most prominent within the development of the CPs.

As shown in the examples in the analysis, CP development within the student team context is nonlinear, seemingly erratic, and sometimes even underdeveloped until much later on in the dialogic exchange. The goals behind the CPs are unique to the situation and, ultimately, are shaped by the dialogic exchange among the students. The goals vary based on what students aim to accomplish, which is driven by the nature of the assignments and the approach that the students take to discuss their exercise. The nature in which CPs are developed and function—such as when ideas are “carried over” from one CP to another; when secondary CPs form within primary ones; when CPs are started, interrupted, then completed; when an individual participates in the simultaneous development of various CPs—ultimately provides the students with opportunities to negotiate meaning. The team setting, and specifically in the context of a TBL classroom, encourages CP development to be primarily driven by how the students choose to create meaning through their dialogic interactions.
To contextualize the establishment of distributed cognition within a team, it is appropriate to acknowledge that knowledge construction of the team is also influenced by factors beyond the presence of the students’ team members. Knowledge construction of the team is also influenced by its reliance on the team’s surround, such as when the team is encouraged to rely on the knowledge construction of other teams (i.e., when the instructor asks all teams to look at one another’s diagrams for ideas). Hence, instead of thinking about the person-plus system as solely consisting of the seven students comprising the team and the physical resources they utilize, the person-plus system can be extended to include the team within its naturally existing environment, the TBL classroom. In such case, all the students and teams within the classroom become the person-plus system where the team may use the intelligence that other teams have constructed as a resource. The classroom within which the team is situated becomes the surround.

When we think of the surround as consisting of the entire classroom, other factors external to the team play an important role in the analysis. Vygotsky’s first-generation activity theory foregrounds the importance of the mediating artifact as the tool that facilitates the students’ understanding of the object, but Engestrom’s third-generation activity theory implicates that the discussion of a learning community is central to the focus for understanding how meaning-making among students can be formed. Within the context of a learning community, meaning formation through negotiation is further complicated because meaning is now further modified through an interpretive process that extends beyond the team. Students are now no longer just exposed to the symbols
(e.g., most notably in the diagrams they create) that they develop within their teams, but they must also interpret the symbols that other students in other teams create. With the greater number of resources that are now available to the students in the team, they may discuss what they have drawn and what others have drawn, which doing so invites the activity systems of each individual to interact, hence creating a larger web of interacting activity systems.

The common trait among the various interacting activity systems of the students is that the students are all part of a community of practice dedicated to learning. Hence, the students are part of a learning community that relies on shared division of labor and rules that govern the actions of the students. Guided by their respective activity systems, the students have the appropriate “space” in which to discuss and share their ideas with one another as they complete their application exercise. This “space” also helps them create and find meaning in the activities they are involved with where the meaning becomes shared and, hence, negotiated among the participants.
Chapter 5

CONCLUSION

This case study is a preliminary exploration of how students learn by focusing on the communicative practices occurring among student teams situated within a team-based learning (TBL) classroom. The primary focus of this study is the emergence and formation of dialogue among student teams working to solve team application exercises that call upon students to apply what they have learned and, as a result, build upon knowledge initially acquired.

Implications

One of the valuable outcomes of learning through negotiating meaning is that students become more comfortable in and familiar with their peers in creating new knowledge. Rather than relying on the course instructor to establish the learning “space” in the classroom, the students create this for themselves so that they have access to the resources (i.e., intellectual, material) they need. A significant epiphenomenon of TBL is students’ experiences working with one another in small teams teach them to learn how to learn.

The results from this study can inform current and future TBL instructors to carefully consider the development and implementation of student assignments and exercises geared to provoke learning in authentic situations. Since learning is heavily guided by students’ negotiation of meaning in the assignments that they complete, this invites instructors and educators to take careful consideration of how to deliver course
materials and how to create thought-provoking assignments that cultivate and embrace the unique, varied perspectives of the participants.

Limitations

The nature of qualitative studies, such as this, invites the reader to carefully consider the ontology associated with this study, given the methodology to collect data and provide thorough interpretation of the findings by a single researcher. The data gathered from this study is specific to one student team formed within a TBL course and obviously cannot be replicated. Not surprisingly, certain characteristics of this particular team (e.g., how individuals decided to socially interact with one another, the extent to which individuals became comfortable in sharing personal opinions with each other) may not necessarily be observed in another team used for a similar study. Hence, the team used in this study is not representative of all possible outcomes emerging from student team discussions. The intricate observations and results drawn from the student team that participated in this study are heavily influenced by the individual, unique characteristics of each student member. It is unlikely that a duplication of this study involving a different student team will necessarily yield exact results, but similar and additional results are likely. However, studies of similar design will reveal important patterns of individual and group discourse that, over time, will inform effective use of TBL as pedagogy.

Future Research

The results from this study primarily focus on learning (as creation of or change of meanings) and elements of the group communication processes that allow students to
learn in ways that are complex and personal. In doing so, the data used in this study are primarily focused on dialogue among students who are asked to discuss a team case. In other words, the data captured for this study are highly context-driven and the results primarily focused on the emergence of discourse among students talking about how to approach a case. The dialogue is, in part, driven and shaped by the nature of the activity they were asked to do—select one of three prescribed answer choices from a list that best represents the team’s response to the case presented. This type of activity, while commonly found in classroom-based activities, and specifically in the TBL classroom, does not necessarily and absolutely encompass the types of authentic activities (Brown et al., 1989) that students are likely to encounter beyond the classroom. Rather, students may be expected to develop the premise of a problem and pose various solutions that are appropriate, for example. Such a context in which activity is to take place will produce different and/or additional findings.

The results of this study, however, must not just be limited to studying student dialogue formation from this type of team activity. The theoretical foundations and the methodology introduced in this study have transformative value in suggesting that further studies in the areas of situated learning, (TBL) classrooms, and team work/small group work should focus on the study of dialogue formation and student interactions surrounding other contexts that invite learning.

The complexities involved in this study are rich for exploring a host of factors influencing student learning. Another area for which situated learning in a team-based environment may be enhanced is developing studies that focus on the relationship
between small group or team development and student learning. Such studies can take into account the temporal nature of team cohesion development as a factor, among others, for students’ learning. TBL teams are distinctly different from general studies focused on small groups because student teams formed under Michaelsen’s (2002) model of the TBL pedagogy are constructed under time-based conditions (i.e., over the course of a predetermined academic term). While instructors may decide to adapt TBL instruction delivery, the student team memberships are generally constant, as students must have sufficient work time with each of their teammates to complete peer evaluations. Studies under different conditions of group formation are worthy for study.

In an effort to facilitate further analysis of this case, in particular, and TBL as instructional communication process, in general, I will provide the total data set that I have developed for this study to any qualified researcher. Contact me at tkh37@csus.edu to arrange getting a copy of the data.
Appendix A

Team-Based Learning Course Structure

Note: Representation of activities above covers one major unit or topic within the course. The cycle above is repeated with coverage of each unit or topic (Fink, 2002, p.10).
Appendix B

Progression of Activity Theory’s Models of Activity Systems

*Figure 1.* Vygotsky’s conception of an activity system. This figure illustrates the first-generation activity theory’s model of an activity system.

*Figure 2.* Engestrom’s initial conception of an activity system. This figure illustrates the second-generation activity theory’s model of an activity system.
Figure 3. Engestrom’s latest conception of an activity system. This figure illustrates the third-generation activity theory’s model of an activity system.
Appendix C

Assignment Cycle for Two-Week Unit

**Week 1:**
Class Meeting 1

- Team Readiness Assessment
  - Overview of course materials in the unit and introduction of reading guides

**Week 1:**
Class Meeting 2 & Week 2:
Class Meeting 1

- Reading Exercises
  - Contribution of homework responses from each student

**Week 2:**
Class Meeting 2

- End-of-unit Multiple Choice Exam

- Team Application Exercise
  - Individual multiple-choice exam and team application exercise involving team analysis of a scenario
Appendix D

(Example A)

Note: Asterisks denote a break in the team’s dialogue from the application exercise.

1 Maggie: Have you read “C?”
2 Tim: No, I didn't read “C.”
3 Betty: Alright. “C” is weird. I'm like, “What?”
4 Katie: Who is this Dinah? I don't think it was part of the reading, right? (Betty peers
   at the app. ex. she handed Andy earlier.)
5 Katie: Who is Dinah?
6 Betty: Oh, it's in the scenario. Oh, biblical character.
7 Katie: Oh.
8 Andy: What? What are we doing? Number two?
9 Katie: I think this is the one where either one is the correct answer, right? Or is it, no?
10 Betty: I don't really know.
11 Katie: Cause none of them sounds good.
12 Betty: Yeah....
13 Tim: Look, none of them is the correct answer. They're actually all wrong. You can
   pick any one of them and you're wrong.
14 Katie: I think these are the ones, like....
15 Betty: I think “A” is the best, I guess.
16 Katie: Yeah, “A.”
17 Betty: The directions are going out. The other ones are just like...
18 Katie: Yeah, because I think for the...it says to consider, um, having participants
   come out...
19 Betty: Yeah...it has the people.
20 Katie: And it states roles and social webs. So, “A” sounds like it’s the only one where
   they have everybody come out and play a part.
21 Betty: And it invites neighborhood artists.

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22 Andy: Which option do you choose?
23 Betty: Which option? I think “A.”
24 Katie: “A” sounds like it's the only one that kind of fits. The other two are kinda, like, “What?”
25 Betty: Well, for “C,” I'm just like “Okaaaaayy, but do what with it?”
26 Katie: Yeah.
27 Tim: It completely changed the play.
28 Betty: Yeah, because I think...
29 Katie: Yeah, and I think that (points to something on the application exercise) relates to the historic, or in the play....
30 Tim: No, I understand, but that's not...that's not....historic

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31 Betty: Like, “B” has, like, relatable things.
32 Katie: But it's about women's responsibilities...
33 Betty: But...
34 Katie: ... and fathers and mothers...
35 Betty: But, it's like, okay, so the actors play, but what's that have to do with anyone else? No one else will be related to it.

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36 Katie: I think “A.”

****

37 Andy: What are we choosing?
38 Betty: “A.”
Appendix E

(Example B)

Note: Asterisks denote a break in the team’s dialogue from the application exercise.

1 Mike: I like this one.
3 Mike: “B.”
4 Betty: Oh.
5 Mike: But, I’m not the best at this kind of stuff.

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6 Andy: I like “B” too.
7 Carla: Okay.
8 Andy: I like “B.”
9 Betty: What? I like “A” better than “B.”
10 Andy: “B” has um... look. “B” has state architectural work on the capitol collaborate... collaborating with the young artists... that’s...
11 Carla: It would inspire the young artist.
12 Andy: And it’s like they experience this mentoring and training.
13 Betty: “A” has reflection. And then the governor would reflect on it. Reflection, on, I don’t see... uh...
14 Andy: It’s so close. Let’s get rid of it. It’s just gone. I’d say “B” though because state architects weren’t on the capitol with young artists...

****

15 Carla: I’m torn between “A” and “B”
16 Betty: “C” is really harsh.
17 Andy: I like um...

18 Mike: I mean, well, what makes me choose “B” is because they do also have the professionals guiding them to, kind of like, the vision that they want, but they also are encouraging them to express their own different artistic talents or whatever into that, so it’s not just guidance one way.
19 Andy: Does it correlate with this meaning? ‘Cause I know, one time, it didn’t.
20 Mike: Is that the one about the, like, when the...
21 Andy: magic sculpture
22 Mike: ...and the faces having different...
23 Betty: Oh, “C” sounds like...
24 Carla: It reminds me of face collections.
25 Betty: ...but not reflection.

****

26 Andy: Why are we picking “B” over “A?”
27 Carla: Um...
28 Andy: I know what [Mike] says, that’s what I was saying too, but you know how we have “based on viewing of images and maps of Qin’s tomb and Ledderose’s anal.. analysis of it?”
29 Mike: It’s like that assignment we did on Monday. Um, if the paper’s in there... It was on the “C” paper. They have the different sections. I don’t know where that is.
Appendix F

(Examples C and D)

Note: Asterisks denote a break in the team’s dialogue from the application exercise.

1 Betty: What is the scenario?
2 Andy: There is no scenario.
3 Betty: It’s on the back.
4 Andy: Oh.
5 Mike: We’re doing this one.
6 Andy: We’re doing this one.
7 Betty: Yeah.
8 Carla: So, I guess I can draw, like, a teacher or something?
9 Andy: No. Let us do someone in movement.
10 Betty: Yeah.
11 Tim: Or…
12 Andy: Or, we can do someone like this. Can you draw this?
13 Carla: Yeah.
14 Andy: Oh, here. Draw a Buddha, like you were doing.
15 Carla: A Buddha?
16 Andy: Not a Buddha, but a Chinese person. Like, over here though cause we’re gonna bubble around it.
17 Carla: Why don’t you guys start drawing stuff?
18 Andy: No, no, no.
19 Tim: Cause you’ve seen me draw.

****

20 Tim: Oh, look at that!
21 Andy: That’s a good job!

****

22 Tim: Look at that! Is that, like, a knee cap?
23 Andy: How come you never drew for our other… (Carla begins to turn her attention to Andy) Anyways, go. A head band.
24 Tim: Do we have to have a face?
25 Betty: So, put a little, uh, thought bubble thinking about your, uh, hypothalamus. Yes, he’s reflecting.
26 Andy: Okay, let’s do, um, the breath that’s, um, going… energy… It’s giving inner chi
27 Betty: Just draw an arrow, like that’s his breath to his mouth.
28 Tim: He can do this blindfolded. That’s pretty cool.
29 Andy: He’s not blindfolded.
30 Tim: Okay, he’s sleeping.
31 Andy: Okay, um, breath.
32 Carla: What’s the next one?
33 Betty: Uh…
34 Andy: Chi.
35 Betty: Chi.
36 Andy: No, that’s the, uh, energy going around the …
37 Carla: Should we make it…
38 Andy: Can you, can you do something, something where, like, let’s say that’s the saliva. Where’s the other words?
39 Tim: Lungs?
40 Carla: Yeah.
41 Andy: Oh, yeah, there you go. Okay, which, which part of the brain controls movement of limbs?
42 Betty: Parts of the brain?
43 Tim: The inside. The hypothalamus.

****

44 Andy: Just do speech bubbles.
45 Carla: Or, we can do the pictures of the neurons coming from the brain, relaxing.
46 Andy: Okay, do a speech bubble. Then, put a picture here.
47 Tim: Or, a thought bubble?
48 Carla: Like, a …
49 Andy: Yeah. Do a…do a cloud ‘cause it’s a…

****

50 Andy: My neurons make my body move, think, feel…move, think, feel?
51 Tim: What’s up with these words? We have to use words? Did he specify? I mean, I think not.
52 Andy: Alright, next?
53 Betty: Alright, uh, spine, limbs…oh where did you get that as Qi Gong?
54 Carla: How do you spell it?
55 Andy: Put “ing.”
56 Betty: Define the limbs. Those are splints.
57 Andy: How do we do saliva? I’m gonna look at theirs.
58 Betty: Yeah.
59  Betty: Like, maybe put arrows, like...
60  Betty: We need arrows, like…
61  Andy: Oh we need a spin, huh? Under “spine,” we need “support.” Over here, just put parenthesis, “support.”
62  Andy: That’s good. That’s good. For balance. Feng shui. Ooo… no tension!

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63  Andy: We should put, uh, neurons control…
64  Betty: Yeah, that’s what I was going to put--control.

****

65  Andy: Wanna do the symbol field? With red, right here, control center.
66  Andy: Get...get red, yo! Tim!
67  Andy: Air circulation. What about red for a symbolic field?
Appendix G

Excerpt of Team Dialogue 1

Note: Asterisks denote a break in the team’s dialogue from the application exercise.

1a Betty: I think it’s “B.”
2a Katie: Obviously, it’s not “A.”
3a Betty: No.
4a Andy: I like “B.” Oooh! Number, number “C” is pretty cool.
5a Katie: “C,” yeah. “C” is kinda there too.
6a Andy: I like “C,” but “B” is alright. I like “C” ‘cause you’re underneath the stars.
7a Tim: “B” is alright.
8a Andy: That’s pretty sick. I like “C.” Look, “…associated with the syllables of Om mani pad me hum with natural phenomena such as sky, sun, moon, stars & planets, with parts of the world, with emotional healing.” Whaaaat? Okay, that’s “C.” That one is pretty bad ass. Let’s look at “B.” “Reflected on the various aspects of Avalokiteshvara, especially his quality of Supreme Compassion, as they chanted the six syllables.” “C” is, like, the most tightest.
9a Tim: The most tightest?
10a Andy: The most tightest.
11a Betty: So, like, how does that have to do with reflection and social web?
12a Andy: First of all, you’re outside. I mean, what’s the difference, what’s the difference between “B” and “C”?
13a Katie: Basically, I think in “B,”
you’re, you’re using it, you’re using that person, the Ava...

14a Andy: Avalokiteshvara

15a Katie: Yeah. We’re reflecting it on him. Is that what they said--reflects on him?

16a Andy: “Reflected on the various aspects of Avalokiteshvara.”

17a Katie: So, it’s just like, all about passion, kindness, and all that kind of stuff? But, are they, what else are they doing with that? They just reflect on him?

18a Andy: “As they chanted the six syllables of Om mani padme hum.” Okay, they reflected on that guy, and “C” is associates the syllables of Om mani padme hum with natural, oh...

19a Betty: I guess “C,” you would be thinking about your own world more...

20a Andy: Yeah.

21a Betty: ...than reflecting on your own...

22a Andy: “C” sounds, like, more... well, “B” says “they,” and “C” feels like it’s like a self kind of thing. I’ll go with “B.”

23a Betty: Oh.

24a Andy: You wanna read “C”? It sounds like self help, you know.

****

25a Tim: Alright, let me see why I think it’s “B” now. Um, it’s definitely not “B.” That’s for sure.

26a Betty: Whaaat...?

27a Katie: What are we, what are we missing in the comparison? Do we have to compare that with “A” with the other two choices...
Betty: Maybe...
Katie: ...that we didn’t pick?
Betty: Maybe.
Katie: You know, like, how we always say, “Oh, let’s choose this because of that, and then it’s not the other two because of whatever.”
Betty: Maybe.
Katie: But we’re just making sure, so I assume we don’t have to do all that, right?
Tim: So, I’m thinking it’s “B.”
Betty: Like, for real?
Tim: Yeah.
Why do you guys think “C” is a better bet than “B”?
Betty: I’m not sure. I was like, yes, “C,” then, I’m like, “Oohhh.”
Andy: Why are...why are you doubting your choices?
Betty: Because then I was, like, oh, “C” does have, like, talking about your own, like, world...
Andy: But that’s...
Betty: ...but then “B” talks about, like, reflecting on the practice, on the actual historical things. That seems good also.
Mike: I think you’re still gonna reflect on the practice because you’re still using the six-syllable mantra
Betty: That’s truuue.
Andy: That’s practice of making reflection. “B.”
Betty: Yeah. Well, they both have that. I...I just don’t know. I, like, can see them both.
Andy: What? “C” or “B?”
Betty: Both. That’s what I’m saying. I don’t know anymore.
Betty: What do you think?
Mike: I have to read it ‘cause I was lost the whole time.
Katie: I was saying I was between “B” or “C.”
Tim: Alright, well, if it’s not “B,” why would it be “C?”
Katie: Well, we said it was probably “B” ‘cause it says “they”...
Tim: That’s what I’m thinking.
Katie: And this one is just kinda, like, you’re doing it on your own. It doesn’t really say anybody.
Tim: Also...
Katie: It just says...
Tim: (inaudible)...reflection. Sooo, yeah. That’s why I think “B” is stronger.
Katie: ‘cause you’re reflecting it on that guy.
Tim: Uh, and that whole thing with Supreme Compassion, so, I think it’s “B.”
Katie: And then this one, you just use those syllables.
Tim: Yeah.
Katie: Just to kinda...
Tim: Yes.
Katie: ...when you go outside or whatever.
Tim: I think it’s “B.”
Katie: Probably “B.”
Tim: You wanna write that?
50a Betty: Oh.  
51a Betty: Are you writing it?  
52a Tim: Yeah, we decided it’s “B.”  
53a Betty: Okay, okay, I’m good with that.  
54a Katie: Are you guys okay with that, “B.”  
55a Betty: I’m good with it.  
56a Tim: I mean, it was really an (inaudible), so...  
57a Betty: Yeah, are we okay with choosing “B?” Like, as long as...  

****

58a Betty: Um, I think as long as we support it enough, it’s fine.  
59a Andy: Okay...  
60a Katie: ‘cause...  
61a Andy: Okay, between us five, here...  
62a Katie: ... ‘cause it shows we’ve...  
63a Andy: Let’s vote. “B” or “C?”  
64a Tim: “B.”  
65a Andy: I like “B.” I like “B.” “C” sounds self help. It sounds very, like, your own.  
66a Betty: Alright.  
67a Mike: Well, I haven’t read it...  
68a Andy: Okay.  
69a Mike:... but, we can’t just say it’s self help. It’s not necessarily self help. It’s just you incorporating your own life into it, but you’re still using the practice from the six-
syllable mantra.

70a Andy: But where’s the social web connection?

71a Mike: The social web is you. I don’t know if it says you’re talking to other people about it, but you sharing with others is how it relates more to you. And if we’re talking about how it all relates to us, then we’re still using the practice.

72a Andy: Oh, I like that. It’s subjective.

73a Mike: But, yeah. I haven’t read it, so I don’t know (inaudible)

74a Andy: I like that one. Everyone can share their subjectivity.

****

75a Andy: Are we choosing “B” or “C”?

76a Betty: I think we’re choosing “B.”

****

77a Mike: I still like “C,” by the way.

78a Carla: Me too. Yeah, I agree.

79a Betty: Alright, do you want to write it?

80a Katie: Okay, what do you guys say?

81a Andy: Well, give us some evidence for “C.”

82a Mike: Well, it’s pretty much what I just said.

83a Betty: Okay, so, why “C?”

84a Mike: Oh, no. ‘cause, I feel as though it’s, like say, if it’s us in the group... It doesn’t exactly say, um, that we’re all sharing about our individualized while going based off their practices. Then that’s how it reinforces the social web and you’re reflecting at the same time...
Carla: Yeah.
Carla: About emotional healing.
Mike: ...upon yourself and other people’s lives.
Betty: Okay. Alright. Do you wanna write that?
Mike: Yeah, sure.
Appendix H

Excerpt of Team Dialogue 2

Note: Asterisks denote a break in the team’s dialogue from the application exercise.

1 Betty: So, should we talk about what each of us made up?
2 Mike: Yes, please.
3 Betty: Go ahead.
4 Carla: For “A”...
5 Andy: Wait, wait. I’m not done reading.

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6 Carla: For “A,” my experience would be...is my friend and I sign up for a program to go on a tour of Japan, and we’re going at a time where they have the Japanese holiday national foundation day...
7 Mike: Is this for real?
8 Carla: Yeah.
9 Mike: I mean, you literally signed up for this tour?
10 Carla: No, it’s just the scenario.
11 Mike: Go ahead.
12 Carla: Um, we are going on a tour of Japan and we’re gonna celebrate the national foundation day. That’s basically where the first emperor was crowned, and we’re going to participate in whatever they do, and worship their monuments and stuff, and get to know...
13 Mike: You’re going to worship their monuments?
14 Carla: Well, like, participate in whatever their practice...
15 Betty: What does it have to do with instruction?
16 Carla: Because they’re...
17 Andy: What did you say? Worship what?
18 Mike: She’s gonna worship their monuments.
19 Andy: Okay, that’s what people do here.
20 Mike: No, but I’m just saying, like, she’s just gonna go. She doesn’t know nothing about this festival, but she’s going to worship whatever....
21 Carla: I know, but, the point is to go...
22 Betty: Yeah, and then what?
23 Carla: ...to go and celebrate with them, and to learn about them, um...
24 Andy: the culture
25 Carla: Yeah, the culture. To participate in it, you know, and then the Japanese people will, like, welcome us there with food and what they’re doing.
Andy: That’s good.
Carla: You liked it.
Andy: But what are we supposed to write?
Betty: We’re supposed to choose one that’s…
Carla: One for “A,” then one we like for “B.”
Betty: Yeah.
Carla: So, that’s fine.
Andy: What...We’re choosing these scenarios for all of “A,” “B,” and “C.”
Betty: Yeah, so everyone did one for each of them. For “A”...
Tim: Well, not everybody.
Betty: For “A,” um, you could, uh, volunteer to go help, like, build schools or housing and undeveloped areas. “C”...
Andy: Is this for “B?”
Carla: That’s a good one.
Andy: Is this for “B?”
Betty: This is “A” still.
Carla: That’s a nice house.
Betty: I know. Look, he has a little hammer.
Carla: That’s cool.
Andy: And then?
Betty: Ah, uh, I was thinking it’s related to… (inaudible) and then, uh, build social webs ‘cause he’s meeting new people in a new area, and then they’re reflecting…

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Carla: I like yours--building the house thing.
Mike: I’m sorry. Can you repeat that? I was not mentally here.
Andy: That was “A,” right?
Betty: Yeah.
Mike: I’m distracted.
Betty: Yeah. Volunteer to build schools and housing in undeveloped areas, wherever that is.
Carla: And, it’s supposed to...
Betty: I was thinking about the isotrans, it’s like a building.
Andy: Is this what goes off on the journal, what you wrote about in the journal?
Betty: No, not really.
Carla: It’s supposed to go off of the readings there, and…
Andy: So, are we actually writing anything?
Betty: Right now?
Carla: On the back side…
Andy: Well, we’re doing right now, I’m just, I’m just making things clear. We’re talking about “A,” “B,” and “C” and we’re choosing one thing for each “A” letter, “B” letter, “C” letter.
61  Carla: Yeah.

****

62  Betty: What did you, what did you come up for “A?”
63  Maggie: Mine is similar to the library tour.
64  Betty: What? For construction?
65  Maggie: Yeah.
66  Betty: Okay.
67  Maggie: (inaudible)...so, the tour of the art museum.
68  Betty: Oh.
69  Maggie: That’s it.
70  Betty: Okay.

****

71  Betty: What did you put for “A?”
72  Tim: Um, so for, for “A”...
73  Betty: Did you actually draw a picture?
74  Tim: I did not draw a picture.
75  Betty: I can re-draw this picture.
76  Carla: Yeah....
77  Tim: For “A”....I said, uh, go to a … with my hypothetical peer, in my situation...
78  Betty: Your pretend friend.
79  Tim: ...not in the real world, um, because that already exists in legitimate practice.
80  Betty: Just going to it?
81  Tim: Hmn...
82  Betty: Okay.
83  Tim: I found this legitimate thing that’s going on in Folsom in, like, a month, but like, this.
84  Betty: Oh, okay.
85  Tim: Hmn, um, I’m lazy, I did not follow through. I found real practices and, like, yeah, I think I’ll do this.
86  Carla: What was yours?
87  Tim: I found a real thing that was going on in Folsom about a month ago, and we should go do this. Me and my hypothetical friend.
88  Betty: So, for “A”... (pause)
89  Carla: I like yours.
90  Andy: What was yours about? I don’t remember, I can’t remember what yours was about.
91  Carla: Building schools.
92  Andy: Can you say it again?
93  Betty: Volunteering to go build schools or housing in undeveloped areas.
Andy: Like the ghettos.
Betty: Well, when I wrote it, I...
Tim: For undeveloped countries.
Betty: Yeah, I was thinking something more like that.
Andy: Okay. I like the ghettos, like, ghetto people.
Betty: That can work too.

****

Betty: So, like, the...
Andy: I like this one because it’s more realistic.
Carla: You wanna vote on it? So...
Mike: What’s the second category?
Carla: What do you mean?
Andy: No, this is still “A.”
Mike: No, but what’s the second one?
Betty and Andy: Storytelling.

****

Carla: Okay. Alright, so, who, who likes mine? (Mike and Andy raise their hands.)
Hers? (Carla and Maggie raise their hands.)
Andy: I like that too. I like that one too. (references Betty’s idea)
Carla: You didn’t vote.
Tim: Oh, yes. I like both of them.
Tim: I think we should draw houses. It’s easier to draw.
Andy: I, I like that one (references Carla’s idea by glancing in her direction)
because you’re going to a different culture and you’re learning about that one. But
this one (references Betty’s idea by slightly pointing at her) is, like, we’re
liberating. We’re going to a third world and we’re gonna build schools for poor
people.
Carla: Her’s is easier to draw because we can’t draw Japan, right? Can we?
Betty: Well...
Andy: Yeah you can. You can draw Japan with their flag.
Betty: Very figuratively. Monument.
Mike: I don’t know. Is…reflecting is part of it, right?
Betty: Yeah.
Carla: Yeah.
Mike: Hers (references Betty’s idea) has a lot of reflection. I mean, there’s
reflection in yours. (to Betty)
Andy: But there’s more here.
Mike: Yeah. I feel…
Andy: There’s more here ‘cause you’re learning about their culture and you can reflect on how your culture is then.

Mike: And then there’s interaction between you and foreigners.

Carla: Yeah.

Andy: The aliens.

Carla: Yeah, the Japanese.

Andy: I mean, you’re the foreigner with the native, natives.

Betty: Wait, should we choose each of ours first so no one is, like, over there, not, you know...

Andy: Participating? Yeah, okay. For “A” it’s good.

Betty: Yeah.

Andy: Okay, for “B.”

Carla: “B” is... What was “B?” Directing attention?

Tim: Inward and outward.

Andy: I, I did a fire offering.

Carla: Mine was volunteering to watch some kids go on a field trip to mission and, I was...And the volunteers and kids are learning about the missions and stuff, and the volunteers help teach them about it. Then afterwards the kids go to a park or something and they build their own using organic things, like leaves, and twigs, and sticks, and stuff.

Betty: Which Asian practice are you using?

Carla: Um, I connected that one to the three... poets? Well, I guess, ‘cause one is in the garden and that kind of inspires spirituality.

Andy: What about the fire offering? I have an idea for that.

Tim: K.

Betty: Let’s hear it.

Andy: It’s one of my first, um, what’s it called? The planning worksheet, it was? When I first wrote about it. So you have people...

Carla: Maybe one of us should start drawing “A.”

Maggie: We need page numbers too.

Andy: That went off...but,

Tim: The floor is yours. Let’s hear it.

Andy: For “B,” so, you know, you have, like, a bonfire. And then...

Betty: Yeah, make it tiny so we can put all three on. I mean, to fit three. But, go on.

Andy: Fire offering. And then all you do is have a person talk about, like, what we talk about during Thanksgiving—being grateful and actually just being aware. But, being around the fire, outside, maybe a full moon, or whatever, just to get that scenery of nature and stuff like that. That would create the bond between people, I guess.

Tim: Ah, what about, uh, some Franciscan conferences that travel. The Franciscan conferences done by the University of the Franciscan of Stupvale for spirituality?

Andy: Is that for “B?”
Tim: Yeah, and that one you’ve got, like, internal reflections put on by monastic friars, and you’ve got, like, outward whatever, just…Franciscan by nature for outdoor stuff.

Andy: I like that.

Tim: And, I pick that one again ‘cause it was something I knew of existed. I was like “Ah, I wanted to make something new up,” so, we will go find…participants in this. Assuming it’s… (inaudible)

Andy: How about you go outside and then you can get people with canvasses and you can have watercolors, right? And then, it’s like, calligraphy. It’s, like, draw anything that comes into your mind. Not draw. Paint. Watercolors. Anything. It doesn’t matter if it’s good or bad, and then after…and then you have someone…they explain…And then, you tell the person, like, what were you feeling or what you were thinking about when you’re... I’m gonna write that for my journal.

Betty: Uh, I put, uh, I was trying to relate it back to the, the __, but create, like, a mini excursion of that for one day. Go on a hike ‘cause I know, when I go hiking, I, it’s just, like, total, like, thinking about stuff ‘cause it’s so beautiful, peaceful. So, it’s all reflection. And so, I don’t know, but it’s attention outward to nature first and then outward to the individual?

Tim: Okay.

Mike: Wait, so, what’s happening?

Betty: You’re hiking.

Mike: You, you threw me off when you said that __ story.

Betty: Oh, I was relating it to, like, how he does away from everything but then he’s thinking about it still.

Mike: I thought some natural disaster was gonna happen.

Betty: Oh…. Not that part of it. Not that part of it.

Tim: You know what mother nature will do really bad when you go on a hike?

Betty: Not that part. What did you put?

Maggie: Mine is similar to that. But, like, going out into the wilderness and just enjoying the nature, I guess.

Andy: Let’s do the hiking. That sounds fun.

Betty: Alright.

Tim: How are you going to draw it?

Andy: Let’s draw a mountain.

Tim: There you go! I couldn’t have drawn that.

Andy: How come you’re not drawing right now?

Betty: I’ll start. ‘Cause she’s drawing. (Points in Carla’s direction)

Tim: We can have multiple drawings. And “C?” What did you put for “C?”

Maggie: Storytelling?

Tim: Storytelling, yes, and in what format. Storytelling?

Maggie: Yeah.

Tim: Okay.

Maggie: Gathering a group of people and telling a story.
Tim: Okay.

****

Andy: You know when we view the stories, you know the stories where, it’s like, one person starts something and then someone else adds?

Tim: Sandwiches?

Andy: And then, um, you have, um, you say something, or, I start off in the beginning, right? And I say, “Alright, this boy, his name was Todd, and he picked oranges in his grandma’s backyard and every Sunday he would give them to his Sunday school teacher” and then you would go off of that.

Tim: “Who would sell them….”

Andy: and then...What’s it called?

Mike: I don’t know.

Andy: But everyone gives their own take on it...

Tim: “Who would sell that and use that money…”

Andy: See? Watch. Go, go.

Tim: “Who would then sell the oranges and use that money to, uh, buy bulldozers and destroy the fields.”

Andy: And then you go after that.

Maggie: How do I, how do I continue? Is the grandma included?

Andy: It’s anything you want.

Maggie: “And then his grandma saw him and got hecka mad.” Okay, your turn.

Mike: “So, she chastised him and made him plow the fields so that they can plant more oranges.”

Andy: But, Isn’t that fun?

Maggie: Yeah.

Andy: That’s good interactivity, I guess.

Tim: Yeah, I’m always one to give into a nice, corny dynamic.

Andy: It’s like, complete free of everything.

Tim: I think it depends on how, uh, diverse your group is.

****

Andy: Alright, so, “he had to, he had to build…”

Mike: “rebuild the…”

Andy: “re-sell, re-reap whatever, but then a farmer came in and he wanted to buy the land because the land was so fertile that he could plant cherry tomatoes and… apple trees, but…”

Tim: “It was in a flux of rabbits that had eaten all the tomatoes. And the rabbit, being the overpopulation of rabbits led to…”

Maggie: Um, “the rabbit…” I’m sorry. I don’t know. Is this for “C”?

Tim and Andy: Yes...
Andy: It’s actually pretty awesome.
Maggie: How does it connect to the Asian…

****

Maggie: How does this connect to the story?
Andy: It doesn’t matter. You can make up anything you want.
Maggie: No, how does it connect to story to…
Andy: No…
Tim: You can talk about the pandemic.
Andy: It’s interactive, interactive, so…
Maggie: Oh.
Andy: How would it connect?
Maggie: Yeah.
Andy: The sermon on the Auspicious Things.
Tim: The rabbits came with diseases and everyone died. It’s kind of like the ten-foot square where everyone dies from natural disaster. In this case, the natural disaster is an influx of rabbits.
Andy: Or, here. Interactivity is, like, when we’re saying our part, we’re actually taking parts of like, I don’t know, Bhagavad Gita, the Parana, or the Shakuntala, you know. And then, after the rabbits came in, there was this lady who was pregnant, right? And she, and she was in trouble with the emperor of that land, but he was like “No, that’s not my baby. That’s not ….” Right? Then he says, “But the kid is not my son,” right? And so after that, he goes into, like, let’s see…
Tim: “It’s just someone I used to know.”
Andy: …because the farmer told the pregnant lady, she says that he is the one, but the baby, the kid, is not his son.
Tim: I mean, in this case, the kid is a goat.
Andy: And the kid is a goat. A baby goat kid. Right? A kid.
Tim: Yeah…

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Andy: Now, you’re supposed to, um, give it quotes.
Betty: Specific. From?
Andy: The readings. Not quotes. Passages of, like, how that would, interact or incorporate…
Tim: You should draw a sea.
Andy: How do you draw a sea?
Tim: I don’t know.
Betty: Wait. Are you telling me about your story?
Tim: Yeah, I want you to draw it though ‘cause…
Andy: It’s not just storytelling. It’s interactive storytelling.
238  Tim: With a purpose, passion.
239  Andy: Inspiration.
240  Tim: Motivation.
241  Andy: Dreams.
242  Tim: Words. Thoughts.
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