EXPLORATION OF STUDENT PERCEPTIONS OF TEAM-BASED LEARNING IN A COLLABORATIVE SPACE

by

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Abstract

This study investigates student perceptions of team-based learning (TBL) in a collaborative learning space using a qualitative, single case study of an undergraduate, entrepreneurial leadership course taught in the spring 2018 using a flipped delivery model. There were 11 participants that were interviewed three times throughout a 16-week semester: once at the beginning of the semester, once mid-semester, and a final time at the end of the semester. The participants were also observed throughout the entirety of the entrepreneurial leadership course. The findings revealed that (i) the primary focus of the students was on the team experience, (ii) students in a leadership role wanted additional support as the semester progresses, (iii) the collaborative design of the classroom space was not fully utilized by the students, and (iv) there was a positive perception of TBL. Recommendations for practice and research are provided.

Keywords: team-based learning, collaborative learning space, social constructivism
Introduction

There has been a recent pedagogical shift in post-secondary education that favors active learning and student-centered teaching over passive learning and instructor-centered teaching (Hsu & Malkin, 2011). With active learning, students are more likely to retain their focus on class discussions and exercises and subsequently develop a stronger understanding of and value for course content (Cavanagh, 2011; Wright, 2011). Active learning also empowers students to be co-creators of their own learning rather than being passive participants, who are dependent on instructors for the direct delivery of content through lectures. Despite the evidence-based benefits of active learning, instructor-centered teaching and passive student learning continue to be the dominant paradigms in post-secondary education (Lumpkin, Achen, & Dodd, 2015). Consistent with this persistent trend, Gardner and Korth’s (1997) study revealed the need for classroom teaching strategies to enhance skill transferability from education settings to workplace, especially in a growing economy that emphasizes teamwork. Surprisingly, this call to action remains unanswered.

In this study, I explored student experiences and perceptions of team-based learning (TBL) in an undergraduate entrepreneurial leadership course (ELC) taught in a collaborative classroom space using a flipped-classroom delivery approach. TBL is defined as “an evidence based collaborative learning teaching strategy designed around units of instruction, known as ‘modules,’ that are taught in a three-step cycle: preparation, in-class readiness assurance testing, and application-focused exercise” (“Team Based Learning Collaborative,” 2017, Definition section, para. 1). TBL originated in the 1970’s as a strategy to mimic smaller classroom settings, like building a community and having small group discussions, within large, lecture-styled courses (Clair & Chiara, 2012; Gomez, Wu, & Passerini, 2010; Haidet et al., 2012; Huggins &
Stamatel, 2015; Lightner, Bober, & Willi, 2007; McInerney & Fink, 2003; Ney 1991; Tan et al., 2011; Thomas & McPherson, 2011; Thompson et al., 2007), While most often used in the health sciences and business fields, TBL has been widely adopted across the disciplinary landscapes of colleges and universities and continues to warrant the attention of scholars with interests in pedagogy and student learning (Drummon, 2012; Huggings & Stamatel, 2015).

Research has also indicated that under particular conditions students can develop a stronger preference for TBL as compared to traditional lecture-based teaching. For instance, students in health science education have been shown to prefer TBL to lecture-based teaching (Frame et. al., 2015; Inuwa, 2012; Vasan, DeFouw, & Compton, 2009). Variations in student characteristics have also been found to influence student perceptions of TBL. Specific to student characteristics, Vasan et al. (2009) found that although health science education students were generally supportive of TBL, higher-performing students had a more positive perception of TBL compared to lower-performing students. Similarly, Frame et al. (2015) showed the timing of instructor implementation of TBL also affects how pharmacy students perceive the method. In particular, students have a more favorable perception of TBL when the course begins with TBL and then shifts to more lecture-based methods. Conversely, when TBL is introduced after the lecture-based method, students expressed a preference for lectures.

Most of the existing research on student perceptions of TBL have been conducted using quantitative methodologies and designs. One example of the scant body of qualitative research on the topic is found in the health science education literature. Specifically, Remington et al. (2017) qualitatively compared the TBL pedagogy to lecture style teaching in a graduate-level pharmaceutical course. The findings indicated that students overall held a positive perception of TBL. The common themes that were expressed by students included a positive impact on
learning; the development of clinical reasoning skills; perceptions of better retention of content knowledge; enhance peer-to-peer learning; increased motivation to take ownership of learning; improved experiences working on a team; and enhanced communication skills. Remington et al. (2017) concluded that TBL elevated the student’s acquisition of course knowledge, application of content, teamwork ability, and general learning skills. In general, the current paucity of qualitative studies perpetuates a lack of depth and insight into the various perceptions of TBL held by students. In the current study, I used a qualitative design to more deeply explore the factors that shape student perceptions of TBL with particular emphasis being equally directed at instructional delivery methods and classroom design.

Research has shown that the classroom environment contributes to student perceptions of active learning, which includes TBL. Jamieson (2003) stated that although universities have been gradually shifting toward more active learning approaches, formal learning spaces have “remained largely unchanged for several centuries” (p.119). Traditional classroom environments were designed for one-way information transfer from the instructor to the student and, consequently, do not support an active learning environment. Taylor (2009) argued that college and university should include studio learning spaces with moveable furniture for group work and a teacher station that is purposefully positioned as to not create a front of the room. Taylor (2009) anchored his recommendations in preliminary findings that suggested studio designs elevate the positive effects of the active learning pedagogy.

**Purpose of the Study**

Despite the preceding studies, there remains a paucity of research on student perceptions of TBL pedagogy. The current study helped address this gap by developing an understanding of
how collaborative learning designs and spaces influence student perceptions of TBL. The research questions that guided the study were:

- What are undergraduate student perceptions of TBL in a collaborative classroom design?
- What are the conditions, factors, and experiences that influence undergraduate student perceptions of TBL in a collaborative classroom design?

**Literature Review**

**TBL Teaching Techniques**

There are a range of teaching techniques that foster TBL and the active engagement of students in their own learning. These techniques include, but are not limited to, problem-based learning, project-based learning, and collaborative learning. On one hand, problem-based learning requires that students address a defined problem or set of problems that support their acquisition and refinement of new content knowledge (Hung, Jonassen, & Liu, 2014). Problem-based activities are typically one to two weeks in duration and can involve students working independently and/or collaboratively (Hung et al., 2014). On the other hand, project-based learning focuses on comprehensive projects that showcase student application of content knowledge (Mills & Treagust, 2013). Project-based learning actively engages students, independently and/or collaboratively, more deeply in the projects for periods lasting several weeks to an entire semester (Helle, Tynjälä, & Olkinuora, 2006). Collaborative learning, sometimes also referred to as cooperative learning, is an umbrella term that refers to any class-related activity involving students working with peers (Laal, 2013; Slavin, 1996). Collaborative learning encourages students to concurrently become learners and instructors amongst peers, drawing on each other’s experiences and knowledge to help construct their own learning and enhance that of others (Blumenfeld, Marx, Soloway, & Krajcik, 1996; Laal, 2013; Slavin, 1996).
TBL is a form of collaborative learning that can be used in conjunction with problem-based and/or project-based learning approaches. Figure 1 displays how collaborative learning, TBL, problem-based learning, and project-based learning intersect.

**Figure 1.** Collaborative-, problem-, project-, and team-based-learning intersectionality.

**TBL Components**

According to Michaelsen and Sweet (2008), there are four major components of team-based learning: *permanent teams, pre-class preparation, application activity, and peer evaluation*. *Permanent team* refers to students being strategically placed onto a team for the entirety of a course based on relevant criteria (e.g., pre-exam, pre-requisite, personality test, diversity). Other collaborative learning techniques may have students working in teams, or groups, for a short period of time, such as a couple of weeks, TBL requires the student work with the same team for the entirety of the course. Teams usually range from five to seven members. *Pre-class work* requires students to complete assignments that can range from readings to videos.
and individual and/or team quizzes to assure their readiness for in-class discussions and exercises. Application activities are in-class group discussions and exercises that build on and deepen the knowledge gained through pre-class preparation. Peer evaluation requires that students evaluate their performance and that of their team members. The evaluation helps team members be held accountable for their role and responsibility to the team, while helping to negotiate and alleviate tensions amongst members. Peer evaluations should occur at least once throughout the process of TBL as it is an integral component.

Physical Learning Space

Although physical learning space has not changed much for the past few centuries (Jamieson, 2003), there have been studies exploring the effects of classroom environments on student learning. McGregor (2004) argued that space is socially constructed to reveal the classroom social hierarchy. For example, the physical positioning of the teaching station within a classroom can symbolize the authority and oversight of instructors. Comparing a traditional classroom to a theatre space that has easily moveable furniture, the theatre is a space of exploration. The openness created through a theatrical design signals to students that there is no pre-existing, course content expectation that the student must know before class and that each student has the agency to co-construct their learning. In the theatre design, the instructor has no space that they predominantly occupy where students inherently know are off limits to them. This freedom of movement and space positions the instructor as part of the student population instead of behind a physically constructed hierarchical barrier (McGregor, 2004).

Theoretical Framework

Constructivism Theory
Constructivism is a learner-centered theory that frames learners not as blank slates that passively absorb information, but rather as individuals who have personal experiences and worldviews that have unconscious influence over their learning (Hrynchak & Batty, 2012; Kemp, 2011; Toh, Ho, Chew, & Li, 2003). Constructivism is grounded in the understanding that learners construct knowledge with each new piece of information that is presented to them (Schunk, 2016). Constructing knowledge occurs when learners reframe their previous knowledge with newly acquired information to result in new, refined, and/or different conclusions. In short, new information assembles upon the learner’s previous experiences (Toh et al., 2003).

There are two primary types to constructivism: cognitive and social (Schunk, 2016). Cognitive constructivism, which is based on Piaget’s theory of individual cognitive development, describes the individual’s process for learning new material (Kemp, 2011; Yilmaz, 2011). Learners obtain newly acquired information through a process of equilibration (Yilmaz, 2011). Equilibration refers to the convergence of a learner’s pre-existing knowledge with newly presented information. When newly acquired information does not match with the learner’s previous knowledge, the equilibration becomes unbalanced, creating a cognitive conflict. When the conflict is resolved, the instance of learning is complete (Yilmaz, 2011; Schunk, 2016). Because cognitive constructivism focuses on the learning at the individual level, it is not heavily drawn upon in TBL.

Social constructivism, which is based on Vygotsky’s zone of proximal development, aims to explain how interpersonal interactions and relationships affect learning (Kim, 2001; Schunk, 2016; Yilmaz, 2011). This type of construct is grounded in the understanding that learning does not inherently occur in isolation, but rather can take place through the interactions that occur between learners and other objects, such as the technology, that co-exist within a shared
environment. Hrynchak and Batty (2012) identify four components of social constructivism: learner-centered, active learning, dialogue and interaction, and reflection of new experiences. Learner-centered refers to instances when students act as the driving force in their own acquisition of new information (Biggs, 2014). Active-learning is the active engagement of the learner throughout the learning process (Hsu & Malkin, 2011). Hrynchak and Batty (2012) reference problem-solving as an example of active learning because students must actively engage in the problem to develop its solution. Dialogue and interaction is the social component of social constructivism. Through dialogue and interaction between people, learners are able to gain, share, and apply multiple experiences and perceptions that instructors may not have (Watson, 2001). Reflection of new experiences involves the learner processing information in conjunction with their pre-existing knowledge to better understand and internalize newly acquired information (Hrynchak & Betty, 2012).

Several techniques are recommended for the implementation of social constructivism in a class. Examples of such techniques include reciprocal teaching, peer collaboration, peer-assisted learning, peer tutoring, and cooperative learning (Schunk 2016). The common thread among these techniques is the interaction with people, specifically fellow peers (Jones & Brader-Araje, 2002; Powell & Kalina, 2009; Schunk, 2016). The current study relied on social constructivism as the theoretical framework over cognitive constructivism because of the emphasis the former places on how relationships affect learning and the recognition that TBL is deeply rooted in team member interactions and relations.

**TBL and Social Constructivism**

The four aforementioned components of social constructivism (i.e., learner-centered, active learning, dialogue and interaction, reflection of new experiences) also contribute to TBL
Social constructivism facilitates rather than directs or dictates student learning. Likewise, the learner-centered component mostly positions the instructor as a facilitator in TBL rather than as an authority figure that passes information on to the learner. Thus, the instructor encourages students to be the driving force in their learning through the engagement of material during the teamwork process, pre-class preparation activities, in-class applications, and peer evaluations.

Active learning focuses on the student’s direct and participatory engagement in course content. TBL inherently fosters the active engagement of students in their own learning through a heavy focus on structured activities, problem-solving exercises and minimal lecture-style teaching. The activities are executed during the classroom time, giving the students the opportunity to engage in the course content with instructor facilitation.

Dialogue and interaction represents the social aspect of social constructivism. The core of TBL is learning through and with a permanent team during the entirety of a course. Students are expected to work with their teammates to address the problems presented through the application of relevant content and skills. Because of the nature of teamwork, TBL draws heavily upon the dialogue and interaction that is inherent to social constructivism.

Reflection on new experiences encourages students to deeply process and internalize newly acquired information. TBL requires student reflection when evaluating themselves and their teammates. Students must also reflect upon their answers when refining the solutions to problems with their teammates. Thus, when students work together to compare multiple solutions to the same problem, they can identify and reflect on what may have
went wrong and attempt to correct their own understanding and application of knowledge, as well as that of their peers.

Methods

Research Design

I used a qualitative, single case study design to construct this study with the intent of developing greater insights on how collaborative learning designs and spaces influence undergraduate student perceptions of TBL (Myers, 2000; Yin, 2014; Zainal, 2007). The case was bounded by the spring 2018 offering of an undergraduate entrepreneurial leadership course at a doctoral university with very high research activity as classified by the “Carnegie Classification of Higher Education Institutions” (2017). The course was held in a collaborative classroom designed specifically for collaborative learning and TBL in the topical areas of innovation and entrepreneurial strategy.

The students enrolled in ELC represented a range of disciplinary backgrounds from within the College of Agriculture and Life Sciences (i.e., agriculture technology and management, agriculture and resource economics, agricultural education, environmental sciences, family and consumer sciences, nutritional sciences). The course required students to work on a semester-long team project that focused on the development of an entrepreneurial strategy for addressing an economic or social issue. The ELC professor and teaching assistant placed the students in teams of five based on a profile sheet that each student individually completed. The profile sheet included a written description of their academic background, future goals, strengths and weaknesses, and areas of passion. Each team was required to initiate their project by collectively identifying a problem or issue they would address through the
development of an entrepreneurial strategy for advancing an innovative solution from a concept to a viable opportunity.

The course was delivered using a flipped classroom model (Bishop & Verleger, 2013). Specifically, students were required to individually view a short video lecture and complete a corresponding online quiz prior to the first of two weekly classes. This structure allowed the students to acquire and assess their content knowledge outside of formal class time. In turn, teams worked on applying the content covered in the weekly video lectures to their projects during formal class time with the professor and teaching assistant being readily available to answer questions and guide and facilitate deeper discussion and learning.

The ELC was offered in a unique collaborative learning space that was designed specifically to foster collaborative learning and TBL called the “Innovation Collaboratory.” It was envisioned by the professor over the course of 10 years of using a form of TBL approach to teaching innovation and entrepreneurial leadership courses. The professor noticed during this 10-year period that even when students were given time to work on their projects in a lecture-intensive class, they were not fully and deeply engaged in the course content. There was more frustration with moving the desks to get situated with their teams than there was productive engagement in the tasks at hand. Thus, the Innovation Collaboratory was designed to enhance creativity, collaboration, and innovation through flexibility and fluidity as well as equip students with a sense of ownership over their learning and working environment. The space was finished during the winter of 2017 with the spring 2018 ELC, I feature here, being the first course to be offered in this new collaborative learning space.

The design of the Innovation Collaboratory includes four team stations that accommodate up to five students. Each station was equipped with a high definition flat screen monitor with
HDMI cables for laptop connection. In addition, the Innovation Collaboratory had four rolling white boards for each station, which provided not only working surfaces, but also the flexibility to create private sub-spaces or an open space for class-wide discussion. Aside from the individual work stations, there was a lounge area to develop a sense of community, a ping pong table with a whiteboard surface to stimulate creativity through movement and play, two rolling charging stations for community usage and in the students’ own words a “cell phone jail,” and four rolling file sorters for each station to store things. Lastly, the students had open access to the Innovation Collaboratory outside of formal classroom time using the student identification cards for keyless entry. Only the students in the ELC course had “after hour privileges” to the Innovation Collaboratory, which could further increase the use and community ownership over the space.

**Sampling**

I used a purposive, theoretically-based sampling method to identify and select study participants (Onwuegbuzie & Leech, 2007). Specifically, prospective participants were invited to partake in the research, based on being enrolled in the ELC for the spring 2018 semester. The previously described TBL design of this course provided theoretically criteria for the selection strategy (Onwuegbuzie & Leech, 2007). The ELC roster, which was obtained from the instructor on the first day of the semester to ensure the most up-to-date list, was used to recruit the participants. I presented a verbal and written invitation to the prospective participants to partake in this study. During the recruitment process at the beginning of the semester, the invitation was extended to the students in class three times. The professor also posted an announcement on the learning management system two times on my behalf as another form of recruitment attempts.
Twenty students were enrolled in ELC; all of whom were invited, but not required to participate in my study. Ultimately, 11 students agreed to participate in this study.

**Data Collection**

I collected data using semi-structured individual interviews and direct observations. Semi-structured interviews allowed for the generation of in-depth insights on participant perceptions of TBL (Creswell, 2014; DiCicco-Bloom & Crabtree, 2006; Harrell & Bradley, 2009). Social constructivism and TBL guided the formation of my interview questions. I developed the questions based on each of the components in social constructivism and TBL. The interview questions were also open-ended to let the participants tell their story. The interview protocols were piloted with four students at the university with TBL experiences, but who were not enrolled in the spring 2018 ELC course. All interviews were audiotaped and later transcribed by hand. Because the researcher is the primary instrument in qualitative research (Creswell, 2014), I chose to transcribe each interview by hand in order to relive the conversations and bring greater trustworthiness to the data (Ryan, 2009). Observations entailed directly observing and recording in an extensively detailed field note format about the participant’s interactions, and behaviors and activities during in-class TBL activities and exercises (Creswell, 2014). The structure of the field notes was guided by social constructivism and TBL. See Appendix A for the observation form used to take field notes.

I collected all data throughout the spring 2018 semester, which began on January 10, 2018 and ended on May 4, 2018. Specifically, I conducted the direct observations during each formal class session, which occurred twice a week. I observed 28 out of the 29 class sessions, missing one session because of personal health. The teams were observed in 15 to 20 minutes intervals, rotating teams after each interval. I also rotated which team I would observe first each
class session. For example, if I started with team one on the Tuesday class session, then the Thursday class session, I would start with team two. Afterwards, the following Tuesday class session I would observe team three, and then team four on following Thursday. Lastly after team four, I would start my observations with team one again and repeat this process until the end of the semester. Individuals were interviewed a total of three times throughout the semester: at the beginning, middle, and end of the course. The beginning of the course was considered the first four weeks of a 16-week semester. The middle of the course was considered to be nine to 10 weeks into the semester. The end of the course was considered to be 15 and 16 weeks into the semester. The purpose of the individual interview schedule was to capture participant perceptions at the beginning of the course, the middle to see if there were any changes, and at the end of the course to understand the student’s final thoughts on TBL with particular attention being directed at the Innovation Collaboratory.

Finally, the teaching team, which included the professor and the teaching assistant, were interviewed twice, once at the seventh week of the semester and again at the 15th week of the semester. The interviews were semi-structured using a protocol that was designed to develop greater insights on the use and functionality of the Innovation Collaboratory, the capacity of the space to enhance TBL, the benefits and challenges of using the flipped classroom approach, and the professor’s and teaching assistant’s views on the overall progress of the students’ individual and collective learning.

Data Analysis

I analyzed the case study data deductively and inductively (Yin, 2014). Deductive analysis was conducted through a structured coding framework that consisted of the theoretical constructs that underpin the concepts of Social Constructivism and TBL (see Table 1) (Miles &
The analysis relied on a memo format (Strauss, 1987). Axial coding of all the data, including interviews and field observations, was conducted to identify initial inter-code relationships. (Glaser, Strauss, & Strutzel 1967). Next, I conducted idiographic analysis within the interview transcripts and observational field notes to identify and refine the inter-code relationships and identify any patterns or themes specific to an individual or team (Gelo, Braakmann, & Benetka, 2008). Lastly, I conducted several rounds of nomothetic analysis to narrow the patterns and/or themes among all the interviews and field observations (Gelo et al., 2008). Additionally, I conducted several rounds of inductive analysis to further uncover any relevant patterns or themes that were otherwise not revealed during the rounds of deductive analysis (Thomas, 2006). More specifically, I hand coded the interview transcripts and observational field notes to identify and record in memo format any categories or themes that were relevant to the research question, but not otherwise captured through the application of the structured coding framework (Thomas, 2006).

Table 1

Social Constructivism and TBL Construct Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Constructivism—learner-centered (SC-LC)</td>
<td>Focus on participant as a learner (perceived)</td>
</tr>
<tr>
<td>Social Constructivism—active-learning (SC-AL)</td>
<td>Engaging in learning</td>
</tr>
<tr>
<td>Social Constructivism—dialogue and interaction (SC-DI)</td>
<td>Interaction with other people</td>
</tr>
<tr>
<td>Social Constructivism—reflection (SC-R)</td>
<td>Addressing self-learning</td>
</tr>
<tr>
<td>Team-based learning—permanent team (TBL-PT)</td>
<td>Focus on team dynamic</td>
</tr>
</tbody>
</table>
Team-based learning—readiness assurance (TBL-RA)

Addressing preparedness for class

Team-based learning—application activity (TBL-AA)

Focus on class activity

Team-based learning—peer evaluation (TBL-PE)

Focus on team members

*Note.* This table shows the construct codes for Social Constructivism and TBL used in deductive analysis. The left side of the figure under codes shows the four components of Social Constructivism and the four components of TBL, denoting codes for each of the components in parenthesis. The right side of the figure under description represents a brief description of each of the components to the left.

**Limitations/Trustworthiness**

The primary limitation of a qualitative, single case study design was that the findings were restricted to the specific case with no ability to generalize (Myers, 2000). Thus, the findings in this study were limited to students enrolled in an ELC offered at a single university during the spring 2018 semester. However, this design enabled the researcher to conduct in-depth explorations that could produce rich insights and be meaningfully transferred to other contexts. Accordingly, measures were taken to enhance the trustworthiness of the analysis and transferability of insights to other courses and post-secondary institutions. In particular, I conducted member checking with participants, completed both data and researcher triangulation, developed an audit trail throughout the analysis, and wrote memos for data comparison (Creswell, 2014; Lincoln & Guba, 1985). However, I acknowledge that the current study would not capture all the conditions, factors, and experiences that may influence the perceptions of TBL.

In qualitative research, the researcher is the instrument that analyzes the data. Thus, I may have experiences that influence the data analysis (Chavez, 2008). I have not taken the ELC.
I also have not had a course with TBL, but I have had experience with collaborative learning in group settings, project-based learning, and problem-based learning. As the instrument for this research, I acknowledge my bias may influence the analysis.

**Findings**

Four themes emerged from the data: (i) team experiences superseded the acquisition of content knowledge, (ii) students in leadership roles seek additional instruction and teammate support, (iii) students did not consider the collaborative design of the learning space to be a prominent collaborative tool, and (iv) there was a positive perception of TBL. Next, each of these themes are presented and described.

**Team Experience over Content Knowledge**

Initially, nine of the 11 participants indicated entering the course with the specific goal of developing their entrepreneurial leadership knowledge and skills. By the end of the semester, when these same students were asked, “what is your takeaway from the course,” only four participants referenced entrepreneurship in their responses. The responses of the remaining participants primarily focused on the team experience. For example, Tim expressed early interest in expanding his knowledge of entrepreneurial leadership at the start of the course when saying,

> Well, I’ve always been into entrepreneurship. It’s just, for me, it’s being able to learn to work with others in a more efficient way. I think since the class is mostly based on group work, just getting to know how to work with a team, you know, and more of a professional setting, since we’re actually developing a company, or some sort of innovation, innovative technology. So yeah, just kind of learning more about entrepreneurship and how to work well with others, I guess, is what I want to take out of the course.
Yet during the exit interview, he responded,

I think my overall takeaway from the course is just improved teamwork efficiency I’d say. I think that I learned some valuable things from the professor throughout the course just on leadership and all sorts of different aspects of working with teams.

Overall, Tim’s perspective on the value of the course shifted over the semester from entrepreneurial leadership content to team dynamics.

Ed described a similar shift in focus from the entrepreneurial leadership content to team dynamics. In his first interview, Ed expressed an interest in learning about “innovation techniques, [he] guess[ed], like how do[es] [one] come up with a new idea or like something novel that has value.” In his second interview at the midpoint of the semester, he described acquiring content knowledge specific to “the entrepreneurial process and how to identify problems.” But during the final interview, he superficially touched upon the content knowledge he gained when saying, “entrepreneurial leadership is a lot of work and just entrepreneurship in general is a lot of work.” Rather than stressing the acquisition of knowledge and skills specific to entrepreneurial leadership, Ed emphasized having learned the importance of collaborative skills. For example, he stated,

Communication is really important for success in a group setting and even on an individual basis cause if you’re not working in a team you have to communicate effectively.

In general, the experience the students had working on their team overshadowed their acquisition of the knowledge and skills that underpin the course content, especially at the end of the semester just prior to delivering the final team presentation of their projects to an expert panel.

**Leadership Role and Desire for Support**
Three of the 11 participants were labeled as leaders of their team by their teammates or through their title as indicated in their final presentations (i.e., chief executive officer). As the semester progressed, the leaders showed a desire for familiarity and support, such as more conventional lectures, increased instructor-time, and greater contributions from teammates. During the exit interviews, two of the three leaders expressed the need for more instructor guidance for their team. Bridget stated that it “took a little bit too long for [the team] to get started on that assignment because nobody in the team understood [the assignment] and teacher’s attentions was elsewhere.” Alexander also expressed a similar concern when asked if there was anything he disliked about the teaching method,

There’s not enough of the professor to go around. Sometimes, it feels like he would get settled in one spot. Not settled, but maybe a team needed more help than others. But we felt like we needed a lot of help right then.

Ed did not express the same want for additional support from the professor. Instead, he wanted more support from his teammates. Midway through the semester, he stopped attending the class sessions and did not communicate with his team about his absences. His teammate, Monica, said, “[he] had pretty much been [their] leader throughout the whole project. And so, for him not to be there, it was really hard to get the other group members to focus.” Monica’s statement indicated a dependency on Ed’s leadership in the team. When Ed was asked why he missed the classes, he said he was “feeling pretty burnt out.” Only after his absence did he feel that the team dynamic changed, and his teammates were “offer[ing] to do more work”.

Bridget, Alexander, and Ed were from different teams, yet all three of the chief executive officers shared the same desire for additional support. The support they sought came in two forms: instructor and team. On one hand, the teams that Bridget and Alexander were leading
appeared to have a stronger, more collaborative dynamic and as such they yearned for more instructional support. On the other hand, Ed’s team appeared to have a less functioning dynamic, which led him to desire more participation and collaboration from his teammates. Regardless of the specific team dynamics, the three team leaders included in the sample felt the need for additional support as workload and pressures increased throughout the course of the semester.

**Design of Space as a Collaborative Tool**

A prominent part of this study was to explore how the collaborative design of the classroom space impacted TBL. The professor saw the importance of the space and its relation to the course content “because entrepreneurial leadership and any kind of change leadership for that matter typically does not happen with one person…. [that is] why [he] think[s] the space is so important and so useful.” He intended for the space to create a “community feel [so] that [the student] will have a greater sense of ownership” over their project and the classroom space. Yet, during the interviews, only two participants mentioned the design of the space without being prompted. Most of the students did not recognize or utilize the space as a collaborative tool in its entirety. “I think when they get to that point [of solving the problem.] they will use the space a lot better,” was a hope from the teaching assistant, thinking that time could be the factor to increasing engagement with the space including the usage of the lounge area and the ping pong table.

Yet, throughout the semester, the students remained at their team’s workstation. Tim stated that his team used the classroom space like “a meeting room.” Gail, from another team, said they “mostly [used their] little area,” referring to the team’s workstation. Another student, Jacob, found the whiteboard and technology to be useful, even the ping pong table “turned out to help [with] working [through] some idea forming,” but he and his team did not find a need for
the lounge area. Though, Jacob did find that it added to the aesthetic of the room, making it feel “not just all business.” My direct observations supported the participants’ claims about utilizing mainly their workstation and not the entirety of the classroom space. I saw the teams internally collaborating by using the TV screen to share their computer screen or the whiteboards to work through a process collectively, but it was rare for students to use the ping pong table, and no one used the lounge area. Throughout the semester, I also rarely observed the students leaving their workstation, unless it was to find the professor or the teaching assistant. These examples shared how teams used and viewed the classroom space, focusing more on the resources at their workstation.

In the exit interview with the teaching team, the professor mentioned,

And I think [the students] did not play as much as I wanted them too. I think they could have played more with the ping pong table or use the space in the corner a bit more to kind of get outside of the normal learning setting.

While the professor intended for the students to engage with the space in its entirety to foster creativity and enhance collaboration, the students mostly limited their activities to the resources contained with their team workstations (i.e., whiteboards, monitors). Although the students saw the individual resources at their workstation as collaborative tools, the entirety of the space was not utilized to its fullest.

Positive Perceptions of TBL

At the beginning of the semester, most participants shared a skepticism or concern about TBL. Gail stated, “I wasn’t quite sure how I felt about the [video instruction and TBL],” but after a few weeks passed, she felt more comfortable and confident that TBL would be an effective teaching method for her learning. Around mid-semester, 10 out of the 11 participants said they
would consider taking another course structured similar to the ELC with TBL as the primary pedagogy. A few of the participants, who expressed wanting to take another course similar to ELC, still had reservations, based on the way they responded to the question with either a hesitation or uncertainty (e.g., an answer with a “I think” or with a pause). Though, during the exit interview, when prompted with the same question, all 11 participants responded with a positive affirmation. Even Ed, whom at mid-semester interview, said “no” to taking a similar course, responded, “I guess, yeah, I would at this point. I know I said no last time… But I guess I would now.” The progression of the responses showed how the student perceptions of TBL changed from skepticism at the beginning of the course to overall positivity by the end of the semester.

**The Disconnect with the Themes**

The first two themes that emerged from the data had some conflicting information between the participants’ views and other patterns that emerged from the analysis of data. The first theme was where the team experiences superseded students’ recognition and understanding of their own acquisition of content knowledge. During the presentation to the panel of experts, the experts gave positive feedback about each of the team’s presentation. In addition, the comments that the panel consistently gave on the feedback form to each team were overwhelming positive with criticisms being modest and always constructive. Moreover, the teaching team described student performance using phrases such “really well” and “definitely met the bar.” The comments from the experts and the teaching team illustrated the knowledge that the students gained, whether it was on the forefront of their mind or not.

The second theme, where students in leadership roles sought additional instruction and teammate support, also had conflicting data. The participants shared concerns and wants for
support, but throughout my direct observations, I recorded very few instances of participants seeking out additional support. Interestingly, there were times where the teams were seeking instructional support, but that was mainly at the beginning of the semester as the teams were getting started with their project. Near the end of the semester, when the participants shared they wanted more instruction, I observed only a handful of moments where the team sought the instructional support. For team support, I also did not observe the teammates asking each other for help. But, that did not mean team support was not sought because it could have happened while I was not observing the specific team.

**Discussion and Recommendations**

The findings showed that student perspectives of their teams overshadowed their recognition of content acquisition. This could in part be a reflection of when the final round of interviews was conducted. Specifically, the team’s focus was on the presentation and at the time, there was an increase in interaction with each team member more than the earlier in the semester. A recommendation to keep the content in the forefront of students’ minds is to implement the ‘4-S activity’ throughout the semester. Michelsen and Sweet (2008) defined the ‘4-S activity’ as significant problem, specific choice, same problem, and simultaneous reporting. This activity involves instructors prompting teams with a significant problem relevant to the material being covered. The specific choice means the problem must have a clear answer. For example, students must choose the best choice. Same problem refers to all teams working on the same problem during the class. Simultaneous reporting is when teams share their answers to the problem at the same time (e.g., simultaneously presenting answers on mini-white boards). By consistently using the ‘4-S activity’ throughout the semester, students would be reminded of their acquisition of
content knowledge and the likelihood of team experiences overshadowing learning would be reduced.

The second theme, when leaders wanted more support, indicated a lack of interaction amongst teammates and between the students and the instructor. A recommendation is to share the student peer evaluations with their team and/or a summary anonymous constructive feedback to each team member. For interactions with the instructor, there needs to be an easy method for teams to get the instructor’s attention without having to watch and wait for the instructor to become available. The instructor could, for example, use technology to create a chat room or forum that would allow for the students to add questions and/or request for the instructor’s attention. In cases when the instructor is engaged with other students, teams would not have to watch and openly compete for the instructor’s attention. This strategy could also help the teaching assistant better support the teams in lieu of the instructor by being able to better identify common questions and issues across the teams and/or responding to the teams when able to do so without instructor input. In short, these recommendations would further foster the dialogue and interaction components of TBL between peer-to-peer and student-to-instructor interactions.

The third theme to reveal from the data indicated that students were not comfortable and/or prepared to utilize collaborative learning space in its entirety. Recall that the teaching team wanted the teams to use the whole space, but the students rarely worked outside of their team workstations. This could be a result of time constraint of only having 75 minutes per class session, which was further reduced by announcements, quiz reviews, and general team check-ins. Many of the participants mentioned wanting to complete their work during the class period and would thus be diligently focused at the workstation, giving little opportunity to explore and utilize the other areas of the classroom space. Accordingly, one recommendation is to have one
longer period class session instead of having two sessions in one week and/or having a longer class time.

Another observation was that the lounge area was mainly occupied by the instructor. As McGregor (2004) found, a sense of hierarchy is signaled when an instructor regularly occupies a space, which over time is seen as “off-limits” to students. To avoid creating the unintended social hierarchy, the instructor could avoid occupying the lounge area during the beginning of the semester and have another seat that is identical to the students. This re-structuring of space could relay to students a powerful message that the instructor is at the same level as the students and part of the learning process. Another recommendation is to have the instructor verbally invite students to join her or him in the lounge area and thereby model it as a community space. These recommendations are for instructors to create a co-learning environment with students, emphasizing the idea that the classroom space is a community.

There were limitations to this study. Because the ELC was an upper division requirement for the major, Agriculture Leadership and Communication, the student population was composed of third and fourth year students. Thus, first and second year student perceptions of TBL were not captured. In addition, the course had a reputation for requiring team-based projects and thereby students with an aversion to project and groupwork may be not be represented in this study.

Additional research needs to be conducted in student perceptions of TBL. First, investigations of the effects of the ‘4-S activity’ on student learning in a collaborative classroom space is warranted. As Jamieson (2013) argued, university learning spaces has not changed for decades. Thus, collaborative learning spaces in higher education are relatively new. There is also a call for more research on the student perceptions of the collaborative learning spaces and its
effect on learning. Research on first and second year student perceptions of TBL is also warranted. Because this study indicated that the classroom space was not perceived to be prominent tool by the student, it raises the question of whether the classroom space influences the student perceptions of TBL at all. More research needs to be conducted in whether the classroom space has an effect on student perceptions of TBL. For example, another study could be done with the same pedagogy, but in a traditional classroom space where furniture is not moveable, and students have less resources at the disposal. Lastly, the ELC had a flipped classroom delivery model. This study did not explore how that delivery model affected TBL. Additional research needs to be done on how the flipped classroom compared to a lecture may affect student perceptions of TBL in a collaborative space.

Through a qualitative, single case study with purposive sampling, this study investigated the student perceptions of TBL in a collaborative classroom space. Data was collected through interviewing the 11 participants three times during the semester: at the beginning, the middle, and the end. In addition to the interviews, participants were also directly observed for the entirety of the semester during the class time. The findings indicated that (i) the team experience was a prominent takeaway for the students, (ii) the team leaders sought more support, (iii) the students did not utilize or consider the classroom space as a collaborative tool, and (iv) TBL had an overall positive perception. Recommendations for practice and future research have been provided.
Appendix A – Observation Form

Observation Form

<table>
<thead>
<tr>
<th>Date: <strong>/</strong>/__</th>
</tr>
</thead>
</table>
| Time Frame of Observation (start to end): _____:_____
  to _____:_____ |
| Alias | | | | | |

**Observations**

<table>
<thead>
<tr>
<th>Content-based interaction</th>
<th>Individual:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Team:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dialogue and interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Team</td>
</tr>
<tr>
<td>Cross-Team</td>
</tr>
<tr>
<td>Interaction with Collaboratory</td>
</tr>
<tr>
<td>Usage of Teaching Resources</td>
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</tbody>
</table>

**General Observations / Comments**
References


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