

The Effects of an Active Learning Strategy on Students' Attitudes and Students' Performances in Introductory Sociology Classes

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Abstract: Relevant in many academic contexts, recent scholarship in sociology has challenged departments to improve the public face of the discipline through introductory classes. However, this scholarship has not addressed how departments can improve the discipline's public face while maintaining student performance. It is one thing to create an engaging introductory class; it is another to create an engaging introductory class that ensures student learning. As previous literature has highlighted, one way to achieve the latter is to implement active learning strategies. In this article we examine the effects of Team-Based Learning (TBL), an active-learning strategy, on students' attitudes toward sociology (e.g. the public face of the discipline) as well as students' performances. Using a static-group comparison design, scores on final exams and an attitude survey were compared between two TBL classes and two classes that employed lecture-based learning (LBL) at a branch campus of a large mid-western university (n=74). Results from t-tests of independent samples revealed that, as opposed to students in LBL classes, students in TBL classes have much more positive attitudes toward the discipline while demonstrating equivalent performances. Although our research has limitations, the findings indicate that instructors of introductory classes can employ active learning strategies to improve the public face of their discipline while ensuring student learning.

Keywords: active learning, students' attitudes, students' performances, team-based learning

For many students introductory classes are the primary, if not only, interaction they will have with academic disciplines. Given this reality, recent scholarship of teaching and learning in sociology challenges sociology departments to reconsider the ways in which they teach introductory classes (Greenwood & Howard, 2011; Greenwood, 2013; Zipp, 2012). Zipp (2012) reasons that departments should view introductory classes as the discipline's "public face," reconfiguring classes to incorporate student centered approaches. Nevertheless, even despite this suggestion, Zipp (2012) notes the "uneasy tension" (p. 309) that exists between implementing student centered instructional methods and the assurance that students will learn concepts required for upper division classes. In other words, it is one thing to create an engaging introductory class; it is another to create an engaging introductory class that ensures student learning. Accordingly, introductory sociology classes, and by extension all introductory classes, should have two specific objectives: (1) improve the public face of the discipline; and (2) ensure that students have the competency to succeed in future discipline-specific classes. Achieving a balance between these two objectives can be difficult. Nonetheless,

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recent literature has stressed the incorporation of active learning methods in college classes in order to improve student engagement (Atkinson & Hunt, 2008; Bowen et al., 2011; Parmer & Trotter, 2004). Such methods include simple think-pair-share breaks in lectures (during which students are directed to pair up and reflect the information they received during a lecture segment to one another), or more complex peer instruction methods (in which students are charged to become experts in course content and teach that content to other students), or even more multifaceted collaborative strategies (for which students work in groups throughout the term to complete activities that reflect course objectives) (Qualters, 2002). Although this research is significant in shaping the pedagogy of collegiate classrooms, there is an implicit assumption that active learning strikes the balance between improving the public face of the discipline and ensuring students' competencies. The specific aim of this research is to test this assumption by examining the effect of an active learning strategy on students' attitudes and performances in introductory sociology classes.

Two different sets of classes were employed to accomplish our aim. The first set of classes used Team-Based Learning (TBL), an active learning strategy that utilizes fixed student groups to teach concepts and their applications. The second set of classes used lecture-based learning (LBL), a strategy in which students are passive recipients of learning. We should note that this paper is not denigrating the value of LBL; such value has been confirmed in previous research (Bligh, 2000; Lawler, Chen, & Venso, 2007;). Rather, parallel to other studies on active learning (Carmicheal, 2009; Hayberan, 2007; Malone & Spieth, 2012), we use LBL as a control (e.g., the placebo) to ascertain the effect that active learning (e.g. the treatment) has on students' attitudes and performances. This research is significant because it provides practical information for academic departments if they follow Zipp's (2012) advice, improving the public face of a discipline through introductory classes while ensuring that a particular level of student learning is achieved. Given our aim and claim of significance, this paper is organized into four sections. We first provide a background on LBL and TBL as well as a description of how these strategies were applied in the classes that we researched. Then, in the second section, we detail our research methods, including our hypotheses, study design, and a description of the study participants. The third section reports our findings, which is followed in the fourth section by a discussion of the results. We conclude this paper by giving some general comments about the study and direction for future research.

Background on LBL and TBL

The most ubiquitous form of collegiate pedagogy is the lecture (Bligh, 2000; Huxham, 2005). There are several reasons for this. First, economic pressures on institutions of higher education demand that large classes be taught by minimal faculty, relegating LBL as the most efficient pedagogy to satisfy such demands (Huxham, 2005). Second, instructors who have developed lecture-based habits are resistant to change (Wiemar, 2002). Third, as opposed to facilitating critical thinking or developing behavioral skills, lecture is as effective as any other instructional method for transmitting information from teacher to student (Bligh, 2000). Since many introductory classes are designed to provide base competencies in a discipline, transmission of information is, at times, given priority over critical thinking or the acquisition of discipline specific skills. Consequently, introductory classes are often sites for LBL. Fourth, Lawler et al. (2003) report that, at their institution, students generally favored having a class with structured lecture that allows time for the free exchange of questions compared to classes that were based on

group work. According to these students, lecture is best when: (1) instructors show enthusiasm; (2) have good presentation skills; and (3) explain complex concepts clearly. Such results are echoed by Bain (2004), who notes that highly rated college instructors treat lecturing more as a conversation rather than a performance, attempting to help students “construct knowledge rather than simply absorb it” (p. 126).

Despite the reasons why LBL persists on college campuses, proponents of active learning stress the inability of LBL to inspire interest in a subject (Bligh, 2000). This is the point of Zipp’s (2012) challenge – faculty who teach introductory classes must consider how to inspire interest in the discipline (e.g., improve the public face) while transmitting information to students. Zipp (2012) admonishes,

“Realizing that most students will forget most of what we cover, what knowledge do we want them to retain? My quick answer: ‘context matters.’ I am less concerned with the particular ways in which we help students understand this, other than to favor [pedagogical] approaches that use the richness of sociology to help students better understand their own lives and experiences...If Intro. really is our public face, we clearly need to spend a considerable amount of time in making sure that this is how we want to be seen” (P. 310).

Although Zipp (2012) does not focus on particular instructional methods, his challenge parallels other researchers who explicitly note that pedagogical approaches are to be student-centered (Barr & Tagg, 1995; Weimar, 2002), transcending teacher-centered pedagogies that are primarily designed to transmit information.

One student-centered active learning strategy is Team-Based Learning (TBL). As a faculty member at the University of Oklahoma in the 1970’s, Larry Michaelson developed TBL to replace lecturing as the method of instruction in his classes (Michaelson, 2004a). Through reflection and multiple iterations Michaelson ultimately refined his methods of instruction into the present TBL process. Fink (2004), who researches collegiate teaching and is coeditor of *Team-Based Learning: A Transformative Use of Small Groups in College Teaching*, defines TBL as “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. 9). Given this definition, Fink (2004) argues that TBL is distinctive from other forms of cooperative learning because it (1) employs “teams,” as opposed to groups, and (2) is implemented as a long-term instructional strategy. Teams, in this sense, are different from groups in that they demand a higher level of commitment to the welfare of the group and consequently a higher level of trust among the group members (Fink, 2004). Practically speaking, teams form out of groups made up of a small number of students who meet regularly and are held accountable not only as a team, but also as individuals working on a team. To establish and maintain team cohesion, four essential principles govern the TBL process: 1) proper formation and management of teams; (2) accountability for team and individual work; (3) assignment design that promotes learning and team development; and (4) frequent and timely feedback (Michaelson, 2004b; Michaelson & Sweet, 2008). Drawing on the aforementioned literature, in the following paragraphs we describe the procedures of LBL and TBL classes examined in this study.

Procedures of LBL and TBL Classes

Both sets of classes were introductory courses at a branch campus of a large mid-western university that met once a week for two hours and forty minutes over the fall and winter quarters of the 2011-2012 academic year. All classes met on the same day of the week. During the fall quarter the TBL class met in the evening; whereas the LBL class met in the afternoon. Since evening classes draw a large segment of non-traditional students the arrangement was reversed during the winter quarter such that the TBL class met in the afternoon and the LBL class met in the evening. All classes had the same objectives: (1) explain sociological concepts pertaining to social theory, research methods, culture and media, socialization and the construction of reality, groups and networks, social control, deviance, social stratification, race and ethnicity, and gender inequality; (2) utilize popular culture literature and media as data to critically analyze society through the use of a sociological imagination; and (3) apply sociological theories in applied contexts.

In accordance with Lawler et al. (2003), LBL classes were not straight lectures. Rather, LBL classes were dominated by a structured lecture accompanied by a PowerPoint outline. However, time was given for students to review content from the previous lecture, work in small groups to complete a task related to the content, or ask questions; nonetheless these activities were not regularly scheduled. Since the classes were two hours and forty minutes in length, a ten minute break was given to students half way through the lecture. Additionally, students were to complete five writing assignments based on prompts supplied by the instructor. These writing assignments constituted 45 percent of the course grade. Another 45 percent of the course grade was based on scores for the mid-term and final exam. The last 10 percent of the grade was based on attendance, which was taken every class.

TBL classes were also two hours and forty minutes in length, yet their structure was quite different from LBL classes. Students in TBL classes spent the first twenty minutes of class completing an *Individual Readiness Assessment Test* (i-RAT). Practically, these were reading quizzes that included ten multiple choice as well as one extended response question based on the readings assigned for that class. The rationale behind the i-RAT is two-fold: (1) it provides individual accountability for assigned readings (see TBL principle #2); (2) it provides an opportunity for the instructor to see which concepts are understood from the assigned readings and which concepts need reinforcement. Once i-RATs were finished students moved into their teams, which were formed by the instructor using *catme.org*, an online team forming tool produced by Purdue University and supported by the National Science Foundation (Loughry, Ohland, & Moore, 2007). The website provides a platform for instructors to objectively form and manage teams (TBL principle #1).

Once teams gathered they were given a *Team Readiness Assessment Test* (t-RAT), which is identical to the i-RAT. In order to achieve timely feedback (TBL principle #4) teams used an *Immediate Feedback Assessment Technique* (IF-AT) form, which is a response sheet that reveals answers after students have scratched off an opaque latex layer covering a response set (Sweet & Michaelson, 2012). Correct answers are revealed with a star while incorrect answers are left blank (Epstein, Epstein, & Brosvic, 2001); thus teams immediately knew which questions they answered correctly. To provide team accountability (TBL principle #2) t-RATs were scored and entered into the course gradebook (see below for a breakdown of grade weights). Since IF-AT forms only apply to multiple choice questions, teams were asked to discuss their individual answers to the extended response question from the i-RAT. As teams worked on the t-RAT the instructor graded and

conducted an item analysis on the completed i-RATs. The item analysis exposed which concepts the students understood and which concepts needed to be reinforced.

Once the t-RATs and the item analysis of the i-RATs were complete, the class spent approximately 20 minutes in an *Assessment* session where they specifically covered concepts from the reading that needed reinforcement. Students were then given a 10 minute break. Once students were back from the break they entered into a time of *Correction and Appeal* (approximately 40 minutes) where students asked the instructor questions about the content of the reading or appealed their answers on i-RATs. If students did not have questions or appeals the instructor provided further reinforcement of concepts through a short clarifying lecture (Michaelson & Sweet, 2011) often using a PowerPoint presentation or other class activities for support. The last forty minutes were spent in teams completing two or three *Team Activities*. These activities typically simulated scenarios in which students had to engage in higher-ordered thinking, synthesizing both individual input and content from the assigned chapter (fulfilling TBL principle #3).

Twice during the quarter each student was required to complete a performance report for their team members. Performance reports had two effects: (1) It kept individual students accountable for their work within the team (TBL principle #2), and (2) it improved team cohesion as loafing students were given feedback concerning how they could improve their work on the team (TBL principle #1 and #4). Grades in TBL classes included i-RATs (worth 15 percent), team performance, which was a combination of t-RAT and performance report scores (worth 20 percent), one writing assignment (worth 10 percent), and attendance (worth 10 percent). As with students in LBL classes, students in TBL classes were required to take a mid-term and final exam (together worth 45 percent of the final grade). The mid-term and final exams were the same in both LBL and TBL classes, providing a reliable measure of comparison for students' performances. In the next section we offer more detail about these comparisons as well as other methods of analysis employed in this study.

Methods

Hypotheses

To reiterate our aim is not to compare the effectiveness of LBL to TBL; rather to compare students' attitudes and students' performances in introductory classes that employ passive learning strategies (e.g, LBL) and active learning strategies (e.g., TBL). However, as opposed to previous research, we shift the focus from the effects of active learning on student engagement (Atkinson & Hunt, 2008; Bowen et al., 2011; Parmer & Trotter, 2004), to the effects of active learning strategies on students' attitudes toward the discipline, the latter of which we treat as an indicator of the discipline's public face. Nonetheless, as with previous research (Beatty et al., 2009; Carmichael, 2009; Haberyan, 2007; Malone & Speith, 2012), we are still interested in students' performances, but not necessarily performance improvement. For this paper we would like to know whether or not students in introductory TBL classes can achieve *equivalent* performances as students in introductory LBL classes. In this sense, we are not concerned with improving students' grades; rather, we are concerned that students achieve a level of content knowledge in classes with active learning strategies as they might achieve in classes with passive learning strategies. Therefore, for the purposes of this research, we will use a null hypothesis format. Our research hypotheses are:

Hypothesis #1: There is no difference in students' attitudes toward sociology between active learning (TBL) and passive learning (LBL) introductory classes

Hypothesis #2: There is no difference in students' performances between active learning (TBL) and passive learning (LBL) introductory classes.

Study Design

To determine whether we can accept or reject the hypotheses, this study employed a static-group comparison design (Singleton & Straits, 2005), in which post-treatment scores are compared between a control group (LBL) and an experimental group (TBL). To control for internal validity (Singleton & Straits, 2005), the same instructor taught every class, employed the same course objectives (as previously stated), followed the same course outline, used the same text book, and administered the same mid-term and final exam.

For the purpose of this study, students' performances were measured by final exam scores, whereas students' attitudes toward sociology were measured by responses on an attitude survey. The attitude survey is adapted from Bauer (2008) which measures students' attitudes through twenty opposing indicators on a seven point scale (Appendix 1). In some cases the responses on the attitude survey were reverse coded in order to have positive attitudes consistently fall on the higher end of the scale. A factor analysis³ of the attitude indicators caused eight indicators to drop out, revealing three potential factors. Two of these factors were highly correlated and the third demonstrated low reliability ($\alpha = .663$). For the sake of robustness we forced the twelve attitude indicators from these three factors into one index by averaging the indicator scores across all participants. The resultant "Attitude Index," as is labeled through the remainder of the article, demonstrates high reliability ($\alpha = .871$) while eliminating possible multicollinearity between indicators.

We also controlled for attitudes toward the instructional methods and instructor effectiveness through two questions on the attitude survey: (1) How effective was the instructor in teaching this course; and (2) How well did you like the instructional methods used in this course (Appendix 1). These controls were added in case students' attitudes toward sociology were collinear with students' attitudes toward the instructional strategy employed or the course instructor. Furthermore, we controlled for students' self-report of learning (Appendix 1), self-report of hours spent on out-of-class readings (Appendix 1), and attendance, assuming that each of these variables had an effect on students' performances. After the data was collected two-tailed t-tests were performed to determine significant differences ($p\text{-value} \leq .05$). A supplementary section of the attitude survey was completed only by TBL students. This section asked students to rank the instructional effectiveness of the various TBL elements (e.g., i-RATs, t-RATs, individual reading assignments, and Team Activities), whether or not they had negative and positive experiences working on a team, and open-ended questions about their negative or positive experiences. These open-ended responses were coded for (1) positive and negative comments and (2) comments related to attitudes toward sociology.

Participants

³ Principle Axis Factor Analysis with Direct Oblimin Rotation

Participants in this study were students at a branch campus of a large mid-western university who took Introduction to Sociology during the fall and winter quarters of the 2011-2012 academic year. Participation was not compulsory; instead students were given an opportunity to participate in the study by signing an informed consent form allowing their attendance record, final exam score, and attitude survey to be used in the study. The instructor of the classes had no knowledge of who participated in the study as informed consent and attitude surveys were collected by an independent survey facilitator. Attendance records and final exam scores were collected from course grade books several weeks after the completion of the winter quarter.

In total 73 percent (86 out of 118) of students agreed to participate. Twelve students did not complete an attitude survey leaving 74 viable cases, of which 31 were from LBL classes and 43 were from TBL classes. Although the sample includes a disproportionate amount of females (53 females compared to 21 males), it is a fair representation of the students who took sociology classes at this institution. No other demographic variables were evaluated. Of the 32 students who chose not to participate in the study, a disproportional amount were from LBL classes (23 LBL students compared to 9 TBL students), in particular almost half of the non-participants (15 of the 32) came from the LBL class taught in the afternoon of the 2011 fall quarter. Anecdotally, as compared to the other classes, this LBL class had a large number of first-year students with no prior college experience. Speculating then, some of the students in this class might have opted-out of the study to minimize their transition to college. Beyond our speculation, we could not detect any noticeable differences in rates of attendance or students' performances between participants and non-participants. Furthermore, since non-participants could not take the attitude survey we have no knowledge if there was a difference in attitudes toward sociology between participants and non-participants. Nonetheless, in the next section we analyze the performances and attitudes of students who chose to participate.

Results

In general, students in TBL classes demonstrated more positive attitudes toward sociology than students in LBL classes. Table 1 lists the twelve attitude indicators that factor into the Attitude Index, five of which are significantly different from one another ($p \leq .05$). Students in TBL classes reported that sociology is more comprehensible, safe, interesting, secure, and pleasant than students in LBL classes. When these twelve attitudes are aggregated in the Attitude Index (Table 1), results revealed that students in TBL classes had, on average, significantly more positive aggregate attitudes toward the discipline of sociology than students in LBL classes. Although this study employs a small sample size, the statistical power of the comparison of students' attitudes between TBL and LBL was relatively robust ($\beta = 0.0618$). Consequently, we rejected our first hypothesis that there is no difference in students' attitudes toward sociology between TBL and LBL classes.

Students in TBL classes averaged three percentage points higher on the final exam when compared to students in LBL classes (Table 2); however the difference was not statistically significant. This result was due to variance in final exam grades. The standard deviation of exam scores in LBL classes (15.94) was larger than the standard deviation of exam scores in TBL classes (11.09), which indicated that there was just too much variability between the exam scores of LBL and TBL classes to conclude that, more than 95 percent of the time, students in TBL classes would out-perform students in LBL classes. Consequently, we failed to reject our second hypothesis;

there was no difference in students' performances between TBL and LBL classes. In other words, students in TBL classes performed just as well as students in LBL classes.

There was no difference in the rates of attendance between students in LBL and TBL classes (Table 2). Given that the average attendance between both sets of classes was above 10 (out of a possible 11), students generally attended these classes. This result was most likely an artifact of the attendance grade, which was worth 10 percent of a student's final grade in both TBL and LBL classes. However, there was a significant difference in the hours that TBL and LBL students spent reading outside-of-class (Table 2). Most likely due to the fact that students had to complete an i-RAT at the beginning of every class, students in TBL classes, on average, spent approximately 45 more minutes reading outside-of-class than students in LBL classes. Nevertheless, as revealed by the final exam grades, the extra time that students in TBL classes spent on out-of-class reading had no significant effect on students' performances when compared to the performances of students in LBL classes.

Furthermore, students in TBL and LBL classes reported no differences in terms of instructor effectiveness (Table 2), indicating that the instructional strategies employed in TBL and LBL classes had no effect on students' attitudes toward the instructor. However, in terms of students' attitudes towards their own learning, the results indicated that students in TBL classes perceived that they learned significantly more than students in LBL classes. Again, such perceptions seemed to have no effect on students' actual performances. Nonetheless, students in TBL classes reported that they liked the instructional method employed in their classes significantly more than students in LBL classes, indicating very favorable attitudes toward the TBL process. These attitudes were supported by students' responses on the supplemental section of the attitude survey. In total, 100 percent of students in TBL classes reported that they had positive experiences working in a team, whereas only 23 percent had negative experiences⁴. To summarize then, students in TBL classes maintained equivalent grades to students in LBL classes, yet had better attitudes toward sociology, spent more time on out-of-class readings, perceived that they learned more, and generally liked the instructional method employed in their classes better than students in LBL classes. In the next section we discuss the implications of our findings as well as suggest reasons as to why students in TBL classes had more positive attitudes than students in LBL classes.

⁴ These percentages add up to 123 percent, which is possible because some students reported having both negative and positive experiences.

Table 1

Descriptive Statistics for the Attitude Index and Attitude Indicators

Variable	Lecture-Based (LBL) Classes			Team-Based (TBL) Classes			P-value	Range
	N	Mean	Std. Dev.	N	Mean	Std. Dev.		
Attitude Index	31	4.60	0.88	42	5.06	0.71	0.12	1-7
Comprehensible/ Incomprehensible ²	31	3.48	1.65	41	2.54	1.42	.011	1 = Comprehensible 7 = Incomprehensible
Safe/Dangerous ²	31	3.35	1.54	42	2.52	1.37	.017	1 = Safe 7 = Dangerous
Interesting/Dull ²	31	2.45	1.69	42	1.74	1.11	.033	1 = Interesting 7 = Dull
Insecure/Secure	31	4.35	1.2	42	4.98	1.28	.039	1 = Insecure 7 = Secure
Pleasant/Unpleasant ²	31	3.13	1.48	42	2.55	0.99	.048	1 = Pleasant 7 = Unpleasant
Satisfying/ Frustrating ²	31	3.26	1.59	42	2.69	1.24	.091	1 = Satisfying 7 = Frustrating
Exciting/Boring ⁵	31	3.29	1.56	42	2.69	1.7	.129	1 = Exciting 7 = Boring
Chaotic/Organized	31	4.74	1.48	42	5.21	1.44	.176	1 = Chaotic 7 = Organized
Good/Bad ²	31	2.65	1.6	42	2.24	1.27	.229	1 = Good 7 = Bad
Confusing/Clear	31	4.06	1.32	41	4.41	1.34	.272	1 = Confusing 7 = Clear
Scary/Fun	31	5.23	1.43	41	5.41	1.48	.589	1 = Scary 7 = Fun
Worthless/Beneficial	31	5.94	1.41	42	6.07	1.57	.704	1 = Worthless 7 = Beneficial

⁵ Items were reversed coded when establishing the Attitude Index

Table 2

Statistics for Lecture-Based Classes and Team-Based Classes

Variable	Lecture-Based (LBL) Classes			Team-Based (TBL) Classes			P-value	Range
	N	Mean	Std. Dev.	N	Mean	Std. Dev.		
Final Exam	31	74.28	15.94	43	77.56	11.09	0.301	41percent - 98percent
Attendance	30	10.15	1.48	43	10.31	1.04	0.508	5 - 11 Classes
Instructor Effectiveness	31	6.35	0.84	41	6.56	0.55	0.213	1 = Not Effective 7 = Effective
Degree of Learning	31	5.71	1.13	41	6.22	0.80	0.028	1 = Learned Nothing 7 = Learned A Lot
Liked Instructional methods	31	5.65	1.47	41	6.32	0.93	0.021	1 = Did Not Like 7 = Liked Very Much
Out-of-Class Reading	27	2.34	1.32	38	3.16	1.58	0.032	.5 hours - 5 hours

Discussion and Conclusion

Our findings indicate that, when compared to students in LBL classes, students in TBL classes demonstrated more positive attitudes without sacrificing performance. The question now becomes – why?

One critical explanation offered by Hayberan (2007) is that TBL provides a novel approach to teaching. Students who are bored with traditional lecture-based methods might respond to the new style by engaging in the class and having better attitudes toward the subject. However, if TBL became the preferred instructional method on college campuses these results might disappear as the novelty of the instructional method wears off; causing students to disengage and attitudes toward subject matter to flatten. However, the scope of this study can neither confirm nor reject this explanation.

Alternatively, parallel with previous research, we argue that students of TBL classes have more positive attitudes toward the discipline than students of LBL classes because they are actively

engaged in the learning process through team-based activities and discussion without much direct interaction with the instructor. Consequently, student's affinity toward TBL methods affected learning as students in TBL classes reported that they learned more than students in LBL classes. In fact, comments from the supplementary section of the attitude survey revealed that students ranked t-RATs as the most effective instructional element of the TBL process when compared to individual reading assignments, i-RATs, and team activities. In the open response segment of the supplementary section, one student noted that working on a team was a positive experience because it provided the ability, "to discuss things among our group on the [t]-RATs [and] to distinguish why our answer we chose was the correct one." Another student remarked, "It was good to discuss the different ways or reasons everyone came up with their answer. [I]t created a dialogue that help[ed] [me] understand the coursework." A third student stated, "I was able to understand why someone chose the answer they did [on the i-RAT], which in turn helped me understand the content, they ended up helping me understand by teaching me what they did to understand."

Subsequently, since TBL students liked their instructional method they were also more likely to have better attitudes toward the discipline itself. This argument is best exemplified by a student who stated, "Initially I have become more apt at group work and learning other people's perspectives. I feel [teamwork] benefited my understanding of sociology as a whole." In other instances students referenced attitudes in relation to course material. One student remarked, "I enjoyed being able to brainstorm ideas with others and hear/give opinions in small groups where we felt more comfortable," while another noted, "We had a fun, more relaxe[d], clearer way of understanding and learning the material every time." Ultimately what these accounts indicate is that active learning through the TBL process made the class more enjoyable and the discipline more appealing.

Nevertheless, we should note that our study has limitations. First, since this study examined only one active learning strategy (TBL) it cannot be generalized to all active learning methods. Thus we do not know if our results can be replicated when comparing other active learning strategies, such as think-pair-share, to non-active learning strategies. However, as indicated in the previous statements, as opposed to the process as a whole, students emphasized the active learning elements of TBL (e.g., class discussion, group work, and peer teaching). In this sense, TBL shares many similar elements with other active learning methods, and leads us to hypothesize that our results can be supported by more work in this area.

Second, this study focused on attitude and performance differences between active and non-active strategies (e.g., between category differences). We do not know if these same differences exist between various active learning methods (e.g., within category differences). For example we do not know if attitudes and performances will be significantly different between students who take a class that employs think-pair-share activities and one that employs TBL, both active learning methods. Thus, given our first and second limitations, future research is required to compare attitudes and performances between multiple active and non-active learning strategies.

Last, it is appropriate for us to recognize the amount of time and effort that active learning strategies require on behalf of the instructor. For example, TBL instructors take responsibility for aspects of a course beyond preparing a lecture and taking attendance; they have to properly form teams, manage team cohesiveness, create innovative assignments, and provide feedback with little turn-around time. Thus some instructors may not be able to implement active learning strategies in their classes due to time constraints and professional demands. Although we realize that curriculum adaptation takes additional work up-front, we believe the improvement of the public

face (Zipp, 2012) of sociology (as seen through more positive students' attitudes) as well as the maintenance of student competency (as demonstrated by equivalent final exam grades between students in TBL and LBL classes) is well worth the effort.

Appendix 1. Attitude Survey

Instructions: A list of opposing words appears below. Rate how well these words describe your feelings about sociology. Think carefully and try not to include your feelings toward sociology teachers. For each line, choose a number between the two words that describes exactly how you feel. Mark an 'X' on that number.

Sociology is...

- | | | |
|-------------------|-------------------------------------|------------------|
| 1. easy | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | hard |
| 2. worthless | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | beneficial |
| 3. exciting | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | boring |
| 4. complicated | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | simple |
| 5. confusing | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | clear |
| 6. good | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | bad |
| 7. satisfying | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | frustrating |
| 8. scary | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | fun |
| 9. comprehensible | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | incomprehensible |
| 10. challenging | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | not challenging |
| 11. pleasant | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | unpleasant |
| 12. interesting | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | dull |
| 13. disgusting | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | attractive |
| 14. comfortable | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | uncomfortable |
| 15. worthwhile | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | useless |
| 16. work | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | play |
| 17. chaotic | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | organized |
| 18. safe | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | dangerous |
| 19. tense | _1_ _ 2_ _ 3_ _ 4_ _ 5_ _ 6_ _ 7_ _ | relaxed |

20. insecure |_1_|_2_|_3_|_4_|_5_|_6_|_7_| secure

Instructions: For the next three questions please choose a number between the two words that describes exactly how you feel given the prompt. Mark an 'X' on that number.

1. How much do you think you learned taking this class?

I learned nothing |_1_|_2_|_3_|_4_|_5_|_6_|_7_| I learned a lot

2. How effective was the instructor in teaching this course?

Not effective |_1_|_2_|_3_|_4_|_5_|_6_|_7_| Very effective

3. How well did you like the instructional methods used in this course?

I did not like |_1_|_2_|_3_|_4_|_5_|_6_|_7_| I liked very much

How many hours per week did you spend on reading assignments? _____

References

Atkinson, M. P., & Hunt, A.N. (2008). Inquiry-guided learning in sociology. *Teaching Sociology*, 36(1), 1-7. doi: 10.1177/0092055X0803600101. Retrieved July 28, 2014, from <http://tso.sagepub.com/content/36/1/1.full.pdf+html>.

Bain, Ken. (2004). *What the best college teachers do*. Cambridge, MA: Harvard University Press.

Barr, R. B., & Tagg, J. (1995). From teaching to learning – A new paradigm for undergraduate education. *Change*, 27(6), 12-25. Retrieved November 20, 2014 from http://cet.usc.edu/resources/teaching_learning/docs/teaching_to_learning.pdf.

Bauer, C.F. (2008). Attitude towards chemistry: A semantic differential instrument for assessing curriculum impacts. *Journal of Chemical Education*, 85(10), 1440-1445. doi:10.1021/ed085p1440

Beatty, S. J., Kelley, K.A., Metzger, A.H., Bellebaum, K., & McAuley, J.W. (2009). Team-based learning in therapeutics workshop sessions. *American Journal of Pharmaceutical Education*, 73(6), 1 – 7. Retrieved July 28, 2014, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2769522/>.

Bligh, D. (2000). *What's the use of lectures?* San Francisco: Jossey-Bass.

Killian, M. and Bastas, H.

Bowen, G., Burton, C., Cooper, C., Cruz, L., McFadden, A., Reich, C., & Wargo, M. (2011). Focus on teaching and learning: Listening to the voices of today's undergraduates: Implications for teaching and learning. *Journal of Scholarship of Teaching and Learning*, 11(3), 21-33. Retrieved July 28, 2014, from <http://josotl.indiana.edu/article/viewFile/1825/1822>.

Carmicheal, J. (2009). Team-based learning enhances performance in introductory biology. *Journal of College Science Teaching*, April/March, 54 – 61.

Epstein, M. L., Epstein, B. B., & Brosvic, G.M. (2001). Immediate feedback during academic testing. *Psychological Reports*, 88(3), 889-894. Retrieved July 28, 2014, from http://www.epsteineducation.com/home/articles/file/research/immediatefeedbackduringacademic_testing.pdf.

Fink, L. D. (2004). Beyond small groups. In L. K. Michaelsen, A. B. Knight, & L. D. Fink (Eds.), *Team-based learning: A transformative use of small groups in college teaching* (pp. 3 – 26). Sterling, VA: Stylus Publishing.

Greenwood, N. A. (2013). Toward publicly responsive sociology curricula: The role of introductory sociology. *Teaching Sociology*, 41(3), 232 – 241. Retrieved July 28, 2014, from <http://tso.sagepub.com/content/41/3/232.full.pdf+html>. doi: 10.1177/0092055X13485026

Greenwood, N., & Howard, J. (2011). *First contact: Teaching and learning in introductory sociology*. Lanham, MD: Rowan & Littlefield Publishers.

Hayberan, A. (2007). Team-based learning in an industrial/organizational psychology course. *North American Journal of Psychology*, 9(1), 143-152.

Huxham, M. (2005). Learning in lectures: Do 'interactive windows' help? *Active Learning in Higher Education*, 6(1), 17-33. doi: 10.1177/1469787405049943

Lawler, E., Chen, X.M., & Venso, E. (2007). Student perspectives on teaching techniques and outstanding teachers. *Journal of Scholarship of Teaching and Learning*, 7(2), 32-48. Retrieved November 21, 2014, from <http://josotl.indiana.edu/article/view/1683>.

Loughry, M.L., Ohland, M. W., & Moore, D. D. (2007). Development of a theory-based assessment of team member effectiveness. *Educational and Psychological Measurement*, 67(3), 505-525. doi: 10.1177/0013164406292085

Malone, E., & Spieth, A. (2012). Team-based learning in a subsection of a veterinary course as compared to standard lectures. *Journal of Scholarship of Teaching and Learning*, 12(3), 88-107. Retrieved July 28, 2014, from <http://josotl.indiana.edu/article/view/2149/2061>.

Michaelsen, L. K. (2004a). Preface. In L. K. Michaelsen, A. B. Knight, & L. D. Fink (Eds.), *Team-based learning: A transformative use of small groups in college teaching* (pp. vii - xi). Sterling, VA: Stylus Publishing.

Journal of the Scholarship of Teaching and Learning, Vol. 15, No. 3, June 2015, pp. 53-67.
doi: 10.14434/josotl.v15i3.12960

Killian, M. and Bastas, H.

Michaelsen, L. K. (2004b). Getting started with team-based learning. In L. K. Michaelsen, A. B. Knight, & L. D. Fink (Eds.), *Team-based learning: A transformative use of small groups in college teaching* (pp. 27-50). Sterling, VA: Stylus Publishing.

Michaelsen, L. K., & Sweet, M. (2008). The essential elements of team-based learning. *New Directions for Teaching and Learning*, 116(Winter), 7 – 27. doi: 10.1002/tl.330

Michaelsen, L. K., & Sweet, M. (2011). Team-based learning. *New Directions for Teaching and Learning*, 128(Winter), 41 – 51. doi: 10.1002/tl.467

Parmar, D., & Trotter, E. (2004). Keeping our students: identifying factors that influence student withdrawal and strategies to enhance the experience and retention of first-year students. *Learning and Teaching in the Social Sciences*, 1(3), 149-168. doi: 10.1286/ltss.1.3.149/0

Qualters, D. (2002). Do students want to be active learners. *Journal of Scholarship of Teaching and Learning*, 2(1), 51-60. Retrieved November 21, 2014, from <http://josotl.indiana.edu/article/view/1588/1587>.

Singleton, R. A., & Straits, B.C. (2005). *Approaches to Social Research* (4th ed.). New York: Oxford University Press.

Sweet, M., & Michaelsen, L. K. (2012). Critical thinking and engagement: Creating cognitive apprenticeships with team-based learning. In M. Sweet, & L. K. Michaelsen (Eds.), *Team-based learning in the social sciences and humanities* (pp. 5-32). Sterling, VA: Stylus Publishing.

Weimer M., (2002). *Learner-centered teaching: Five key changes to practice*. San Francisco, CA: Jossey-Bass.

Zipp, J. F. (2012). 2011 Hans O. Mauksch address: Teaching for whom? *Teaching Sociology*, 40(4), 301-311. Retrieved July 28, 2014, from <http://tso.sagepub.com/content/40/4/301.full>. doi: 10.1177/0092055X12455650