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*Members of a group consider themselves mostly accountable to an external authority, while members of a team also hold themselves and each other accountable. In moments of contribution and accountability, discussions of course material in the TBL classroom acquire a remarkable emotional charge.*

## The Social Foundation of Team-Based Learning: Students Accountable to Students

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When I was taking science here at Harvard, it was awfully intimidating at times, and . . . it was just *lonely*. You're sort of in your own world. I didn't know the student's name to my left. I didn't know the student's name to my right. That's really disconcerting.  
Eric Chehab, Harvard student (Derek Bok Center, 1992)

No man is an island.

John Donne

The human need for a sense of belonging is deep and powerful and has been explored by scholars as prominent as Freud (1922), Festinger (1954), and Schutz (1958), among many others. Following Tinto's book *Leaving College: Rethinking the Causes and Cures of Student Attrition* (1987), many began investigating the extent to which a college student's sense of social connection in the classroom affects variables like academic performance, self-efficacy, motivation to learn, and perceptions of one's instructor, peers, and task value (Booker, 2008; Freeman, Anderman, and Jensen, 2007; Pittman and Richmond, 2007; Summers, Beretvas, Svinicki, and Gorin, 2005).

Given this growing understanding of the social dimension of the classroom, it is no surprise that positive emotional and motivational effects of

various forms of small group learning have become fairly well documented (Johnson and Johnson, 1989; Johnson, Johnson, and Smith, 2007; Boekarts and Minnaert, 2006; Natasi and Clements, 1991). As one form of small group learning, team-based learning's unique sequence of individual and group work with immediate feedback enables and encourages students to engage course content and each other in remarkable ways. Specifically, team-based learning (TBL) creates an environment where students can fulfill their human need to belong in the process of negotiating and mastering course content with their teammates.

What sets TBL apart from other forms of small group learning is its accountability structure—a rhythm of moments in which students' social and intellectual experiences of the classroom become interlocked and amplified. The first chapter in this volume describes the system of incentives and communication channels that a TBL instructor sets up to enable these moments. This chapter shows what these moments look like and how students' social interaction in those moments cultivates their abilities to learn from and with one another.

### **Accountability: The Conceptual Bridge Between the Student and the Team**

If the need to belong can be considered a motivational fuel, then accountability is the engine that transforms that fuel into instructional mileage. Of course, grades are the instrumental mechanisms that ensure accountability in TBL, but those who have never been in a classroom with students getting immediate feedback during a team readiness assessment test (tRAT) have not seen the expressive mechanisms with which students position themselves and each other moment to moment in terms of accountability for their understanding of the course content. This process is important because it reveals the extent to which the social experience of team membership can motivate students into deeper engagement with the course material. A sense of belonging is based on having close and positive relationships to members of a group: if the goal of a group is to perform well academically, then members who clearly and repeatedly prevent the group from doing well will likely find relationships with their teammates becoming less close and less positive. This is the negative consequence students risk when they attempt to persuade their team to accept one answer or another. Such attempts position them—for better or worse—as accountable at some level for the group's outcome.

In a review, Lerner and Tetlock (1999) described accountability as a useful bridge between the individual and group levels of analysis. They defined accountability as the “expectation that one may be called on to justify one's beliefs, feelings, and actions to others” (p. 255), emphasizing that accountability usually implies positive or negative consequences arising

from how one's justifications are evaluated by those others. Common sense dictates that the more one actually cares about the evaluation of those others, the more important one's accountability to them becomes. As we will see, students express this caring in the form of tremendous anxiety around the possibility of "leading their team astray" or "getting it wrong for the team" and being "mad at themselves" when they do.

Because of its emphasis on critical thinking, Lerner and Tetlock's synthesis of the literature seems particularly relevant to teachers:

Self-critical and effortful thinking is most likely to be activated when decision makers learn prior to forming any opinions that they will be accountable to an audience (a) whose views are unknown, (b) who is interested in accuracy, (c) who is interested in processes rather than specific outcomes, (d) who is reasonably well informed, and (e) who has a legitimate reason for inquiring into the reasons behind participants' judgments [1999, p. 259].

This synthesis is good news for TBL practitioners because for the most part, it describes the conditions that TBL students face when they come together for the tRAT. Having just finished their individual tests, the students do not yet know how their teammates answered each question, but they can expect their teammates to be interested in accuracy, to be reasonably well informed, and to have a legitimate reason for wanting to talk about the test. Whether a student's teammates are more interested in process than outcome is mostly out of the teacher's hands, as it will likely vary with the individual achievement goal orientations (learning versus performance) of each teammate (Dweck, 1999).

In the following sections, we listen in on actual conversations among TBL students, focusing on how accountability is made salient among team members from moment to moment. Our goal is first to identify in transcript excerpts how that accountability indexing occurs and the social pressures associated with it. We then consider excerpts showing how that social atmosphere stimulates teams to use every intellectual resource its members possess. All quotations come directly from recordings of TBL students in college classrooms taking tRATs.

**Accountability Anxiety: Awareness of Teammate Judgments.** As a result of the buildup to a team decision and immediate feedback, the apprehensiveness about the possibility of getting it wrong for the team can be intense. Consider the following excerpt in which a team debates the answer to a multiple-choice question about the characteristics of long-term memory:

STUDENT 5: I'm leaning towards E, but I don't want to be the one to miss it—

[laughter]

STUDENT 2: Yeah, I thought it was E too, but I am not sure.

STUDENT 5: 'Cause, yeah, I was looking over it before I turned it in, and I changed it from B to E, like right before I handed it in, so . . .

STUDENT 6: Yeah

STUDENT 4: Cause E could totally be . . . yeah, goal setting. . . . whatever.

STUDENT 5: Um, what do you say on 15?

STUDENT 6: I said E. But I mean, it's just like—

STUDENT 3: I said B.

STUDENT 6: [reads aloud] “distinguishing between important and unimportant information.”

STUDENT 2: I said E, because to me it seemed like you weren't focusing on main ideas . . .

STUDENT 4: I'll go with E, I don't care.

STUDENT 5: Maybe they'll remember that more than something else. . . .

Let's just—

STUDENT 6: Right. Like it's in their memory longer.

STUDENT 5: I say E. I'm scared. But that's what I say.

STUDENT 6: [laughs] It's all built up now, like “Oh god! What are we gonna do?!”

[laughter]

STUDENT 4: We'll go with E. [Scratching. . .] . . . correct. Yay.

STUDENT 5: And it's right

STUDENT 2: Yay!

STUDENT 6: Fantastic. That's awesome. We rock.

Here student 5 expresses intense emotion around the possibility of being accountable as “the one to miss it” for the team, even saying she is “scared.” In other excerpts, this anxiety manifests in phrases like, “Please don't be mad if it's wrong,” “Don't get mad,” and “I'm nervous” in the lead-up to a scratch on an IF-AT card (see Chapter One for a discussion of IF-ATs). Student 6 even observes the emotional tension and jokes about it being “all built up, like, ‘Oh god! What are we gonna do!’” Finally, they scratch the covering off the box on the answer sheet, and answer E turns out to be correct. Relieved celebration—“Yay!” and “We rock”—frequently follows a tense debate leading to the team's getting the right answer, taking many forms like, “Thank God,” “Yesssss,” “Genius,” and “Good job, y'all.”

After a tense debate leading to the team's choosing the wrong answer, emotional words and frustrated confusion—“What?! How can that *not* be B?!”—sometimes follow. As we will see below, the experience of having “led the team astray” can be emotionally upsetting for many students, and the memory of it “haunts” them, guiding their future behavior.

**Putting It on the Line: Accepting Accountability for One's Answer.** Before the answer is revealed, students sometimes make flat statements of certainty: “I was sure about that one,” or “I am pretty positive it's

A,” or even, “It’s probably E; I’m probably right.” Alternatively, they can hesitantly accept accountability in the form of preemptive apologies:

STUDENT 4: I am sure you’re right, but . . .

STUDENT 1: I hope. If I put it wrong, I am sorry.

STUDENT 4: No problem.

STUDENT 3: [scratching to reveal the answer] Yep, it’s A. Cool.

In an example of a fairly common occurrence, a student decides that he or she has been convinced enough by another student to agree, though the qualifying “but . . .” tagged on at the end of a student’s agreement indicates reservations. This lukewarm agreement manifests in several ways, often with some form of mitigating pseudo-conditional (“I could go with D” or “I would be willing to go with C”). Here student 1 seems to sense student 4’s discomfort and follows up by acknowledging that she “hopes” her answer is right and preemptively apologizing if it is not, thereby accepting accountability herself for the outcome. The preemptive apology (“I apologize in advance if I was wrong”) is a common form of a student’s acknowledging accountability, for better or worse. Here, however, student 1 is reassured that nothing will be held against her, and student 3 reveals that student 1’s answer was in fact correct.

After an answer is revealed, positive accountability claims are somewhat rare, but include “I was right” and “Genius” (referring to oneself). Negative accountability claims are more common and are almost always apologies—: “Sorry” and “sorry, y’all” and even “Shit—sorry!” Forgiveness for negative accountability admission sometimes follows, such as, “It’s all good” and “It happens” and “Don’t worry about it.” Overt statements of blame are actually made by students very rarely.

Clearly the language and intensity of these excerpts argue for the fact that something emotional is at stake in these moments when a group is deciding to go with one member’s answer and in the celebration or fallout after the answer is revealed. For teachers, overhearing the extent to which students can become impassioned in their discussions about their course content is always delightful and can sometimes be overwhelming!

**“Don’t Look at Me”: Attempts to Avoid Accountability.** Because moments of accountability are when students risk losing face and possibly even marginalization by their group, it is probably not surprising that efforts to avoid accountability are nearly ubiquitous. Three forms of this behavior are abstaining, hedging, and conforming.

Abstaining comments mostly involve flatly refusing to even suggest an answer—“No comment,” “I completely guessed,” “I’m not even going to argue for mine,” and “I have nothing to say about that one.” Infrequently, students abstain from whole blocks of questions: “Okay, I’ve got question marks by 11 to 13, so don’t trust me on any of those!”

Hedging comments include a suggested answer and a qualification of some kind—: “I’m leaning toward C” and “I said B, but I guessed.” Hedges are actually so common that statements without a hedge stand out as exceptions in the transcripts.

Conforming occurs in two ways, both of which involve students’ expressing their refusal to go it alone in the face of disagreement. In pursuit of consensus, students occasionally defer to the majority: “It’s really whatever y’all want to put,” “We can just go with the majority,” and “Since y’all both put it, I’ll go with that one.” Alternatively, a student on the cusp of having the group choose the answer he or she advocated may refuse sole accountability, in effect voting against the answer if he or she is the only one willing to argue for it. This appears in statements such as: “Someone else has to vote for it, because if I’m wrong, I don’t want to be the only one that’s wrong—I don’t want to lead the whole team astray” and “If it was just me, I would still say B, but I don’t want to say that and be wrong.” The following sequence is an example of refusing sole accountability, with an interesting follow-up comment from another team member:

STUDENT 2: I don’t want to be the only one thinking it’s irrelevant and then get it wrong, so . . . .

STUDENT 4: Well, last time I pushed for something, and I got it wrong twice.

Here, student 2 verbalizes his worries about being accountable for a wrong answer. Student 4 then commiserates, sharing his memory of having “pushed for something” and gotten it wrong twice. Importantly, the *tone* of student 4’s voice gives his comment a sense of gentle warning, as if an unstated “so think hard about this” actually concludes what he is trying to communicate.

Although excerpts like these are provocative, they do not tell us how frequently this emotionally laden performance tracking occurs. Therefore, we conducted a survey across two classes, asking them about their experience of convincing their team of a wrong answer or being convinced of a wrong answer (leading others astray or being led astray). They reported changing their behavior as a result of leading others astray overwhelmingly more often than they reported holding it against others who had led them astray. In other words, students were far more forgiving of others’ mistakes than their own.

From fifty-three returned surveys, thirty-one said that they had convinced their team of a wrong answer. Of that thirty-on students, nineteen (or 61 percent) said that the experience influenced their later behavior, describing the effect in the following ways:

“I prepared more.”

“I wasn’t as confident with my next answer.”

“I didn’t want to tell them another wrong answer.”

“I was more cautious and got support.”

- “It made me a little apprehensive.”
- “I was more careful to ask for feedback from my group.”
- “I was more cautious.” (submitted twice)
- “I was more cautious about my future answers.”
- “It made me want to look at both solutions thoroughly next time I did a problem.”
- “Be more careful to do team activity.”
- “Was more careful in the future when reading.”
- “It made me more resolved about saying what I am ‘sure’ of.”
- “I made sure I really knew the material before I confidently convinced them of my answer.”
- “Just more careful about being too assertive.”
- “Mad at myself because I let my team down.”
- “I felt bad I got a question wrong for my team.”
- “I made sure to speak up when I absolutely knew the answer.”
- “I learned to listen to others more and not just go with my gut instinct.”

However, forty-six said a team member had convinced *them* of a wrong answer, but of that forty-six only seven (15 percent) said the experience influenced their later behavior. They described the effect as follows:

- “It made me want them to show me how they arrived at the answer.”
- “We were more skeptical of that person.”
- “I did not trust them as much.”
- “I always have to think twice when they say an answer.”
- “I was more cautious and asked them to explain how they got that answer.”
- “I may be slightly more skeptical in the future.”
- “I was less willing to listen if it happened consistently.”

So far, both transcript and survey evidence suggest that TBL’s accountability structure creates moments where a student’s public contribution to the team can have lasting socioemotional effects for everyone on their team. This history of accountability motivates students to become familiar with and continually revise their estimates of each other’s expertise to make sure the team brings the best of its collective strengths to bear on any given question. It is this familiarity that enables students to coregulate each other’s learning in the group setting.

*Coregulated learning* is a relatively new construct in educational psychology and extends self-regulated learning research into regulation that takes place between learners. In TBL, coregulated learning can occur based on teammates’ familiarity with each other’s general performance (“He’s usually right, dude! I mean, your choice is pretty good”), specific study skills like good note taking (“She has like this exact sentence in her notes”), or, as in the following excerpt, careful reading habits:

STUDENT 6: Well, I'd go with A. I put D but—

STUDENT 1: I put D too, but . . .

STUDENT 2: I put D.

STUDENT 3: I put D, but . . .

STUDENT 4: Well!

[group laughter]

STUDENT 4: Well, then someone argue for D and then someone argue for A, and we'll figure it out.

STUDENT 6: I don't even have a good argument.

STUDENT 1: It just seems more logical to me, that's all. D sort of seems more logical, but . . .

STUDENT 4: Yeah, I just, I remember reading A and not D. That's the only thing why I would not change it.

STUDENT 1: Yeah, if you remember reading it. I would be willing to trust your reading it more than my logic.

STUDENT 6: Yeah, we're just trying to justify it. I don't remember reading anything on contextual views, so . . .

STUDENT 4: Yeah, I don't remember contextual views. . . . Maybe, well I think "contextual," that means like what it has to do with . . . that's why I put A because if you learn something . . . I don't know . . .

STUDENT 6: And then be able to apply it . . .

STUDENT 5: In other contexts . . .

STUDENT 4: Yeah.

STUDENT 1: Maybe A is the best answer

STUDENT 6: Yeah. [sigh] I think we should just do it.

STUDENT 4: But I'd hate to say it and it be wrong.

STUDENT 1: I know [laughing]

The coregulation here is interesting for at least two reasons. First, most of the team members had chosen answer D, but student 4's reputation for being a careful reader and her choice of A persuaded the team of the correct answer. In this case, a simple vote would have failed the team. But knowing student 4 as well as they did enabled them to consider her opinion with an appropriate amount of weight. Second, the team verbalized their intellectual attempts to justify answer A. This process of evaluating and explaining the contents of one's thoughts in real time is called *type 3 concurrent verbalization*, and there is a strong research base for its value as a metacognitive strategy in problem-solving activities (Hacker and Dunlosky, 2003). In TBL, this kind of collaborative, coregulated learning discussion becomes increasingly common as the course unfolds. This unfolding process was documented empirically by Watson, Michaelsen, and Sharp (1991), who found that although team scores increased at every measure, teams became less reliant on their highest-performing member over time. For teachers, this process is thrilling.

**Practical Lessons We Learned from Our Teams.** The following suggestions come from years of experience, as well as the fortunate circumstance of having both transcript and performance data for the same teams:

- *When organizing students into teams, consider including anxiety about the course topic among the student characteristics to be distributed across teams.* One of TBL's virtues is that it draws on students' socioemotional needs to propel them deeper into the course content. Team membership seems to meet students' need to belong at some level, but as our transcripts show, moments of accountability put that belonging at risk and can be nerve-racking. The famous Yerkes-Dodson curve illustrates the point that while some anxiety can focus attention and improve learning, too much anxiety can overwhelm the learner and inhibit performance (for a discussion, see Svinicki, 2004). It seems to us that piling content-related anxiety on top of accountability anxiety for many members of the same team should be avoided. For many, some classes come preloaded with an emotional charge (examples are mathematics for nonmajors, human sexuality, difficult gateway classes), and we recommend that teachers of these classes discretely collect information about students' experience of that emotional charge at the beginning of the term and include it in the team formation process. This data collection is easily accomplished using a "get to know you" questionnaire, which many teachers already use.
- *Enable and encourage vote splitting.* Michaelsen, Knight, and Fink (2004) described their method of using a split-answer format on individual RATs: they allow students to answer each question three times, with each of those answers being worth one point. In this way, students can indicate their level of confidence in an answer and leave room for negotiation by splitting their vote. Interestingly, our transcripts document that students discovered the value of this practice even when tests are not formatted in this way.

In transcripts of two groups in the same class, one team got better at working together over time and one team got worse as measured by the synergy ratios of each team (for a description of synergy ratio calculation, see Watson, Michaelsen, and Sharp, 1991). Without any external encouragement to do so in this case, both teams developed a linguistic practice of splitting their vote from the outset, which appeared as reporting which two possible answers a student was "between," "torn between," "stuck between," "hung up on," or "couldn't decide between." In terms of accountability, this strategy gives individuals flexibility to discuss a range of options instead of forcing them immediately into anxiety-laden all-or-nothing accountability positions. Across the semester, members of the team that got better at working together over time split their votes nearly four times as often as the team that got worse. Although this is only a single example from one class, these transcript data add weight to the

argument by Michaelsen, Knight, and Fink that the split-choice kind of RAT helps students and teams.

Teachers can encourage a similar vote-splitting effect at the team level by allowing teams to receive partial credit for second and third attempts to answer a RAT question correctly, as described in Chapter One.

- *Encourage teams to table and return to questions when discussion stalls.* The emotional buildup to the revelation of an answer (which one student called “the moment of truth”) can be tense, and sometimes teams are not confident enough in any one answer to push them over that threshold. In these moments, a member occasionally suggests the team skip that question or asks, “Should we come back to this one?” We all recognize this as a good test-taking strategy for individuals, and in terms of accountability, this enables students to gather more information about who among their teammates has better mastery of the course material from the feedback on subsequent test questions, so they can return to the tabled question with a different set of self and coregulatory perspectives. In our research, members of the team who learned to work better over time tabled and returned to almost five times as many questions as the team that got worse at working together.
- *Conduct formative peer assessment at least once prior to summative assessment at the end of the term.* Peer assessments are covered in depth in Chapter Five in this volume. However, because this chapter is about how TBL can tap into students’ need to belong and the instructional effects of accountability, we would be remiss not to mention the role that peer assessment can and should play in this process. We believe peer assessments that require students to write something to or about their teammates (instead of or in addition to assigning numerical points) can be an important stimulus to both individual learning and a sense of belonging. We require students to write at least one thing they appreciate about and one thing they request from each of their teammates. Although pointed requests are made a respectable number of the times (for example, “Please come prepared” and “Listen to others more”), these messages between students are overwhelmingly positive and even encouraging (for example, “Speak up more; you’re usually right when you do” and “Keep up the good work”). Opening this textual channel between students enables them to exchange messages that nourish the sense of being seen, heard, and valued by teammates.
- *Be prepared for the students to hold you accountable in new ways.* When it comes time for instructor feedback following a readiness assurance process, keep in mind that students have gone through a great deal. They have (1) thought through the test questions on their own and made intellectual commitments to certain answers, (2) considered many angles of the questions in subsequent discussion with their team, (3) gone through the potentially nerve-racking experience of public accountability for answers they felt strongly about, and (4) experienced whatever

emotional consequences that accountability brings. As a result of this intense, socially charged, and content-focused experience, teams can become attached to their answer choices and vigorous in their desire for their instructor to explain and even defend why he or she keyed the correct answer as he or she did. While many college classrooms have a handful of passionate students, do not underestimate the emotional power of what we jokingly refer to as the “unionized” passion in the TBL classroom. While it may seem strange to warn teachers that they may have to face a room of passionately motivated students, not every teacher is ready to flexibly facilitate the energies at play in the fully activated TBL classroom. For advice on what success in this situation requires, see Chapter Four, this volume.

## References

- Birmingham, C., and Michaelsen, L. K. “Conflict Resolution in Decision Making Teams: A Longitudinal Study.” Paper presented at the Midwest Academy of Management, Chicago, 1999.
- Boekarts, M., and Minnaert, A. “Affective and Motivational Outcomes of Working in Collaborative Groups.” *Educational Psychology*, 2006, 26(2), 187–208.
- Booker, K. “The Role of Instructors and Peers in Establishing Classroom Community.” *Journal of Instructional Psychology*, 2008, 35(1), 12–16.
- Derek Bok Center for Teaching and Learning. *Thinking Together: Collaborative Learning in Science*. Cambridge, Mass.: Harvard University, 1992.
- Dweck, C. S. *Self-Theories: Their Role in Motivation, Personality, and Development*. Ann Arbor, Mich.: Edwards Brothers, 1999.
- Festinger, L. “A Theory of Social Comparison Processes.” *Human Relationships*, 1954, 7, 117–140.
- Freeman, T. M., Anderman, L. H., and Jensen, J. M. “Sense of Belonging in College Freshmen at the Classroom and Campus Levels.” *Journal of Experimental Education*, 2007, 75(3), 203–220.
- Freud, S. *Group Psychology and the Analysis of the Ego* (J. Strachey, trans.). London: International Psycho-Analytical Press, 1922.
- Hacker, D. J., and Dunlosky, J. “Not All Metacognition Is Created Equal.” *Problem-Based Learning in the Information Age*. New Directions for Teaching and Learning, no. 95. San Francisco: Jossey-Bass, 2003.
- Johnson, D. W., and Johnson, R. T. *Cooperation and Competition Theory and Research*. Edina, Minn.: Interaction Book Co., 1989.
- Johnson, D. W., Johnson, R. T., and Smith, K. “The State of Cooperative Learning in Postsecondary and Professional Settings.” *Educational Psychology Review*, 2007, 19(1), 15–29.
- Lerner, J. S., and Tetlock, P. E. “Accounting for the Effects of Accountability.” *Psychological Bulletin*, 1999, 125(2), 255–275.
- Michaelsen, L. K., Knight, A. B., and Fink, L. D. (eds.). *Team-Based Learning: A Transformative Use of Small Groups in College Teaching*. Sterling, Va.: Stylus, 2004.
- Natasi, B. K., and Clements D. H. “Research on Cooperative Learning: Implications for Practice.” *School Psychology Review*, 1991, 20(1), 110–131.
- Pittman, L. D., and Adeya, R. “Academic and Psychological Functioning in Late Adolescence: The Importance of School and Belonging.” *Journal of Experimental Education*, 2007, 75(4), 270–290.

- Pittman, L. D., and Richmond, A. "University Belonging, Friendship Quality, and Psychological Adjustment during the Transition to College." *The Journal of Experimental Education*, 2007, 76(4), 343–362.
- Schutz, W. *FIRO: A Three-Dimensional Theory of Interpersonal Behavior*. New York: Holt, 1958.
- Summers, J. J., Beretvas, S. N., Svinicki, M. D., and Gorin, J. S. "Evaluating Collaborative Learning and Community." *Journal of Experimental Education*, 2005, 73(3), 165–188.
- Svinicki, M. D. *Learning and Motivation in the Postsecondary Classroom*. Bolton, Mass.: Anker, 2004.
- Tinto, V. *Leaving College: Rethinking the Causes and Cures of Student Attrition*. Chicago: University of Chicago Press, 1987.
- Watson, W. E., Michaelsen, L. K., and Sharp, W. "Member Competence, Group Interaction and Group Decision-Making: A Longitudinal Study." *Journal of Applied Psychology*, 1991, 76(6), 801–80

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