Figure 6.1 Eighth Grade Students' Evaluations of Equivalency Claims

You can put in the same # for x in both equations and if you get the same sum then they are equivalent.

this works for 3 different X's

You can put in *any* **the same # for x in both equations and if you** *more than 1 x* **are equivalent.** I agree with this statement because I know that if 2 expressions are equivalent, they will always have the same y for x.

If x was 2, they for both will be 106. If x was 3, both would be 109. We know the equations are equivalent because they get the same y.

Example

$$y = 3x + 100 \qquad y = 100 + 3x$$

You can put in the same # for x in both equations and if you get the *always* **same** ~~sum~~ **then** *so then* **they are equivalent.** I changed this statement a little bit. I crossed off sum and wrote solution because sum implies addition and in equations there are some multiplication problems you have to do. I also added always in between you, and get because if you only try one x value and the solutions are the same, it could just be where the two lines cross.

⚙ TUG-OF-WAR

Place a line across the middle of your desk or table to represent a tug-of-war rope. Working with a dilemma that can be considered from multiple perspectives or stances:

- Identify and frame the two opposing sides of the dilemma you are exploring. Use these to label each end of your tug-of-war rope.

- Generate as many "tugs," or reasons that "pull you toward," that is, support each side of the dilemma as you can. Write these on individual sticky notes.

- Determine the strength of each tug and place it on your tug-of-war rope, placing the strongest tugs at the farthest ends of the rope and the weaker tugs more toward the center. The anchor positions on the rope are to be pulled over the line. The Tug-of-War routine uses this metaphor to explore issues and ideas.

- Capture any "What if . . . ?" questions that arise in the process. Write these on sticky notes and place them above the tug-of-war rope.

When we thought about the challenges of decision making, a metaphor that came to mind was that of a game of tug-of-war. You have one group of factors, reasons, or influences pulling one way and another group pulling the opposite. However, in a tug-of-war, not all pulls are of equal strength. The Tug-of-War routine is designed to help students understand the complex forces that "tug" at opposing sides in various dilemmas, issues, and problems. It encourages students initially to suspend taking a side and think carefully about the multiple pulls or reasons in support of both sides of the dilemma. By inviting students to explore the arguments for both sides of a dilemma, Tug-of-War strives to develop appreciation for the deeper complexities

Purpose

Taking a stance on an issue and supporting that stance with sound reasoning is an important skill. However, taking a stance on issues too quickly and rushing to defend that stance before examining the complexity of the issue can lead to narrow thinking and an oversimplification of the problem. The Tug-of-War routine is designed to generally the strongest, whereas those closer to the center are the weakest and most likely

inherent to authentic dilemmas and reach beyond what may appear to be black and white on the surface.

Selecting Appropriate Content

Tug-of-War is best suited to situations involving dilemmas, issues, or problems in which two obvious, contrasting stances or ways of resolving an issue can be clearly identified. (Note: Adaptations can be made for more than two pulls, but plan to start using just two.) These dilemmas can come from school subjects, current events, or everyday occurrences. For example, considering the advancement of a growing population upon protected land, examining tensions between government taxation and provided services, deciding upon what is best regulated and what is best left untouched, the choices a character in a novel faces, ethical dilemmas of students, and so on. It is important to remember that the generation and exploration of multiple supporting ideas, rather than the quick selection of a preferred stance, as in a debate, is key to developing deeper understanding of complex dilemmas.

Steps

1. *Set up.* Identify and frame a particular dilemma for the class to examine. This may grow out of their current studies or be embedded in new material, such as a reading or a video. Alternatively, a teacher may wish to ask students to identify the issues or dilemmas: "Just what seems to be the issue here?" or "What is this issue really about?" Once the dilemma has been clearly defined for the class, draw a line on the whiteboard or chart paper representing the tug-of-war rope. Ask students to name the two ends of the rope. What are the two opposing viewpoints or stances in the defined dilemma. Label these.

2. *Consider the "tugs."* Ask the students, "On this side of the dilemma, what are the 'tugs' or reasons that support this position?" Have students generate as many tugs as possible, whether or not you personally agree with their reasoning. Students can generate tugs individually, in small groups pooling individual ideas, or as a whole class. Have students record their reasons/tugs on individual sticky notes so that they can be moved around later. Ask students to do the same thing for the other side of the dilemma, generating as many reasons as they can. (Note: It is not always necessary to do the two sides separately, but initially this may make the process easier for some.)

3. *Place the "tugs."* Have students, either in small groups or as a whole class, discuss the placement of the tugs on the line. Although consensus is important, the focus should

be on the reasons and justification for each placement and how the tugs compare with one another in strength.

4. *Ask What if? What about? questions.* As students are discussing placement, questions might arise. For instance, sometimes students say, "Well that depends on whether or not that would be legal." These "it depends" issues can be framed as questions, written on a different color sticky note, and placed above the line. Once placement is complete, stand back and generate additional "What if . . .?" questions. These questions capture issues, factors, or concerns that might need further exploration.

5. *Share the thinking.* If this routine has been done in small groups, take time to look at each group's finished tug-of-war line. Ask students what new ideas emerged for them about the dilemma that they didn't have at the outset. Do they still feel the same way about the dilemma? If not, what changed their mind or added to their thinking? How might they summarize the complexity of this issue for someone else?

Uses and Variations

This routine works well and facilitates lively discussions among groups of students, particularly around the placement of the "tugs." Teachers often find the power of this routine is that it can easily be referenced to elicit reasoning around dilemmas without always doing the full routine. For instance, teachers can merely ask, "What are the tugs pulling us in favor of lengthening the school day?" to begin to generate a discussion. Of course, not all dilemmas or issues have just two sides. There are, in fact, three-way and four-way tugs-of-war in which multiple ropes come together at a common point. If an issue has more than two tugs, this metaphor might be introduced to explore the issue.

As a part of this routine, teachers sometimes spend time on the identification and framing of an issue. This can be an important skill, since the way we frame a problem will shape the solutions we try to find. For example, in a high school social studies class in Massachusetts, students read a news report about a local food service for the homeless being shut down because it didn't meet health standards for food preparation and storage due to its context of providing food on the street. After reading the article, students had to frame what they saw as the issue. Many emerged: health safety, government regulation of charities, the moral dilemma of the service provider to break the law or not, moving the site of the food service, and so on. Each group then did a tug-of-war based on how they framed the issue.

During a discussion about conservation during Earth Week, a year 1 student at Trinity Grammar in Melbourne raised the issue of car pollution. Another student suggested that

one way to improve the environment would be stop driving cars altogether. Rather than dismissing this idea, the teacher decided to engage students in a Tug-of-War around the issue. Each student generated a "tug" and wrote it on a piece of paper. Students then physically arranged themselves on a line drawn on the floor according to how strong they thought their tugs were. Starting from the center, students then read off their tugs, alternating between each side of the rope.

Assessment

The Tug-of-War routine provides multiple points of assessment: How does the class perceive or frame the issues? Are students able to capture the essence of complex dilemmas? How do they frame the opposing sides in a dilemma? Do they go back and forth between both sides of the dilemma, offering "Yeah but on the other hand..."? Students' responses to these tasks provide insight in to how they are navigating the complexity of issues.

While students are identifying tugs, note the supports students are able to articulate as significant for both sides. Are they able to step outside their own positions to consider the other side? Pay careful attention to the discussions around the placement of ideas. What do you notice regarding the reasoning and justification given for the placements? Are students putting forth qualifiers for their tugs and generating questions around them? What do students' "What if...?" questions reveal about what they see as key to advancing their understanding of the dilemma? At the end of the routine, are students able to articulate a richer understanding of the dilemma?

Tips

Be sure to identify a dilemma that is generative enough to foster student engagement and layered enough to generate multiple arguments. If students are not connected to or engaged with the dilemma, it will be difficult for them to do good thinking. At the same time, suspending quick judgment is vital to students' ability to look at the dilemma from opposing viewpoints and generate a variety of reasons that lend support to each side. A teacher may very well want to create a time and place for students to convey their sense of advocacy or share their stances on the dilemma, but it is important to hold off on that kind of conversation until a variety of viewpoints with supporting reasoning can be articulated, examined, and used to produce further questions to explore. Using the "I Used to Think..., Now I Think..." routine after the Tug-of-War could be a useful way to return to original positions.

One advantage of using sticky notes for this routine is that "tugs" can be rearranged easily. If many of the students' tugs are similar, multiple reasons can be grouped together and relevant categories or themes for reasons become more apparent. This process can also be done on an interactive whiteboard and then printed out for future discussions. For instance, after the class's collective response has been documented, students could be invited individually to find a "tug" placement they disagree with and then discuss why.

A Picture of Practice

"This entire idea of making thinking visible attracted me right away," remarked Clair Taglauer from Traverse City, Michigan. "I really wanted to see what was going on in their minds," she said. The Tug-of-War thinking routine was a good fit for her middle school language art classes. It appealed to her desire to have students look at issues from multiple perspectives. Clair noticed that students often came to a conclusion quickly in their reading. Once that occurred, it was difficult for students to make further inferences from the text. Clair wanted students to be able to be more flexible in their thinking, add to it, expand it, and move it around She wanted her students to tease apart some of the complexities embedded within issues they were reading about.

"I was drawn to the Tug-of-War routine because it seemed to be a tool for my students to work through a thought process. It seemed safe enough by not immediately requiring them to defend a particular stance. My students could change their thoughts and ideas around, give them shape, and keep open-minded about possibly conflicting perspectives," said Clair.

When her eighth graders began reading Lois Lowry's novel, The Giver, Clair thought it would be the perfect opportunity to make use of the Tug-of-War routine. The novel follows the main character, Jonas, through his twelfth year of life in a futuristic society that is at first presented as a utopian ideal and gradually appears more and more dystopian. This society seems to have achieved perfection by adopting a plan for "sameness" in which diversity and emotional depth have been eliminated. Clair recognized a dilemma that seemed to capture the attention of the middle school students: humankind's fascination with eternal happiness and an ideal, utopian society.

After her students had read much of Lowry's book, Clair drew a horizontal line across the length of her whiteboard and told her students they were going to have a tug-of-war. She drew upon earlier conversations she'd had with her students about this theme in *The Giver* and posed the question, both orally and in writing above the line she'd drawn on the whiteboard, "What would help achieve an ideal world?" Clair reminded students that Lois Lowry's text gives us ways of thinking about one side of this complex question and wrote on one side of the line, "If we were all the same . . ." Clair then said that, of course, there are others who would argue the opposing side and wrote at the other end of her line, "If we were all different . . ." Next Clair mentioned she did not want her students to pick one side or the other, but in small groups, generate possible reasons or "tugs" that would support both sides of this complex question. Clair suggested they come up with as many ideas as they could for each side, writing each reason on a different sticky note.

Once students had generated several reasons for each side of this debate, Clair invited her students to arrange their sticky notes according to their strongest reasons. "Just like you have an anchor person in a real tug-of-war, I want your group to place your reasons in the order that seems to be the best line-up, that makes the most sense in terms of strength of reasons."

As students conversed about the placement of their reasons, Clair listened in. She was both pleased and surprised to find herself becoming more aware of how students were interacting with the themes of the novel (see Figure 6.2). "I really got a glimpse into their own lives more than I expected," said Clair. "I started to see my kids' beliefs, fears, and anxieties so clearly as they discussed all that they had been reading and thinking about with their friends. For example, when students mentioned that 'sameness' like Lowry had written about could be ideal, they mentioned reasons such as that there would no longer be any teasing or people being bullied. It was such a natural way for students to bring their personal lives into our language arts classroom." Clair was also surprised by how well her students debated among themselves. Some agreed pretty quickly to disagree while others really changed their thinking based on what their classmates shared with them. "The Tug-of-War allowed them to articulate their thinking and rationale about a pretty complex concept, but it also kept them open to others' ideas that didn't exactly mirror their own. I was really pleased with that," said Clair.
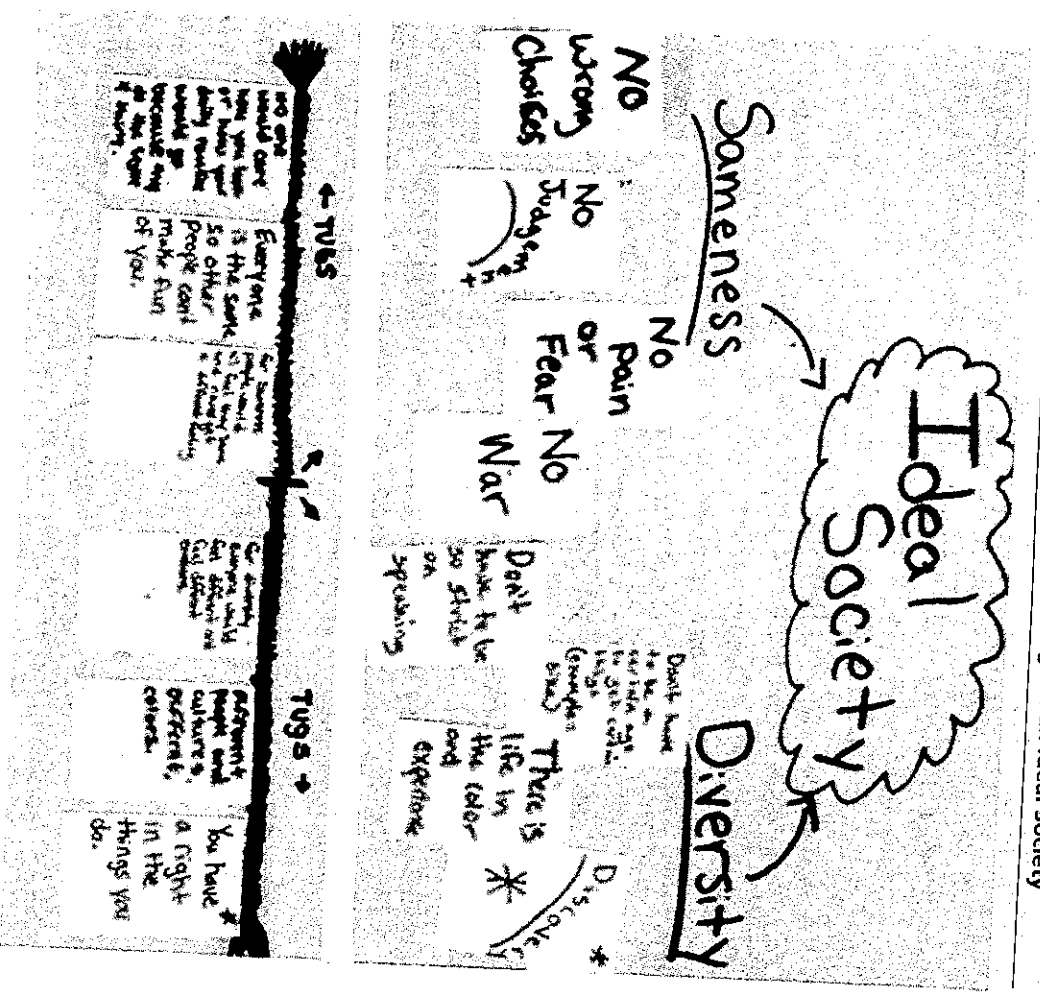
Figure 6.2 Eighth Grade Tug-of-War About the Makings of an Ideal Society

Clair has continued to make use of the Tug-of-War thinking routine on a variety of occasions. "Tug-of-War works so well in the language arts classroom. We're currently reading historical fiction and studying some concepts about slavery in conjunction with what my eighth graders are learning in their social studies class. I'm using Tug-of-War to structure conversation around the choices a young man

at that time might have faced about whether he would join the Army and fight or stay home and protect his family. Also, stepping inside the perspective of a slave, I'm asking my students to consider, 'What would tug me to stay here and remain "owned" and what might tug me to flee along the Underground Railroad with Harriet Tubman?' It's not so much about having my students come to a correct answer as it's about creating an opportunity for them to notice and understand the rationale behind various viewpoints individuals or groups might have."

In reflecting on the use of this thinking routine, Clair commented, "For me, Tug-of-War has evolved from being one cool thing I do with one novel to filtering itself into so many other aspects of my curriculum and even across the curriculum to other subject areas. Tug-of-War is not just a set of steps or a procedure; it's a mindset—a real process. It transcends so much more than just one activity—it's truly about perspective taking and reasoning." Now that Clair's students are familiar with the thinking process, Clair notices that they seem to be better listeners to one another and can better articulate their own thinking with comfort and confidence. Clair mentioned, "You know, I've become more comfortable with this kind of thinking, too, by using this thinking routine. Some of the issues we come across at this age are big, complex, and even difficult...like slavery...like war. I've found this routine to be so helpful in making sense of sticky situations."

SENTENCE-PHRASE-WORD

In your discussion group, review the text that you have read and each select your own:

- *Sentence* that was meaningful to you, that you felt captures a core idea of the text
- *Phrase* that moved, engaged, or provoked you
- *Word* that captured your attention or struck you as powerful

As a group, *discuss* and *record* your choices. Begin by each sharing your words, then phrases, then sentences. Explain why you made the selections you did. Looking at your group's collective choices of words, phrases, and sentences, reflect on the conversation by identifying:

- What themes emerge?
- What implications or predications can be drawn?
- Were there aspects of the text not captured in your choices?

This routine is an adaption of the Text Rendering Experience developed by educators affiliated with the National School Reform Faculty. Having used this protocol—that is, a structure for a conversation—for discussing readings with other adults, we felt it had wide applicability for use in the classroom as both a discourse and a thinking routine. We liked the fact that something as simple as one's choice of a single word, phrase, and sentence forced one to think about big ideas and often led to rich discussions. Because we like to name routines by their thinking moves whenever we can, we changed the name to Sentence-Phrase-Word (SPW).

Purpose

Sentence-Phrase-Word helps learners to engage with and make meaning from text with a particular focus on capturing the essence of the text or "what speaks to you." It fosters enhanced discussion while drawing attention to the power of language. However, the power and promise of this routine lies in the discussion of why a particular word, a single phrase, and a sentence stood out for each individual in the group as the catalyst for rich discussion. It is in these discussions that learners must justify their choices and explain