Instructional Practices: Building Student Voice & Active Listening Skills

Overview

A core feature of classrooms that utilize these practices is that you hear students describing, explaining, collaborating, and sharing. In other words, there is a lot of talking. For those conversations to be purposeful and productive, students have to *develop a skill set allowing them to develop their own voice, the capacity to actively listen to others, and to comprehend the perspective of another* as that individual's point of view is considered. Below describes how, as the teacher leader in the classroom, *to develop those discourse practices and the community of practice in which students feel emotionally and intellectually safe in communicating ideas.*

Developing One's Own Voice

The process of thinking about one's own thinking is called metacognition. While everyone does this automatically to a certain extent, to become a truly reflective learner and problem solver the need to become more intentional and generative in one's decision making is critical. A researcher, a psychologist, an artist, a teacher each needs a particular reflective skill set in being able to make informed decisions. Otherwise, one keeps on doing whatever one has been doing whether or not that is the most productive practice to maintain. Becoming a reflective and generative learner allows one to ask poignant questions, consider alternatives, and make purposeful judgements. Developing these skills within students is an essential function of education. Each student deserves the opportunity to develop their own voice.

The process of problem solving in mathematics *involves visualization of the context* as one decides how to mathematize the situation and proceed in finding a solution. *Mathematical ideas are socially negotiated* according to Vygotsky and others. This augurs for language-rich learning environments. As such, students need to develop various *language functions* as part of their daily practice. *Describe, explain, justify with evidence, summarize, analyze, compare and contrast* are just a few language functions that students need to employ in sharing their thinking. Starting in kindergarten - and for those new to the language or who have never before been asked to share their thinking - being able to *serialize one's thinking* is an important first step in being able to explain and describe how one solved a problem. *What did you do first when you solved the problem? What did you do next?* Those simple prompts help a student to organize and sequence the thought process used. Providing *sentence stems* for students to use is a technique that helps guide them in developing the *academic language*[1] needed in being able to describe or explain. More than developing fluency in using the technical content vocabulary and formal representations of mathematics, more critically, academic language is about becoming articulate in one's thinking and being able to communicate that thought process to others so one can be understood. We have all experienced someone extremely erudite who talks over the audiences' heads leaving everyone bewildered. Such a person may have excellent command of the technical language and formal representations, but so what if that individual failed in communicating those ideas to those listening.

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[1] I use a particular definition for academic language than what is found in most second language learner research literature. The definition used here takes a culturally sustainable lens. *Academic language, at its core, is the language students need to organize and convey their thinking to the audience with whom they are interacting. Access and acceptance within a specific community vary and a lack of understanding of a community's language patterns can be used to exclude participation within that community. Assisting students to gain the perspective and skill set of understanding the societal language patterns of different communities is to enable them to gain entry to a wider range of societal circles of power and therefore position themselves to affect change. (J. Brickwedde)* This acknowledges *the tension between preparing teachers and their students for the language demands of academic and professional work while also respecting and honoring varying linguistic identities. (P. Egan)*

Every math lesson should have within its structure a language function(s) and discourse objective specifically stated and intentionally integrated into how that lesson is enacted. Of the eight instructional practices highlighted in NCTM's *Principles to Actions*[2] (2014), five require language. If one is to promote *reasoning* (#2) and do so *using and connecting through mathematical representations* (#3), language is needed to do so. If *meaningful mathematical discourse* (#4) is enacted through *posing purposeful questions* (#5) for the purpose of *eliciting… student thinking* (#8), then language is needed. The question is, how productive is the communication within that learning environment and how effectively does it move student thinking along the continuum of mathematical understanding.

Examples of Teacher Prompts
- *Serialize* one's thinking
  - *What did you do first? And what did you do next?*
  - *How/where did you decide to start?*
- *Clarify* one's thinking
  - *Tell me more about what you did at that point.*
  - *I noticed when you were working, you paused and thought for a while. Tell me what you were thinking.*
- *Justify* one's thinking
  - *I noticed that you broke apart the [8] into [6 + 2]. Why that choice? You could have chosen [7 + 1 or 4 + 4]. Why did it make sense to choose the combination that you did?*
- *Reflecting* on thinking
  - *Now that you are done and you know the answer, if you were to solve this problem again, is there any place where you could have saved yourself some time?*
  - *Now that you found the 'bug' (error) in the computation, how does that change your answer?*
- *Comparing and contrasting* with others
  - *How is your strategy the same or different from _[name's]_ strategy?*
  - *You and [name] used the same strategy. Did you do it exactly the same or were there differences?*

Public Sharing: Practicing Explaining & Describing
Public sharing is a critical portion of a math lesson. It is the opportunity for the individual student to develop the skills of describing, explaining, justifying, and reflecting on one's work. Sharing occurs in various forms.
- Local sharing between teacher and student
- Local sharing among teacher and the table mates of a focal student
- Local sharing between students as they collaborate in solving a mathematical task
- Whole class sharing

In each of these settings, through the use of effective teacher prompts, a student gets to practice describing one's work as well as clarifying and elaborating upon those steps and decisions. This is a skill set, the standards for which are often captured in language arts documents. Anchor charts with sentence starters and word walls with key phrases[3] involving descriptive and technical words play an instrumental role in students gaining this skill. It must be publicly discussed and practiced. The capacity to organize one's thinking involves developing the expressive and descriptive language skills needed across all subjects. From an assessment standpoint, to understand what a student knows, the student needs to express the thinking used in solving a task.

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[2] *Principles to actions: ensuring mathematical success for all* (2014). Reston, VA :NCTM, National Council of Teachers of Mathematics
[3] *"Key phrases"* are different from "keywords." "Keywords" are dangerous as the meaning of words change based on the larger context. Emphasis should be placed on *reading comprehension* of the larger context rather than on specific individual words.

Creating an Emotionally and Intellectual Safe Environment

If you are asking me to share my thought process out loud in front of the whole class, I have to trust that I won't be laughed at, heckled, made fun of… Creating the social-emotional norms within the learning space is critical if everyone in that space feels emotionally and intellectually safe. Creating these norms starts on day one and is maintained consistently.

Teacher Supports

- *Thank you for being brave and talking through your thinking.*
- *It took a lot of courage to work through that before everyone to figure out where the 'bug' (error) was.*
- *Thank you for persisting through that problem. The time paid off.*
- *Your strategy is a good one. Trust that choice. I just need you to double check this part here.*
- *Your answer would be correct if I was asking you _____. But I am asking you a different question. How would you strategy change knowing the question is _[restate original question]_*

Disagreeing Without Being Disagreeable

There are legitimate times when students will disagree with an answer or an explanation of how a strategy may work. This is normal. What needs to be practiced is how such disagreements are processed. Being proactive in setting up the conditions in how such conversations unfold is a wise decision. Providing sentence stems for students to think about and practice with are useful in making sure that any student feels attacked for sharing their thinking.

- *I disagree with _[name]_. I got the answer X, not Y.*
  - [Teacher] *Explain how you solved the problem.* [Explanation presented] *So, _[original name]_, do you agree or disagree with _[name]_'s explanation?*
  - [Teacher] *Is the strategy used a good one to use here? Is this a question of a computation 'bug'?*

Processing Errors Constructively and In Full

There is some powerful research demonstrating that in those classrooms where errors are processed constructively and in full student achievement is higher. If you know how to fix something, you are more likely to use that information positively in the next encounter. *But to process such errors in front of a class, an emotionally and intellectually safe environment must be well established.* Errors, therefore, become a source of shared problem solving rather than a source of shame.

- [Teacher privately to a student] *I see you are confused/stuck at this point in the problem. Are you willing to share what you have done so far with the class and we can ask what advice your classmates have on what to do next?* [Provide all facilitation support for the student in presenting ideas to the class.]
- *You have the nugget of a very good mathematical idea here. If we can figure out how to make it work, it will be really useful for the whole class to know. Let's share what you have done so far with the class and let's pool all of our minds together to figure out how this can work.*

Wait Time

This research on wait time is long established. Wait time *while an answer is being formulated* is the more recognized aspect of this work. That provides the learner the space to solve a task without the undue pressure of time. The lesser known aspect of this research is the wait time *after the first answer is given.* Capturing student answers *without judgment* and simply recording those answers on the board is a technique in providing this wait time. Getting all answers out provides you, the teacher, with an assessment about how the follow up sharing time can unfold. It is critical to start the subsequent sharing *with the first*

person you called upon for an answer regardless of the correctness of the response. If you only call upon to share correct responses, that sends a signal to all in the room that their thinking is not valued.

- *Raise your hand if you have an answer. Let me call on _[name]_. If you have the same answer as _[name]_, put your hand down. If you have a different answer, keep your hand up.*
- [First person called upon] *_[name]_ How did you solve the problem?*
- *Do you agree or disagree with _[name]_'s answer?*
- [If a disagreement] *What answer did you get? Why do you disagree?*
- [If someone changes one's mind] *What did you hear that allows you to change your mind?*

Active Listening: Listening to and comprehending the thoughts of others

The 'audience' in the classroom has its own set of skills to develop. Hearing someone speak and paying attention to what they are saying are two different things. What does it mean to be a 'good listener'? *There are important cultural norms to incorporate when developing such classroom norms and skills.* (Not in all cultures is it polite to look someone in the eye. Certain people need to doodle in order to listen intently.) However, adjusting for those variations, an open discussion about what it means to be attentive to the speaker is essential. Documenting the group norms in an anchor chart that can be revisited from time to time is useful especially if students are not coming from other classrooms where public sharing is the norm.

Engaging the Audience

There are ways to engage the audience in the strategy(ies) being shared by an individual(s) in front of the class or locally at tables.

- *Who did the same or nearly the same as _[name]_?*
  - *Was it exactly the same or did you make some different decisions?*
- *Now that you heard _[name]_'s strategy, do you have any questions for _[name]_ about how the strategy works? Is there anything confusing that you would like _[name]_ to clarify?*
- *Can someone explain in your own words what _[name]_ just said to help us to better understand this idea?*
- *That was an interesting idea that _[name]_ just said, what, class, do you think about that? Any thoughts or questions about what it means?*

Turn and Talk to your partner is a practice that allows all students to vocalize their thinking to at least someone else. This can be *done while solving a task* or *done after personal time has been given* to solve a task. However, to increase the active listening of the encounter, clear instructions need to be given.

- Focusing the listening directions (A):
  - *I am going to have you turn and talk to your partner. What I want you to do is, 1) explain how you each solved the problem* [after personally solving a task] *and 2) listen to see how your strategy is the same or different from your partner's strategy.*
  - In calling on partners to share, asking those called upon how the strategies were the same or different needs to be followed up on.
- Focusing the listening directions (B):
  - *Today when I have you turn and talk with your partner, I want you to listen very carefully to what your partner's strategy is. The interesting thing is when I call on you to share, I want you to share what your partner did, not what your strategy was. So if you don't understand something your partner did, make sure you ask some good follow up questions of each other.*

Once public sharing is well established within the learning community, and knowing the ways of thinking of one's peers, interrupting the individual who is sharing to engage the audience in predicting and/or exploring possible options. This helps the whole class focus more intently on an individual's work as well as explore a range of possible decisions that could be made at various junctures in solving a problem. Making sure to call on a range of students from within the audience increases individual accountability. *Giving certain students a heads up that you will call on them first* is another means of increasing individual accountability.

- *Class, I am going to have _[name]_ share the strategy used to solve this problem. I am going to interrupt _[name]_ at different points so you, the audience can predict what _[name]_ might do next. So, listen closely and follow _[name]_'s thinking.*
- *_[name]_, let me interrupt you for a moment. Class, we have listened to _[name]_ use a similar strategy on other problems. What do you predict _[name]_ will do next?*
- *What are some different choices any of us could make at this point?*
- *Okay, _[name]_, tell us what you actually did and see if it matches one of our predictions.*

Reflecting on One Another's Work

Engaging the audience as part of nurturing active listening skills is to engage students in *comparing and contrasting* one strategy with another, looking for *points of efficiency* within a particular strategy, and general *discussions around the choices one could make* at any one point. *Connecting a student's work from one day to the next* activates prior knowledge as well as positions ideas as coming from the students themselves rather than from the teacher. A critical role of the teacher is *to help connect the dots among ideas* in order to keep those ideas at the forefront of students' minds. This scaffolding support cognitively guides the students along the developmental spectrum of ideas as the school year progresses. In each of the prompts below, the audience is drawn into the work of other students and that the work is a source of ideas. Students learn from each other. Students benefit from the ideas learned from each other.

- *Yesterday, _[name]_ and _[name]_ shared strategies and we talked about ways to how to [_name mathematical idea_, e.g. "save ourselves some time]. I would like us to think more about that today when we solve today's problems. Who remembers what _[name]_ and _[name]_ did?*
- *_[name]_ and _[name]_ shared the same strategy. But where did _name_ save some time in solving the problem?*
- *_[name]_ made an interesting choice here. What other choices were possible?*

A sound I listen for in any conversation is, *Oh now I get it!* That is the sound of someone who has been listening and has gained a personal insight. At which point, I immediately say, *What did you just hear that now makes sense? Tell me in your own words what you heard.* This helps the student solidify the idea for themselves and anchors it for future use.

Interim Sharing and Revising One's Work

Not all sharing needs to occur after all problems have been solved. There is great benefit in interim sharing where students listen to ideas that are working, exploring false starts, and asking clarifying questions to clear up points of confusion. Students are then invited to edit and revise their work if they have heard ideas that are useful or if adjustments to the strategy being used is necessary.

Your Position in the Room

While being the facilitator of public sharing may require you to be up front to support the student presenting and to be able to point to specific spots on the board to help students focus their attention, it is not the only place for you to be. Sit in the audience and listen from there. Raise your own hand and wait to be called on. Be in the back to observe and direct from there. Your position in the room will affect the dynamics of the conversation. Experiment with your position.

Listening is Hard Work

I make this statement frequently to my students. It's even hard work for the teacher to listen to student ideas with a clear mind. I am sometimes my own worst enemy as I start assuming where the student is heading when it eventually comes clear that the student had some other perspective that was being pursued. I am publicly honest with students in those moments that it took me time to get inside that student's head and see it from that perspective. It models for students that good ideas come from anywhere. One has to listen and comprehend the idea from the other person's perspective. That's hard work!