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COLLABORATING WITH OTHERS TO IMPROVE YOUR PRACTICE

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ABSTRACT: How do you know if you are an effective teacher? Many teachers consider their effectiveness only in terms of student feelings toward the teacher and course, or how their students perform. While students' performance and perceptions are important factors to consider, students typically lack the expertise to provide accurate feedback about teaching and learning. What students enjoy and what is best for them are not necessarily one in the same. Furthermore, students' performance is related to, but not solely determined by, what teachers do. High student performance may occur in spite of poor teaching practices, and students may do poorly despite excellent teaching practices. Inviting knowledgeable teachers, administrators, and researchers into your classroom may provide more accurate perspective of your teaching and of student learning and engagement. This article highlights several reasons why inviting others into your classroom not only increases your effectiveness in the classroom, but can make teaching more enjoyable.

Teaching is at times a lonely profession. We can get isolated from others and trapped by the walls of our classrooms. I found this to be the case during my first year of teaching. As a beginning teacher, I remember being overwhelmed with the numerous tasks teachers have to manage. Between planning lessons, assessing papers, attending meetings, reporting to and conferring with parents, providing data for school records, and teaching, I quickly felt like I was pinched for time. The first thing I did to save time was to stop communication with colleagues. In trying to save time and reduce stress, I became isolated. Ironically, research indicates isolation and stress are positively correlated (Dussault et al., 1997).

When teachers become isolated, they develop unconscious patterns of teaching that may or may not be effective for student learning. Teachers have a critical role for creating an effective learning environment. What students learn is greatly influenced by how they are taught (NRC, 1996). The teacher's role may seem intuitive, but carefully guiding students from naïve ideas to accurate conceptions of science content is incredibly challenging. Shifting focus from simply telling students to helping students develop robust understanding requires a change in routines and habits of instruction. Yet, established routines and habits can be difficult to notice and even more difficult to change.

What habits are worth changing? Effective teaching requires a multitude of appropriate decision making. Importantly, planning instruction must be made based on students' background knowledge and developmental levels as well as the goals we have for students. Yet, even the best laid plans must be effectively carried out.

When planning and carrying out instruction, verbal and non-verbal teaching behaviors are easily overlooked, yet are critical for promoting deep mental engagement. Effective verbal behaviors in part consist of asking open-ended, thought-provoking questions. Additionally, asking for elaboration or clarification of student responses provides deeper insight to student thinking rather than simple rejection or confirmation. Consider the following interactions illustrating how a teacher can place higher cognitive expectations on students through carefully worded questions.

Original Interaction in a Biology Class

Teacher: "What types of digestion take place in the mouth?"

Student: "Mechanical and chemical."

Interaction in a Biology Class with Modified Questioning

Teacher: "From the standpoint of digestion, why should you chew your food prior to swallowing?"

Student: "When you chew food, it gets broken into smaller pieces."

Teacher: "Why is this an important step in digestion?"

Original Interaction in an Earth Science Class

Teacher: "What happens to hot air?"

Student: "It rises."

Interaction in an Earth Science Class with Modified Questioning

Teacher: "Why does hot air rise?"

Student: "Because it is less dense."

Teacher: "What does this imply about the vertical movement of the surrounding cold air?"

In the examples above, notice how both modified opening questions were worded to shift the focus from factual recall to application of conceptual understanding. Open-ended questions require students to go beyond reciting facts. Additionally, notice how open-ended questions offer better opportunities for follow-up questioning. When asking students to simply recall facts, either they know the answer or do not. With open-ended questions, students must apply their knowledge or express their thinking. The insight shared provides the teacher with a window into how well students understand the concept and what misunderstandings or misconceptions exist.

Effective non-verbal behaviors entail smiling, making eye contact, raising eyebrows to indicate interest in student responses, moving around the room, and wait-time. Wait-time includes waiting after you ask a question and again after students respond. The use of wait-time along with the other behaviors is documented to improve student responses by up to 700% (Rowe, 1986). While all of the behaviors mentioned are crucial to foster an atmosphere of mental engagement, improving these behaviors takes time and practice. The significant demands of teaching make learning and implementing new behaviors and strategies a daunting task.

Hargreaves and Dawe (1990) attributed the persistent failure of educational change efforts at the classroom level to school cultures that foster isolation of the classroom teacher. Teachers must work to avoid isolation and build collegial relationships which are receptive and supportive of meaningful change.

Gradual improvement

Teaching is decision-making. When we teach, however, we don't always make decisions that are best for student learning. The demands placed on teachers make learning and incorporating research-based effective teaching behaviors and strategies extremely difficult. Both teachers and students can easily become overwhelmed with trying to change too much too fast. Gradually changing to new strategies and teaching behaviors, teachers and students can become accustomed to the new roles with less stress (Clough, 2002). Collaboration can be an effective method to cope with stress and share ideas to improve teaching behaviors and strategies. While the benefits of collaboration are apparent, the types of collaboration are varied.

The value of student teachers

While having student teachers or interns requires additional work on the part of the cooperating teacher, the potential benefits far exceed the effort. Student teachers and interns viewing your classroom can reallocate the mental processing of the cooperating teacher. Effective teachers consider the present state of student knowledge, decide how to play off of student ideas, think about where the lesson is headed, consider classroom management, manage time, and monitor student interest. When an individual is trying hard to implement new behaviors or strategies, more attention is required for the task which increases the mental workload (Strayer & Drews, 2007). With all of this mental processing occurring at once, a student teacher can help divide the cognitive demands.

Student teachers and interns provide another set of eyes to monitor classroom behavior and can provide questions during instruction. This tag-teaming allows both the student teacher/intern and the cooperating teacher time to think about their next question or how to best use students' ideas to move the class understanding forward. When this

collaborative teaching occurs, the new behaviors and strategies that once eluded us become more routine and the cognitive attention needed to perform these tasks decreases. In other words, as we gain more expertise, we accomplish the same task more easily. Student teachers can provide cooperating teachers the time and mental processing necessary to improve.

When working with student teachers and interns, cooperating teachers ought to discuss the rationales behind their decision-making. Verbalizing one's rationale not only benefits the student teacher, but also benefits the cooperating teacher. When the reasons behind decisions are shared, the cooperating teacher's understanding of teaching becomes better understood. If the teacher has no rationale for their decisions, the discussion can provide a way to reflect on the effects of decisions and teacher behaviors on student engagement and learning. Teaching and reflecting collaboratively pushes both in-service and pre-service teachers to improve.

Importantly, when the cooperating teacher models both the desire and follow-through to improve their practice, important lessons are being learned by the student teacher. Student teachers have observed teachers *teaching* for nearly 15 years. Yet, they have not likely observed many teachers *reflecting*. The message sent by seeing even experienced teachers reflect meaningfully to improve their practice sends powerful messages to new teachers. The explicit modeling of reflection based on students' actions, teaching decisions, and education research conveys that effective teaching is far more than personal style.

Collaboration with expert teachers

Expert teachers observing your classroom can put you on the fast track to becoming more effective. "Expert" may or may not coincide with years of teaching experience. Expert teachers understand the details and intricacies of teaching which make them well suited to provide relevant and pointed feedback. Furthermore, teachers tend to feel more comfortable having a teacher observe them over other individuals (Rodgers, 1993).

One method which could be employed with another teacher is reflective journaling with observations. This strategy involves having a knowledgeable colleague observe you teaching a class, and having you first reflect on your practice before discussing the lesson together. The observing teacher can then share their observations and discuss a focus area to improve upon. The observing teacher is not engaged in the act of teaching and can focus more closely on details the teaching teacher cannot. Together, these two perspectives provide a more well-rounded view of the lesson so that reflection can be deeper and more accurate. Additionally, having both teachers discuss strategies to improve will benefit students in both classrooms. Teacher collaboration is not limited by proximity.

Technology can be used to make collaboration with knowledgeable colleagues accessible. Google has made numerous advances to the webmail system, Gmail (www.gmail.com). One of the interesting features of Gmail is Google Docs. This program is much like a word-processor, but has the added benefit of online collaboration with people you invite via email. The parties to which you give access can edit the same document concurrently and the document remains saved on-line. I am currently collaborating with a colleague in South Sioux City, NE using this program. We often share lesson plans and ideas using Google Docs. We each add ideas and pose questions and problems to each other. While the online collaboration is not perfect, we gain each other's perspective on lessons with which we are struggling and we can each add to the docs when we have free time in our day.

The use of a message board or a blog can be an effective place to share ideas and keep in contact with others. One benefit of a blog is the teacher can access and share ideas when he or she has time to do so. Multiple people can comment on your posting which can give a number of perspectives to consider. Do be sure not to include any sensitive information as part of a blog considering it is usually accessible to the public. Online message boards can create a community of teachers discussing ideas, posing questions, providing feedback and solving problems together. Yet another online resource includes podcasting. Teachers can audio record their lessons, upload them to a podcast site, and have colleagues at any location listen to and provide feedback on the teaching episode via email, blog, or message board. These online technologies are all readily available through a variety of free services.

Even if a knowledgeable colleague does not live close to you, they can still experience your classroom to an extent. I have heard of teachers using a webcam to talk to other classrooms or for colleagues at a distance to observe the classroom. When using video or webcams in schools, obtaining parent permission is a prudent idea. While these online technologies provide the ability to collaborate with colleagues from around the globe, having a knowledgeable teacher from your building or district observe your class provides a more accurate perspective of all the nuances of the classroom and lesson. Furthermore, working with local colleagues encourages teamwork and collaborative professional learning communities amongst the teachers in the district.

Your eyes on your classroom

The most valuable eyes on your classroom are your own eyes. Only you can make the decision to improve your practice and do what is necessary to move your practice forward. Thus, we have to be in charge of our own improvement. While the impact of colleagues in the classroom is an important part of improvement, observing your own classroom is required for meaningful improvement.

Audiotaping and videotaping your teaching is one of the most effective ways to understand what you do in the act of teaching, and begin to make purposeful steps toward improvement. Taping can be a painful experience at first, but with time, a more dispassionate view on how the class went can be formed. I remember the first time I looked at myself on videotape. I recall saying the things I said, but I didn't realize how ineffective some of my teaching behaviors had become. I quickly decided I didn't want to watch ineffective questions and poor wait-time on future videotapes. At that moment, I found new motivation to improve my practice.

Besides galvanizing a change in my teaching, watching the videotape had numerous other benefits. I noticed patterns in my students I hadn't seen before. When I had my back turned to write something on the board, certain students would be misbehaving. When I was moving around the room, more students were on-task. If I became excited about what we were talking about, students were more attentive. In watching the classroom from another perspective, I could focus on the mental engagement of the students without having to consider all the other things a teacher is thinking about during a class period.

Strategies to improve your practice

Each type of collaboration offers benefits and opportunities to improve your practice. Selecting the appropriate type of collaboration for your needs is important. Try some of the following ideas to improve your practice:

1. Have a knowledgeable colleague observe you teach on a regular basis.

- When you have an observer or administrator, ask if they would be willing to observe a specific teaching behavior or strategy.
- If the colleague is watching your teaching behaviors, have them keep track of how many extended-answer or yes/no questions you ask, or how long you wait after asking a question.
- Use reflective journaling along with observations to provide insight and compare interpretations of the classroom environment between yourself and the observer.

2. Get together with colleagues outside of school to discuss your progress.

- Grab dinner or call someone and have a positive conversation
- Trade video and audiotapes and provide each other feedback
- Discuss issues and new ideas
- Attend science teacher conferences to get new ideas and collaborate with others

3. Take student teachers and interns.

- Cooperating teachers who take this responsibility seriously work extra hard to model effective teaching practices. Thus, working with student teachers and interns can have the effect of heightening your awareness and improving your practice.
- Discuss your rationale for your teaching decisions. When this happens, you quickly find out which decisions are solid and which need some reconsideration.
- Have the student teacher or intern teach the class and watch for patterns in the students.

4. Get to know the students as individuals.

- Perhaps the most fundamental tenet of effective teaching is to deeply understand the learner. When we know our students, we can make more informed pedagogical decisions. I recall teaching a genetics unit and was about to ask a student about her parents' traits, but I caught myself because I remembered she had been adopted.
- Knowing students can lead to much relevant discussion. Pick a student per class period per day and talk with them informally before class to get to know them.
- Seek student input on how the class is going. Have students write about what confuses them or frustrates them about class. Provide a survey at the end of the quarter or semester. Keep this information in perspective. Students are not professional educators.

5. Consider action research as an aspect of your class.

- When a teacher engages in action research, they can work towards expertise in the area being studied. This expertise can provide the teacher with a strong rationale for their decisions. Additionally, the action research provides focus for reflection and improvement strategies.
- Having researchers observe the classroom may feel awkward at first, but the second set of professional eyes can provide impetus for improving practice. Furthermore, researcher notes can be extremely valuable for reflecting on the effectiveness of lessons.

Reflecting in real time

Any efforts to improve practice should include reflection. However, the type of reflection we engage in should be considered. Schon (1987) contrasted reflection-on-action with reflection-in-action. The former implies the educator

thinks about what happened after the lesson and how to make modifications for the future. The latter implies the educator is evaluating what is occurring and making modifications while the lesson is in progress. Teaching is decision-making. By engaging in collaborative efforts to deeply reflect-on-action, teachers can improve their reflection-in-action. Thus improving the decisions made in the act of teaching necessary to create a classroom of mental engagement and meaningful learning.

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