Elegant Classroom Management

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Abstract

This action research deals with classroom management, in particular, teacher choices that promote group learning. The pre-service teacher observed an expert teacher in ninth-grade mathematics classes. In ten representative incidents, the expert teacher exhibited classroom management tactics that correlated with short-term and long-term learning, student engagement, and a pleasant classroom. Interviews with the teacher, interviews with students, and subsequent reflections support the contention that a teacher should sacrifice several cherished activities in order to give more time for student work. Student work time in this class tended toward an uninterrupted 85% of the period. The reporter found three strategies that guided this expert teacher's classroom management choices: "Never do for students what students can do for themselves," "Face-to-face interaction is many times more productive than whole-class interaction," and "Be consistent in enforcing routines and simple standards of productivity."

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Introduction

When I began student teaching, I aimed to have interesting lessons. Many authorities and students of all ages recommended "interesting lessons" as key to engaging students. My university students responded enthusiastically to interesting lessons. Indeed, bouncing balls, linking blocks, and group games fired up my junior high and high school math students. However, student flames poofed out when they sat down to do mathematics. Therefore, I scripted four different ways to teach each day. I addressed multiple learning styles. I focused on routines; better late than never. At least the teacher learned the routine of consistently nagging, intervening, and quarantining. Apprehensively, I listened to teachers who were better than I was at presentation and far more sophisticated in nagging. They likewise felt tired and not as effective as they wished.

The Question—and an Enigmatic Answer

When I again observed a master teacher, I had a burning question:

> *How does the teacher obtain relatively high student scores and admirable classroom peace with little apparent effort?*

I found an answer by watching and by asking. Economy of teacher action is both a result and a cause of a productive classroom. Less teacher time yields more student time. More student work time allows more exploration and consequent learning. More student work time also allows the teacher to spend more time with at-risk individuals. How does the teacher make more time for students? Placing a few words where they will have the maximum impact is a key. The expert teacher I observed for this research offered this perspective: "If you want them to learn, never do for students what they can do for themselves." To get students to "do for themselves," demands elegance in classroom routines and in presentation of content, as I saw.

Setting

The three sections of "Integrated Mathematics 1" I observed served a typical population of ninth graders. IM1 uses the Core-Plus "Contemporary Mathematics in Context" curricula. This mixes six-week units on algebra, geometry, statistics, and analysis. IM1 is the freshman class of a four-year college prep sequence. Currently in this district, ordinary IM courses serve in effect a broad middle track. IM Honors and Advanced Placement courses serve more advanced students. Classes such as Consumer Math serve less advanced students. Mathematics grades and standardized tests set placement.

Demographics were typical of the diversity of this suburban college town. This junior high school hosted 820 eighth and ninth graders, with about 27% eligible for free or reduced lunch. School statistics listed approximately 67% white, 20% black, and 13% other races. The classes I observed were consistent with those ratios. Several students had immigrant parents yet possessed fluent English. A few students had learning or behavior Individualized Educational Program or advice. One or two students in each class were frequently absent with in-school suspensions. The school's mathematics contest teams came from the honors tracks, not these classes. Most students nevertheless impressed me as consistently productive and conscientious. These three sections' grades were above the average of IM1 sections in the district.

These math classes met the last three fifty-minute periods each day in a kitchen that Family and Consumer Science classes used in the morning. The teacher quipped of "gourmet math" and "stay out of the fridge." There was permanent storage for math materials, but no teacher's desk or files. Six square tables each seated four students. There were around twenty-two students enrolled in each section. This classroom was spacious enough that groups were not back-to-back. The teacher often strolled among the tables. Individuals could and did separate

to corners of the room to do make up work or cool off. The room offered one 3'x8' whiteboard and an infrequently used overhead projector.

The host teacher taught mathematics for 34 years, and served as mathematics department chair before retiring. These three sections he taught as part-time status. He formally supervised several student teachers. As to teaching style, he first impressed me as authoritarian. He volunteered that he had once been the "sage on the stage" but now expedited student work.

With occasional visiting college students, I served as classroom aide rather than passive observer. I helped groups stuck on problems and confronted off-task behavior. One day I substituted for the regular teacher with a doctoral teacher present. On that day, more students than usual tried swapping seats, chatting, and other little liberties. I was disappointed that the usual maturity of the students had not yet stuck permanently, and that they thought—for about three seconds!—that I would be a pushover sub. In a clinical sense, their acting-up that day encouraged me. The host teacher was doing something that consistently created minute-to-minute order, something that my own presence did not greatly confound, and something I could track. That something was classroom management.

What Is Classroom Management?

"You manage things; you lead people."
Rear Admiral Grace Murray Hopper

I determined to observe the classroom management choices of this experienced teacher. In his book, *The First Days of School,* Harry Wong broadly defines classroom management as: "All of the things that a teacher does to organize students, space, time, and materials so that instruction in content and student learning can take place." (p. 84). All worthwhile teacher activities have a classroom management interface. For example, even though grading often occurs outside the classroom, the teacher has an option to have students grade student work in the classroom. Thus even grading is a classroom management decision. The teacher weighs costs and benefits of activities with the aim of

maximizing learning. Wong (on p 86) lists in addition to learning, four other indicators of effective classroom management:

- Students are deeply involved with their work, especially during teacher-led instruction.
- Students know what is expected of them and are generally successful.
- There is relatively little wasted time, confusion, or disruption.
- The climate of the classroom is work-oriented but relaxed and pleasant.

The classes I observed had these characteristics! My question became: find how the classes got that way and how they stayed that way.

Methods

Of the dozens of events I journaled over 35 school days, I have selected ten from which I learned how a teacher can better manage a classroom. The ten represent recurring incidents. They are not one-time aberrations. At first, I focused on what were to me surprising actions that increased learning. Eventually a deeper unity emerged. These tactics advanced a conscious strategy.

For each incident, I asked, what would I have done? How would my choice differ from the master teacher's choice of action? Thus, a few of these incidents are non-events. I would have done something, but the expert merrily did nothing.

I interviewed the teacher after class to find his beliefs regarding both routine and corrective incidents. I also informally queried students within a few days after incidents. I aimed to never interrupt working students. Most student interviews doubled as a natural re-direction after a student asked me for help: "Is your group helping you?" Students were curious about my presence, which I explained frankly as, "I am trying to improve my math teaching. How do you think math classes can be improved?" Students were eager to contribute. Kids even summoned me to amend their previous day's response: "I forgot to say, less homework, yeah, math should have less homework." By integrating research questions with normal classroom re-direction, I never took more than a minute per day per student extracting research data. (I plan to ask such questions in my own classroom. Asking such questions raises student expectations of the teacher. Put another

way, if I never respond to recommendations, then kids will have less cause for answering thoughtfully.)

Interviews of the teacher or students began with the question cited, which I aimed to be non-leading. After a reply, I pressed for specific points: What do you think of this other option? What if the situation was different in this way? My purpose was to deduce if not provoke statement of the teacher's or student's deep strategy. The interview results are consolidated from responses given over several days. My notes during and after class, checked against audio recordings of class and interviews, produced the abridged results reported here.

Reflections similarly consolidate several days' journal entries. I analyze teacher tactics in light of long-term effects, test results, and such indicators of classroom productiveness as engagement, well-used time, little disruption, and pleasant atmosphere. I include findings from other researchers. My consequent resolutions adapt the expert's lead to my current strengths and weaknesses.

After considering these ten tactics individually, I consider how they unite in supporting an educational strategy, and further implications of that strategy for my teaching.

Incidents and Reflections

Incident 1: The Case of the Irresponsible Eyes

Situation: During group time, a student chatters off-topic to a listener at the same table.

What would I do? Confront the talker as appropriate for his history.

Expert action: The host teacher stands near the talker for a few seconds.

The host teacher then firmly confronts the *listening* student! "Please get to work!"

Student protests, "But I'm not doing anything!" Teacher replies, "You are encouraging him with your eyes." Student sputters, "But...!" Teacher motions listener to the hall for forty seconds of conference.

Immediate effects: The listener returns to table. The listener and the talker confer with the third student at the table, who was working all along. They each progress with the assignment. However, compared to other groups this day, this group does not function as cooperatively and completes fewer problems.

Question: Why did the teacher confront the listener instead of the talker?

Interviews: The teacher explained to me that before I arrived, he had in previous months warned, taken to the hall, conferred after class, and otherwise dealt firmly with the chronic talker. The teacher's interventions shrank the talker's disruptive radius to his own group, but were getting diminishing returns. The teacher aimed by this confrontation to alert these students—and all students—to their serious responsibility to help other students stay on task.

"Had you explicitly taught students to 'shhh' or turn away from talkers?' I asked. The teacher replied, no. Classes have too many rules. A rule for students to remember is a

rule for the teacher to consistently enforce. My class has two non-negotiables: do your work, and behave.

"What if you get an IEP compulsive talker?" For Attention Deficit Hyperactive Disorder kids, those with ADHD-like behavior, and for all kids, the teacher does not relent on what is right. Work out signals so the kid knows they have crossed the line again. Have a remote spot where the kid can go. You must get used to reminding these frequent fliers. As in this incident, you must hold all the kids to confront instead of laugh or passively encourage disruption. Work with counselors. For some kids, a behavior contract or other understanding works.

As the teacher's aide, I asked five groups of students, "Let's suppose you were about to get in trouble in class. Would you want someone to warn you?" The kids consistently responded, Sure! Are we in trouble?

I also asked, "Do others actually warn you?" They said, No. Only if every one will get seconds [kept after the bell]. One kid pointed out: These guys thought it was funny when they were talking but I was the one the teacher caught.

I segued, "Thanks for helping me understand what you want. Now, where are you people on the assignment? ..."

To these questions, the "listener" student resolved to not let anyone "get me in trouble again."

Long-term effects: For many days this listener ignored off-task remarks from the talker. The three students tended to complete assignments. However, a fourth student returned who served as audience to the talker. The host teacher essentially repeated the confrontation for this absent student. The talker no longer sought off-task conversation, though he hid other student's things and showed other mischief. I did not observe a desperate demand for attention as can happen with this extinction treatment. After six weeks, the talker was still mischievous, but the others of his group and nearby explicitly lead him to stick to finishing the assignment, with words like "let's get this done, ok?"

Reflections: This confrontation was far more memorable for the students—and for me—than the usual confrontation, "what should you be doing?" "Encouraging him with your eyes" at first struck me as flimsy grounds for the thunderbolt, and not constructive. I admit that “encouraging him” cut to the heart of the passive misconduct the teacher wanted to correct.

The student might conclude: "Offending the teacher costs more than turning away from the talker." "The teacher holds me responsible for correcting misbehavior of other students," "I should not try to work and not work at the same time." Hallway conferences clarify such insights, I was told. The listener should volunteer or learn "cool it" signals to use with talkers and other disruptions.

Are there risks in confronting complacency? Yes. A student may believe that stopping student misbehavior is the teacher’s job. The listener may feel they cannot stop the talker. Either assumption leads to resentment to the ‘mean old teacher’. Under threat of teacher reprisal, group communication might cease altogether or become uncivil. A teacher can tolerate such risks as usually temporary side-effects.

As for the talker, that student again heard that his off-task chatter was not ok. The talker had grown calloused to most warnings and interventions. He gave attention to this novelty. Perhaps he found a new reason to stay on-task: "I don't want my audience to get mad at me if they get in trouble for my talking." I believe he will need continued prompting to appreciate the negative effects he has on others.

My interviews with the students suggest that, if students noticed but were not directly involved in the teacher’s reprimand of a “listener”, the students merely incremented their vague aim, to avoid the teacher’s reprimand. They did not yet feel responsible to confront a talker unless they were liable to share a noise penalty with the talker. This disappointed me. Fortunately, those “listeners” who were reprimanded did volunteer they would discourage talking and did just that for at least six weeks.

I have heard of teachers using a disruptive student's absence to enlist all the others in behavior modification tactics toward that student. Will students worry, "what do they say about me when I'm gone?" I want to teach responsibility but not alienate.

I notice this teacher forgoes "write a name on the board, add checkmarks" bookkeeping. During direct instruction, this teacher mostly uses proximity and "the teacher glare," coupled with a long pause. On occasion, he sent a disruptive student to the hall and instruction continued.

I was surprised that students saw the teacher's reproach of the listener as fair rather than unfair. Their reasons were not the noblest: The listener had talked in the past and not gotten caught. The listener should have signaled the talker that the teacher was coming.

Training students to manage each other's behavior takes time. Still, I conclude that it is time well spent.

Remaining Research:

Ask additional students: If you were about to get in trouble, would you want another student to warn you? Has this ever happened? What is the best way to handle someone who talks too much?

Resolutions:

- I am not as confident as this teacher is that students *know* that they should discourage misbehaviors. Students may not know *how* to signal a talker to stop other than "shut up!" In orientation, I would briefly notify students that they must signal other students to stop disruptions. As with other skills, behavioral self-government will need modeling, practice, discussion, and refreshing.

- It would be fun to solicit non-verbal signals that students can use to signal a talker: finger to lips, hand raised for "stop", cut throat, fingers in ears, rolled eyes, head shake, crossed arms, thumb down.

- When misbehavior occurs, picking off the ring-leaders in talking or other knavery will let the class know that you can be fair. However, if penalties for certain kids are non-productive or counter-productive, then dealing with the less-obvious off-task kids can remove reinforcers for the worst cases

- I need to be as consistent as this teacher in enforcing my expectation that groups will confront or shun misbehaviors. My confrontation of a "listener" will be triggered by definite evidence: focus on the other person, no pencil in hand.

- Let students know that they can signal thanks or praise to other students for contributing. "How many ways can you non-verbally congratulate someone?"

Incident 2: The Case of the Inefficient Instruction

Situation: Students needed a comprehension check of vocabulary for geometric solids.

What would I do? I would have taken a few minutes to lead the whole class in review.

Expert action: During group work time, teacher *visited each group* with model solids in hand, and repeated the same questions for each group, taking four minutes per group.

Immediate effects: Groups paid attention.

Question: Why repeat the shtick six times when you could do this once for all?

Interviews: The teacher asked me something like this: How many students pay attention during whole class review? I replied that, some would zone out. How many students learn something new during a whole class review? Hmm, said I, not many. They know, or they do not know. I have seen no note taking.

How many students get to convert their fuzzy understanding of a prism into a mathematical definition? the teacher asked. Not many, I replied. "How about none?" asked the teacher. Kids often have insightful partial connections. They abandon these if you proclaim the words of the official definition. He continued: After quizzing the class,

do I know more about which students know vocabulary? I learn nothing I did not already know. They learn nothing they did not already know. It's five minutes wasted. But if I visit each group, no one hides out, everyone contributes. Between their buddies and me they come to better definitions, which they remember. That's time well spent.

Long-term effects: Having demonstrated touring the groups, the teacher delegated me to conduct vocab reviews in the next two periods. ("Never do for student teachers what they can do for themselves!") I had forethought to note eight students who had inadequate initial responses to my vocabulary queries. On the subsequent quiz, six of these eight had overcome the absence or awkwardness of their original definitions. Most of the class performed solidly on vocabulary matters.

Reflections: Our ideal is not for the teacher to talk less, but for the students to think more. Proximity and small groups tend to stimulate thinking better than large groups or isolated students, at least for many populations. Once students have habits of thinking, then the teacher can talk less! Long term self-sufficiency requires strategic investment.

Why did not the teacher direct the groups to conduct this review all on their own? The teacher felt that the review was important, and was less willing that any group let its members sleep for this activity. The teacher modeled the productive review processes, so that perhaps on the next occasion the students can do it themselves. The teacher wanted to encourage students to explore tentative characterizations. Students tend to settle for nothing more or less than rote recitation of textbook definitions.

Remaining Research: Seek studies comparing review effectiveness in large groups versus teacher-led small groups versus individual effort. In my own class, a longitudinal study of individual response to these little reviews is feasible.

Resolutions: I will experiment with such pro-active use of group-time. To accomplish my review, allocate plenty of group time and don't dally at any group. It may be necessary to forgo much question answering. Give students appropriate time on their assignment if I interrupt them this way.

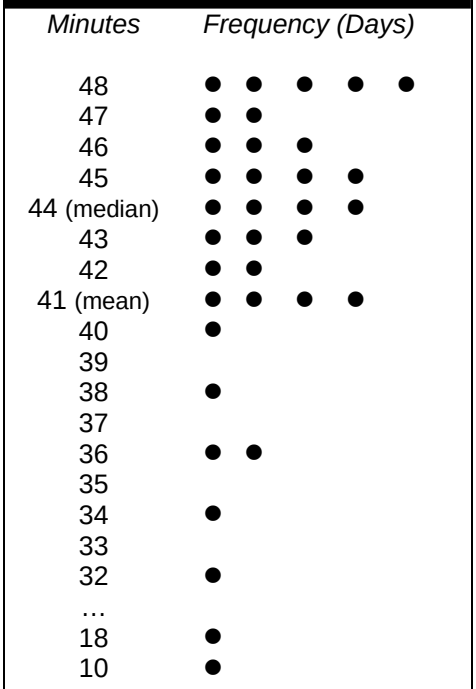
Incident 3: The Case of the Terse Teacher

Situation: Teacher conducts direct instruction, "the lesson for today".

What would I do? I or students fill up a white board and multiple transparencies with assignments for the week, homework solutions, example problems, definitions, and other writing. I read aloud everything that is written—multiple learning styles, ya know. About every third day requires worksheets. Once, when material allowed, I told students, just read the book. Students objected that if I expected them to do the work I would have to show them how. My supervising teacher affirmed, you've got to model every day.

Expert action: Brevity reigns. The teacher leaves a daily agenda on the board. The rest of the classroom's small 3x8' white board accumulates his neatly printed examples or definitions. He erases only to clear results before the next class! Teacher rarely uses worksheets or other handouts. On uncommon days, the overhead demonstrated calculator usage. The teacher did not use the over head to work problems, and only once to display review answers. Students rarely write on the board or transparencies. On a typical day, the bell rang and students settled in for about a minute. The teacher announced five minutes for groups to discuss results found since the preceding class. The teacher lectured for six minutes. This sometimes consisted of pronouncing the assignment then saying, "Have at it!" Exceptions were review days, when the teacher questioned all students for most of the hour. Student work time averaged 85% of class time. See Figure 1.

Figure 1.
Student Work Time During 35 50-minute Periods



For a given day, student time varied by at most two minutes. "Minutes" is the mean for a day's three sections. Thus student time was 48 out of 50 minutes or 96% of the period on five days. The two outlying low values occurred on review days. Data excludes days devoted to tests.

Immediate effects: The students have at it!

Long-term effects: Groups had grown to fend for themselves in reading and discussing the text, comparing corrected assignments and quizzes, and pursuing the new assignment.

Question: Don't students need more explicit direction?!? Where is the modeling? Where are the homework solutions? Why not use the overhead more?

Interviews: The teacher has already emphasized to me the general principle; do not do for students what they can do for themselves. Experience informs him which if any part of the upcoming lesson deserves prior clarification. One investigation out of twenty he found awkwardly worded; so, he made a worksheet that attempted to ask the same questions more clearly. Once in two days he calls for attention during group time for a brief clarification—never working out a problem. Otherwise, group time is uninterrupted. This teacher feels the textbook is generally adequate for presenting the lesson, leading students to discovery, and assessing their understanding. Students learn routines to use the text, to use their groups, to use their calculators and other resources, rather than depending so much on the teacher.

The teacher asked me: Do kids learn from writing down teacher solutions? Not often. The overhead saves you from having your back to the class. But if you let the textbook do the work, you don't need the overhead, and you don't need much of the whiteboard.

Get full attention when you start. When people are confident you will be brief, they listen. The moment they start to wonder, how long, they've already dropped out. I say 'people', because adults are no better than kids.

Groups take over several teacher roles. For kick-off and modeling, a student in each group may read aloud to the group the textbook introduction, examples, and each problem. August's groups learned classroom routines and expectations by succeeding with smaller spans of the same classwork routines used in February.

This teacher grades student submissions overnight and returns student work the next day!

Group members discuss the corrected papers before proceeding far with new material. Toward the end of the period they may ask the teacher to refer to the published teacher's key and notes. More often call on the teacher to answer questions. The teacher may ask them if they have first discussed a matter as a group, or checked the key. Students finish most assignments in class.

Students present to their groups, informally. Presenting to the class is sometimes an engaging change of pace. Students should learn to make presentations. But not so much learning goes on during student presentations.

I asked each group in each class informally how math classes could be improved. By far the most common suggestion was for the teacher to "show us more how to do things."

Reflections:

"Show us more how to do things." Ah ha! I could tell the teacher "see, they want you to talk more." Then I recalled that I had asked this same question of other classes. Some classes devoted three-quarters of class time to direct instruction. Those students also said, "show us more how to do things!" This wish is a short step from, "Do the work for us." Most kids arrive at first grade after having become fairly independent. Teachers, however, are positively reinforced for successfully passing information. "Learned helplessness" becomes co-dependent with "learned helpfulness".

Having students read aloud in small groups has several advantages. Students give more attention to a speaker next to them than to a teacher or student across the room, though this is not guaranteed. The routine action of reading warms up students for subsequent exploratory action.

As with any routine, the quality of the "reading minute" bears improvement. A group member might be digging in her binder or talking to another table. Many readers forge ahead instead of requiring attention. (As a student teacher, I had to learn to wait for attention!) Consequently a first question after reading is often, "Wouldja say that again?" Some groups skip the reading minute. This may result in no progress at all. When the group asks the teacher for help, the teacher may ask them which how-to-get-unstuck

tactics they have tried: Has someone read the problem aloud? Ask, what does this problem want? Is there a word or phrase we do not understand? Is this similar to previous problems? Different? What do we need to do? Can we make a drawing? Use a table? Is there a pattern? Does this answer make sense?

> "A leader is best when people barely know he exists.
> Not so good when people obey and acclaim him.
> Worse when they despise him.
> But of a good leader who talks little,
> When his work is done, his aim fulfilled,
> They will say 'We did it ourselves.'"
> - Lao Tse

This teacher's emphasis on group work led me to view a class as a federation of groups rather than a crowd partitioned into groups.

These student groups had no formal commanders. There was often asymmetry in production, with "smart kids" and "copyists". Even then, most groups rotated simple duties. "I returned calculators yesterday, it's your turn." The class recognized a protocol similar to chain of command. Individuals tried to get help from the group before calling on the teacher. The teacher usually addressed the group but did not ignore individuality. If dealing with an individual, the teacher required all in a group to pay attention, and directed leading questions to the whole group. The teacher's proximity kept group members engaged. Nearby groups listened in.

"Groups" are not the same thing as "collaborative learning". Though more productive than any I have observed, I do not think any of these groups achieved collaboration. Johnson, Johnson, and Smith (1991) identify five features of cooperative learning:

1. Positive interdependence. Team members are obliged to rely on one another to achieve the goal. If any team members fail to do their part, everyone suffers consequences.
2. Individual accountability. All students in a group are held accountable for doing their share of the work and for mastery of all of the material to be learned.
3. Face-to-face promotive interaction. Although some of the group work may be parceled out and done individually, some must be done interactively, with group members providing one another with feedback, challenging one another's conclusions and reasoning, and perhaps most importantly, teaching and encouraging one another.

4. Appropriate use of collaborative skills. Students are encouraged and helped to develop and practice trust-building, leadership, decision-making, communication, and conflict management skills.
5. Group processing. Team members set group goals, periodically assess what they are doing well as a team, and identify changes they will make to function more effectively in the future.

Of the eighteen groups I observed, I distinguished four forms of cooperation:

- *Slugs:* Three groups (17% of groups) consistently lacked progress. Members wanted to chat. They slowly titled their assignment pages. The teacher or aide could cajole them to sputtering progress.

- *Drones and leeches:* Six groups limped along; one or two members forged ahead and allowed the others to copy their work.

- *Fire flies:* In six groups, members worked independently, sometimes asking other members for clarification or verification.

- *Leap frogs:* Three happy groups tried to parcel problems equitably to each member. They aimed to work simultaneously, share results, and thus finish quickly. I had to grin as these groups inevitably found that problem #4 required results from #3, and #3 depended on #2, as typical of the Core Plus investigations. Fortunately, though they sometimes chatted, waiting members usually pitched in on the lower-numbered problems. When a member finished their task, they jumped to the next unsolved problem.

I have praised this teacher, because in other classrooms I have found only slugs, drones, and leeches— no fire flies, no leap frogs. The fire flies did not aim to maximize learning; they were just not sociable. The leap frogs did not aim to maximize learning, but to minimize work. But because they wanted to get “right answers”, leap frogs tended to display the most productive mathematical discussions and social interaction. With a traditional text, the leap frogs would more easily achieve their aims to minimize work.

Remaining Research: What else can the teacher do to develop an environment of collaborative learning? The tension lies in having the group really depend upon each member's contribution while allowing for the reality of non-productive members.

Again, how do we quickly integrate new students into the culture of group work?

Someday I may teach honors students. When a student wants to work, that desire may favor independent effort or collaborative discovery. (a) Is either pre-disposition innate? (b) If a productive student is unsociable, ought the teacher encourage collaboration? If so, how? (c) If productive pals are dependent, ought the teacher encourage self-sufficiency? If so, how? I speculate that collaboration is most earnest when students focus not on their own accumulation of knowledge, but on solving a worthwhile problem.

How do we encourage students to offer intermediate hints rather than just spilling out "the right answer" to their peers? Not so many students connect poor test performance with mindless copying.

Resolutions: Talk less. Promote the textbook—and calculators, and other resources—as tools to use.

Gradually get students accustomed to reading and discussing corrections within their groups. Promote the "get un-stuck" list for group, individual, and parent use.

Be more consistent in requiring individuals to check with their groups for progress.

Incident 4: The Case of the Uninterrupted Group

Situation: The teacher wants students to work industriously.

What would I do? Following advice of other teachers, I conclude my modeling of the first problem, with, "OK, you have four minutes to do #2 of the Investigation." After the elapsed time, I would call the groups to attention, and select groups, individuals or volunteers to respond with results. Then, "OK, we'll check your progress on #3 in five minutes." I would try to work in a closure in the last few minutes.

Expert action: Class had a starkly simple daily routine: Read and heed what's on the board. Listen to the teacher. Do group work until the bell rings or the teacher says pack up. Wait for teacher's dismissal. The teacher checked progress by touring the groups. *The teacher devoted most of the period to group work. The teacher rarely called the whole class to attention once group work started.*

Questions: Without timed checkpoints, how do we get kids to start and stay on task?

Interviews: The experienced teacher spoke: Deal with groups individually. If you call a class meeting every four minutes, you are hoping that all students have done enough and will pay attention. Suppose some students are done in three minutes. They zone out. Suppose students are finishing the problem. A class meeting breaks their stride. Suppose some students have not really started work. They learn to wait for the teacher or another student to give an answer. Many kids are not motivated by the prestige of correctly solving problems. Calling the whole class from work to attention is sometimes expedient. But avoid it.

Students see that they must read the material and examples themselves. They catch the routine that you will check each group's progress and send out the whole group for conference if they all slack. Then the groups are becoming self-sufficient. At that point, the teacher has more time to focus on individuals who are obviously not contributing.

Reflections: My experience verifies this contention. I was not confident students could work forty minutes by themselves. So I demanded their attention every few minutes. It was hard to get student attention!

Glendower: "I can call spirits from the vasty deep."
Hotspur: "Why so can I, or so can any man;
but will they come when you do call for them?"
- Shakespeare, *King Henry IV.* Part I

I feel vindicated that the expert teacher avoided calling class attention. He was better at getting attention than I, but often had to icily wait for full attention, looking dramatically at his wristwatch. Getting and keeping attention is easier as a daily routine at the beginning of class than as an intermittent activity throughout the period.

My failure at getting students to forego my modeling and just read the book was mainly a failure to overcome their inertia of many years of learned helplessness.

I note that the instructor rarely calls the class to instructional closure at the end of the period. He may request that students start packing up special materials early or remind them of due dates. The bell signals that students must pack up. The instructor requires them to wait seated for his verbal dismissal, typically "have a good day." This wait gives a departing message of authority.

Remaining research: Is it ever useful to give four-minute or other short deadlines?

Resolutions: I will try building routines and expectations to work for the rest of class time after initial direct instruction. I need to provide students with a list of "get unstuck" steps starting with "read aloud in your group." The list in Figure 2, intended for parents, is a great start. Thus, if I must initially chastise a helpless group, they have simple constructive options to try. In any case, I need to be consistent about holding each group to progress. I need to deal with off-task groups firmly, constructively, and quickly.

Figure 2. "Questions That Work"

Getting Started
What do you need to find out?
What do you know now?
How can you get the information?
Where can you begin?
What terms do you understand/not understand?
What similar problems have you solved that would help?

While Working
How can you organize the information?
Can you make a drawing (model) to explain your thinking?
What are other possibilities?
What would happen if . . . ?
Can you describe an approach (strategy) you can use to solve this?
What do you need to do next?
Do you see any patterns or relationships that will help you solve this?
How does this relate to ...?
Can you make a prediction?
Why did you ...?
What assumptions are you making?

Reflecting about the Solution
How do you know your solution (conclusion) is reasonable?
How did you arrive at your answer?
How can you convince me your answer makes sense?
What did you try that did not work?
Has the question been answered?
Can the explanation be made clearer?

Responding (helps clarify and extend their thinking)
Tell me more.
Can you explain it in a different way?
Is there another possibility or strategy that would work?
Is there a more efficient strategy?
Help me understand this part ...

Adapted from *They're Counting on Us*, California Mathematics Council, 1995. SciMath[MN].Roseville, MN. <http://www.scimathmn.org>

Incident 5: The Case of the Frustrated Copyists

Situation: During group work, I see relatively few of these students copying work from more productive classmates. Copying without comprehension happens, but the volume is far less than in other classrooms I have observed.

Question: How does the teacher prevent groupwork from degenerating to copying?

What would I do? In other classrooms, students perceived group time as time to copy from a few "smart kids". It occurred to me to reduce copying by putting "producers" all together, and "copyists" all together. The host teacher of that other school let me assign seating at the next regular rotation. Unfortunately, the host teacher let frustrated copyists get answers from their old producers even across the classroom. The reasons? Copying is better than complete disengagement, which leads to disruption. Students would eventually see that copying assignments hurt them on tests. It still frustrated me that half the class was learning to copy instead of learning to think.

Expert Action: My current host teacher groups students by *homogeneous performance* per school records. Exception: The two or three most at-risk students are each assigned to groups where the other three students have the highest scores.

Interviews: Teacher volunteered that though he knew collaborative learning theorists favored mixed grouping, this homogeneous grouping optimized student engagement. It is important to make sure the most disengaged student is always outnumbered by productive students, the ones least likely to reinforce misbehavior, the ones most likely to model good behavior.

Another advantage: Kids in a homogeneous group get stuck at the same point. They progress by working together. Another group or the teacher can help them as a unit.

Once students show maturity in assigned groups, the teacher may tentatively allow students to select a seating arrangement.

I listed for my host alternative incentives for students to not sponge from their group. What if we check comprehension at the end of the period? The teacher responded: "If students are working this interrupts their work. If they are not working, they comprehend little. You should be able to tell by walking the groups who is having trouble, or if you need to clarify something to the class. With our materials, 'Summarize the Mathematics' and 'Check Your Understanding' are formal comprehension checks. If you keep up with grading, these tell you and the student how much the student comprehends.

What if students rate members of their groups? "That tells you little you don't know."

What if groups make a group presentation? "These add variety. Is making a mathematical presentation a useful skill? Yes. But does a group presentation encourage individual learning? Not much. Do other groups learn during the presentation? Not much." Are the presentations sometimes flops? Yes. Glaciers can come and go while kids neaten their writing, get up and down, and so on.

Partner quizzes? "Ok once in a while. Tests kids' ability to copy."

Immediate effects: Since the seating assignment was made long before I arrived, I interviewed the teacher on what happened in September; see below.

Long-term effects: Cooperation among group members here strikes me as no worse than in other classrooms, and there does seem to be a higher level of productivity. This productivity may be due to other factors noted elsewhere in this report.

Reflections: Does being assigned to a slow group hurt their esteem? Students see patterns of grouping. "Oh that's a dummies group." I suspect that this assignment is no more damaging than being labeled a dumb individual. Patterns will be detected in heterogeneous groups, "hmm, who's the dummy here?"

Does grouping by past performance group students with behavior issues? I think so. Further tweaking of the seating chart should separate allies in mischief.

Will the slower groups have fewer group successes? The slower groups become frustrated—and disruptive. The faster groups become bored—and disruptive. I did not

see such issues. However, demonstration in this class so far has been of individual insight, not with a representative or a whole group making a presentation for the group, or with group competitions.

At every sampling I make, most groups are in conversation on the assignment. Not all members may be contributing, but that is no more a problem than with mixed groups.

Plagiarism is representing someone else's work as your own, or failing to give credit. By that definition, all teachers I have seen who use student groups are endorsing plagiarism. I wonder if students could mark their work, maybe with one of: (M) I did this myself; (G) the group discussed this; or (O) I copied this from some other person. Without a source mark, an answer gets no credit. My choice of marks aims to avoid conflict with teacher's marks, and hint that copying is not much different from a zero. An ideal submission would have a mix of (M) and (G) marks. My main concern in this requirement is developing integrity. This marking would also help me understand individuals and groups and help them monitor their own progress. I hesitate, for this bureaucracy would dampen the spirit of exploration and just plain irritate students. As compromise, I might require this only on critical questions, such as "check your understanding" items.

Can collaboration be improved? The teacher can more consistently enforce the protocol: Ask everyone in your group first, then ask another group, then check with the teacher if you're still dissatisfied with your progress. Thus, a homogeneous group will tend to draft all members in pursuing a question. The teacher can more easily monitor the flow between groups than with the scattered smart kids.

Remaining Research: Ask students: Which characterizes your group? (a) No one shares with anyone else. (b) We each share about the same amount of work. (c) Some people produce most of the results and some people mostly copy.

What does formal research say? What factors favor mixed groups? What factors recommend homogeneous groups?

Resolutions: I want to explore practical alternatives to fostering optimal collaboration. Since I have seen homogeneous groups operate more successfully than mixed groups, I am inclined to continue homogeneous groups until students gain adequate collaborative habits and can work in groups of their choosing.

> "The down side of requiring students to read and think for themselves is that they have rarely been required to do it, and they're not very good at it. There exists in American schools a vicious cycle in which teachers tend to spoon-feed information to their students because students demonstrate unwillingness and inability to serve themselves. Since self-sufficiency is rarely a product of spoon-feeding, students never develop the attitudes or skills necessary to become independent learners. Determined to keep class moving along, teachers reward this learned helplessness by reading instructions to the class."
> - Todd Hawkins, "Teaching With Your Mouth Closed"

Incident 6: The Case of the Lost Sheep

Situation: One student in a group of three or four falls off task.

What would I do? I have asked off-task students such questions as, "What should you be doing now?" "Where are you stuck?" "How can I help you?" On receiving a mumbled reply, I dispensed direction, and moved on to stimulating the next group or individual. Bzz bzz! So many are off-task! I need to sting a few more!

Expert action: The host teacher sometimes spent most of the hour with one or two students. Some other off task students got a quick trip to the office.

Immediate effect: More students are on task in this classroom than in mine and others.

Long-term effect: More students stay on task in this classroom than in mine and others!

Question: How can I keep all students on task?

Interview: Group work is a routine, and routines can be practiced. The teacher sets expectations, demonstrates what is to be done, and assigns initial group work so that students have success. Then you pick off people who are having trouble with the routine, and deal with them one at a time. You find out what helps them and you find out what

pushes their buttons-and what they think pushes your buttons. Sometimes you have to leave the ninety-nine to help the one.

Some students try, but fail. With those, I spend lots of time.

Some students say, "I don't care." I give 'em a chance to retract. If they really don't care, what good can I do? If they refuse all of a few simple steps to get unstuck, that's insubordination. In any case, it's off to detention for those that really truly don't care, don't try, and don't work.

Reflections: This philosophy succeeds. I suspect there are more tactics. Though this discussion occurred in the context of group work, the ideas apply to classrooms that emphasize independent effort. As noted above, a word from the teacher or whatever helps one group member is likely to benefit the others.

I have felt frustrated inability to "stick" my encouragement to certain students. Some had ADHD diagnosis, some did not. They could be pleasant non-disruptive kids, or not. When confronted with a worksheet, they squinted upward in pain, as though an electric welder was arcing on their desk! Concerned parents, sympathetic students, and skilled counselors were quite as bewildered as I.

My search for solutions led to the same recommendation from several sources. I distill Jerome H. Bruns' book, *They Can but They Don't: Helping Students Overcome Work Inhibition* [p 91-92, 1992, Penguin Books] as presenting one main remedy: relationships.

> Most people tend to do better work—or at least to enjoy it more—when they work for someone who likes them. But a work-inhibited student is clearly more dependent upon positive relationships than a confident student…. Building a positive relationship with work-inhibited students is not always easy; it takes special effort and planning on the part of the teacher. The relationship may be enhanced by the teacher noticing the student away from work, by attentive listening, by ignoring certain negative behaviors, by giving messages of positive expectations, by conveying acceptance, by giving positive reinforcement, and by being genuine.

The ADHD Solution by Tom Daly reaches much the same conclusion:

> Change your teaching approach from a controlling, adversarial mode to something more like coaching. This will not diminish your authority—it will actually give you

> more.... Ask yourself, 'What is this child trying to communicate with this behavior?' Once you establish rapport with an ADHD student, he will encourage other students to stay on-task. ADHD children need someone in authority they can bond with. The key to keeping them out of trouble and making them successful adults is becoming that person. However, it doesn't mean that you should beg for their affections…. Use closer physical proximity to eliminate ADHD problem behaviors..... Understand that the only person you can control is yourself. (page 20)

The two above sources also both emphasize measuring misbehavior, using interest inventories to start establishing rapport, enlisting parents and other experts, and using time outside of class time to build relationships. By zealously conserving class work time, my mentor in this report had time to work on relationships in class.

Were other students shortchanged by the teacher's attention to the lost lamb? Judging by the appearances, no. The long-term benefits to the other students include less disruption and a more productive peer. Meanwhile, the teacher signed a bathroom pass without breaking stride. While the student transcribed his thinking, the teacher conducted a quick tour of the other groups.

The teacher remarked to me, "This will sound harsh, but I get more student questions answered without you and the other aides around."

Hmf! Inasmuch as we amateurs re-awakened learned helplessness which the expert had to eventually fight back, our help hurt progress. Judging from six sampled class sessions, we pre-service teachers spent two minutes with each student question, and cruised a minute or two between summons. The expert teacher conferred either about twenty seconds or else eight minutes per student, with scarce in between. He spent little time waiting to be questioned or surveying. He pro-actively questioned or confronted students. He entered attendance and passed out papers.

Resolutions: Allow more time for student work in class. Once groups are somewhat self-sufficient, use group time when appropriate to really discover individual student motivators. Find ways to demonstrate my concern for student success on their terms. They may show more interest in finding success by my terms.

Incident 7: The Case of the Nameless Students

Situation: Teacher needs to recognize a student with raised hand, or question a student.

What would I do? Learn and use names as soon and as often as possible.

Expert action: Teacher does not often address students by name. During whole-class interactions, teacher tends to select volunteers for questions by a nod or eye contact. If a student misbehaves, teacher pauses, walks to the student, obtains eye contact, and then addresses them.

Immediate effects: No "who, me?" Interaction proceeds smoothly without names.

Question: Why does the teacher not more clearly identify students?

Interviews: This turned out to be not so much a strategy as compensation. Teacher felt that he had a disability in remembering names. He discovered that proximity not only suffices, it tends to get better attention!

Long-term effects: I never saw that the teacher was actually at a loss to name a student.

Reflections: Movement tends to keep attention more than not moving. Proximity is more effective than yelling across the room. Proximity does not so obviously embarrass the student. A retort will tend to be less disrupting. Some students have sensitivity to personal space. Some students and some cultures deprecate eye contact or pointing. Work on reading and sending appropriate body language.

Calling out a name or writing it on the board is a reward of attention. A few students will disrupt just to get that attention from the teacher and peers.

Therefore, I will try to call names only in praise or asking a question. Even praising a student can be counterproductive—if the student feels the teacher's approval damages their prestige. In any case, I want to help students feel that whenever I call their name, that is good news, or an opportunity.

I feel it is vital especially in the first week of school that students know you know them. I want to name each student early, before they can consider that as punishment or reward. Several teachers boast of the impact of being able to name students by the end of the first day's class. They offer techniques for remembering names.

> ... While I am telling the story and calling on students, I am studying the seating chart.... I remember three girls sitting in a row. Their names were Michelle, Alice and Pamela. They all looked alike, I just thought of MAP, and got their names right in seconds.... With five minutes left in the class, I pull out a one-dollar bill and say, "would anybody like to bet that I don't know his or her name?" Robert raises his hand, and I say. "Probably not a good decision, Robert." Then I go around the room and correctly say everyone's name. (Genghis, "Classroom Management by Genghis")

I can practice memory—and perhaps find whether I am good with names—using group photos in newspapers or other simulations.

I have profited from learning names of students who pass in the hall between my classes. I learn names from greetings between boisterous kids or by asking adults or students. This is worthwhile if only for the student's double take when I smile and greet her in the hall. Surprise; subsequently the loud ones are more circumspect at least in this part of the hall. Pleasant "naming" applies to helping lonely students feel welcomed.

Students are little better remembering names. Posting pictures and names with student work might help on several factors. There is a problem of the extremely shy adolescent.

Remaining Research: Develop mnemonic techniques and practice remembering names.

Resolutions: I must avoid calling a name as a lazy substitute for proximity or a private word of re-direction. I aim to demonstrate in positive or neutral situations that I know student names and other things about them.

Incident 8: The Case of the Easy Engagement

Situation: The bell rings. Purportedly, students should be already working or ready.

What would I do? I have tried posting "bell work" problems for students to solve as soon as they enter the room. If school rules required taking attendance at the bell, I felt that having students work during this time conserved that minute, calmed them to attend to direct instruction, and prevented mischief.

Expert action: Students take their seats before the bell. Quickly after bell, students have copied from the board not bell work problems, but a simple agenda (Figure 3).

Figure 3. Daily Agenda

IM3 2/14/2005
Mr. X... Mr. Johnson
Turn in U3 L4 I2
Assignment: U3 L4 I3.
Quiz on L4 Tuesday.

Meanwhile, the teacher surveys the room. He confronts students who lack pencil and paper or who have inappropriate materials out. About a minute after the bell, direct instruction usually commences. Teacher notes attendance about midway through class, during group time. During group time, teacher deals with students about make up work and other needs.

Immediate effects: Almost all students comply.

Question: Why not assign more substantial bell work?

Interviews: As with other routines in this class, “write down today’s agenda in your agenda book or class notebook” is not a rule in the syllabus. Thus the teacher can be flexible in enforcement. Students have learned to hold most questions until group work time. The teacher may intercept a student or two on entry to remind them of some matter, further establishing some authority to focus on the teacher’s choice of action. Questions other students might initiate usually must wait until later.

The host teacher feels that bell work problems can be used before a new unit to sample requisite knowledge.

If you give bell work, you've got to grade it. Bell work indicates that the teacher feels the text is inadequate.

Bell work problems are ok with advanced classes, if you have the time. Problem solving engages advanced kids. Routine engages most other kids.

Long-term effects: Most students comply with the simple startup routine.

Reflections: Establishing a beginning routine helps focus students and overcome outside disruptions. Students may have forgotten pencils and paper. This minute gives them slack to use the free paper in the classroom and mooch a pencil. Students cannot so easily cite "I don't get it," as excuse for insubordination. If they won't copy the agenda, they won't learn anything for the rest of the period, and may disrupt. The teacher can send them out. Alternatively, the teacher's occipital eyes are now prepped!

Advanced students who like problems are engaged by bellwork. Other students are intimidated by challenges. A bellwork problem is a chance for them to fail—or to seize initiative by refusing to do the work or disrupting. So for such marginal students, it is better to set the tone for the period by giving them a chance to succeed.

Remaining Research: Is there a correlation between bellwork and a class's average academic ability?

Resolutions: Besides getting students on track, this simple routine beginning gets me on track! I must gauge the readiness of each student, more than just tardy or absent. Perhaps an assembly has stimulated the whole group. Perhaps a fight has them all on edge. I will make better progress if I grasp the mood of the crowd.

If I find reason to have bell work problems—perhaps to supplement a wretched textbook—I should start slow, by having students copy the agenda as above. Copying the agenda should become a familiar routine. When appropriate, the agenda should require students to obtain needed materials from their bins, another simple task in which the student can succeed. A few days of fun riddles would make better first impressions and might accustom students to doing work for its own sake, without grading.

Incident 9: The Case of the Awesome Grader

Situation: The teacher must assess of student progress and needs, preferably on each daily topic.

What would I do? I discovered from another teacher the technique of an "assignment quiz". As daily routine, students compare their results from the previous day's assignment with an answer key, projected or photocopied. They make corrections on their own. About every week, a quiz will select a few of these homework problems. The quiz can be closed book; students just transcribe their solution. The quiz can be closed notes: students re-solve the same problem without reference to their notes. The students must show their work to get credit, so just using the answer key results was not sufficient.

Expert action: Every day: Assign just enough from the text so that most students would not quite finish in class. Grade everything submitted. Grade corrections. (These ninth-grade students can repeatedly submit corrections toward full credit.) Grade all submitted work so that it can be returned the next day! Personally return the graded work to each student.

Immediate Effects: During group time, students compared solutions they got wrong, and sought hints from their group and the teacher. This let them fix misunderstandings before proceeding far with the new material.

Question: Why does this teacher persist in mind-numbing daily grading?

Interviews: The teacher seriously considered using assignment quizzes. We discussed three reasons against these particular students grading these specific assignments. (1) The teacher felt that assignment quizzes worked better for advanced students. Low grades did not strongly motivate less mature students. They did not correct their work properly. They lost their work before the weekly assignment quiz arrived. (2) I noted that student self-checking works best for simple answers. Most problems in this reform "Core-Plus" text have many correct responses. This textbook strategy forces groups to grapple with *how* a member got an answer. Most assignments include a "Summarize the Mathematics" section that asks students to generalize what they have learned in their own

words. Around one-half of a typical assignment would be difficult for students to reliably grade. (3) Even when students can reliably grade something, is this the best use of class time? Will they learn more by grading or by working on corrections and new problems?

Assignments have three sections. The teacher saves some sweat by grading for completion the exploratory "Investigation" around two out of eight points. A completion grade with low point value encourages students to explore even if they make mistakes. If students do not learn from the Investigation part, they will not do well on the subsequent "Summarize the Mathematics" and "Check Your Understanding" sections of the assignment. These latter parts get around three points each.

I asked, "Why not have a student return the graded work, or provide a box or folders where students can pick up graded work?" The teacher remarked that he had never lost a student assignment. Securing the chain of custody offers less chance for loss to occur. Also, the teacher uses group time to return papers, and can thus avoid holding up other students, and can briefly conference with students as he returns their graded papers.

The teacher volunteered that he felt in-class work and full-credit corrections were accommodations to the ninth-grade stage of development. Indeed, he regularly remarked to students: Use this class time, use this second chance. Next year and the rest of your life will not give you so much class time or as many chances to correct mistakes. He concluded: "It's hard for teachers to tell students to turn in assignments on time and then take three days to finishing grading. Grading models timely work and work ethic."

Long-term Effects: My impression was that groups tended to discuss corrected homework—"what did you get for #5a?" very quickly and did not linger on the past.

Reflections: Productive groups (fire flies and leap frogs) catch and discuss variant answers when they originally work the assignment. Some individuals who neglected to compare results before submitting did check corrections with their group. Groups of "leaches" vary in answers due only to defective copying. The teacher may in his initial ten minutes discuss a problem with variant answers or that otherwise needs attention.

For a very short review quiz, having students trade and grade may have stimulative value.

The workload in this course was relatively constant. The teacher planned one or two days per "Investigation" and proceeded serially through the book. This allowed posting a weekly assignment plan for parents. If class progress with reasonable effort did not keep up with his plan, he could change the plan, push the due-time to end of class the next day, and use most of that class to do good work. If a student finished ahead of the pack, they could always check their work and tweak the wording of the explanations of the many open-ended problems. They could help others in their group.

Students could not choose to do other work or non-work in class. "Homework" was a word not used in the class. Many students did work at home, nevertheless.

I grew up in the second smallest school district in Missouri, with 10-18 students per grade. Each pair of grades 1 and 2, 3 and 4, 5 and 6, 7 and 8 shared a room and teacher. In eighth grade and high school, teachers provided supplementary materials, college books, and puzzle books. We could borrow these for independent projects to do at home after our farm chores. Most of my class entered math-infused vocations: actuary, bookkeeper, engineer, computer tech, machinist, or modern—and I do mean modern—farmers. Some while in high school got international math honors. So I am inclined to grin at some reform "innovations" as old school methods rediscovered. My classroom lacked both calculators and cell phones. It had much in common with the classroom I observed in this report: Students had at least half the class day to work assignments. Students were mostly self-sufficient, influenced partly by a firm and proximate teacher.

A visiting parent spoke for me in evaluating my mentor's discipline of returning student work by the next class: "Awesome!" Grading is work that must be done sooner or later. Doing it sooner saves five to ten minutes of class time! Students can apply any corrections or affirmations immediately. This assumes that class discussion of the right ways to do a previous problem is not as productive as group discussion on that problem, or just trying again. Class discussion would also nullify the option to correct problems for full credit, another learning opportunity.

Remaining research: Among many values, I want to clarify to myself my homework philosophy. In what senses are these propositions true? (a) Homework is a chance to explore. (b) Homework is a chance for exercise. (c) Homework is a chance for the parent to participate with the student's learning.

Resolutions: Some teachers have circumstances that prevent overnight grading. Inasmuch as I do not, I will try to get student work back the next day.

Incident 10: The Case of the Alpha Instructor

"Teachers are trained to deliver information
to students who will sit still and listen—
and then they're put in front of classrooms
with students who won't sit still and listen!"
- Tom Daly, The ADHD Solution, p 4, 2002,
Smarty Pants Publications

Situation: Students don't pay attention.

What would I do? I have intoned, "I need your attention" — but have not waited for attention. I have waited for attention, but not kept attention past my first three words. I have kept apparent attention, but knavery proceeded in hands hidden beneath tables.

Expert action: The teacher surveyed the room. "I need your attention." The teacher waited. If students lagged, an over-the-glasses glare emerged. Wristwatch tapping began. It seemed to me that glaciers came and retreated. The teacher might add, "I need your eyes." As the teacher began talking, he was still firmly focused on especially those students who were late to give eye contact. If lips moved, the teacher stopped. On occasion, he took an incompliant student to the hall for conference.

Immediate effects: The teacher gets attention.

Long-term effects: Most calls to attention proceed quickly. Nevertheless, the teacher seems always alert to halt and wait. If students fade a few minutes into lecture, the teacher walks to them.

Question: In view of "do nothing the students can do for themselves," why do they not become self-sufficient in giving attention?

Interviews: "Kids don't always give attention to things they value. Few value the teacher or math more than whatever else is on their mind." "Students must acknowledge that you [the teacher] are the authority in the room." This teacher tells students, "I make mistakes in mathematics, grading, and lots of things. Some of you catch those mistakes. Some loose out by not paying attention. On one thing I don't make mistakes. If I say, do you work, if I say behave, that is always right."

To me the teacher elaborated, "You have to be consistent. New teachers' biggest problem is not being consistent."

Students who resist a call to work or who are slow to ready their materials, get consistent, firm correction, often as a hall conference or after class conference.

When I asked students who was in charge of mathematics learning, they all exclaimed, "Mr. []!"

Reflections: This and other teacher mentors have stimulated me come to grips with my past, where authorities were not distinguishable from bullies, quite unpleasant, and capricious.

I am better able to accept that for most if not all students, the greatest kindness I can show them is to be firm. To be authentically firm, I must value what I want the student to value—learn this lesson, learn to think, extend your comfort zone.

These observations have given me more contact with kids and their thoughts than I have had in many years, and more insight than I might get if I also have responsibility to teach. On one hand, kids can obsess on one thing for a day or more. It is usually not mathematics or character development. For ordinary matters, attention spans vary.

Experts have advised me, "give interesting lessons" and "be organized". While these are my goals, I have learned that these factors engage only after the teacher gets attention and

holds it for a minute. That first minute is an on-ramp to the main road of self-sufficient attention. If authoritarian measures are all that hold students for that first minute, so be it.

Why was I inconsistent? For one thing, I hoped that if a clear command failed, maybe the interesting lesson would engage the student. I've changed my mind on that! Beyond a clear command and an interesting lesson, I had vague options for escalation, but I did not know which would be effective. For some students, I had reason to doubt that any recourse would work, and had learned that some of my responses made matters worse. I'm coming to believe that for the most consequence-hardened students, if not for all, learning what they really want and building a relationship is key, and that takes months. During that time, I must prevent disruption or bad examples from disengaging the rest of the class. This requires consistent firmness with a small disengagement, and sometimes with only one ringleader of several. My comportment is not a matter of switching between firmness and kindness, but keeping both values and expressing whichever is needed.

Humor, slice-of-life, and musical warm-ups served that first minute when I taught university students and adults. With junior high kids, "a funny thing happened to me on the way to the classroom…" has had mixed success. Some students seize a teacher's self-deprecation as weakness. Some want to contribute jokes or announce, "my cat had kittens." I may eventually on some days be able to start more pleasantly. First, I need to consistently start by showing students we mean business here now. A voice of command is more valuable than a raised voice.

Body language, proximity, and eye contact are important in this first minute. I've felt crippled by classrooms that were so crowded I could not work the crowd. I hate a battleship teacher desk between me and the first row. I am frustrated by seating arrangements that put half the students' backs to me no matter where I stand. If the environment is unalterable, the teacher has even more reason to minimize "teacher time", and should work more in the small group mode that the room favors.

Spotting what teachers do to hold attention can be tough. Beginning teachers may not know what questions to ask. Teachers have a hard time articulating how they get and keep attention. Fred Jones writes in *Tools for Teaching* (page 5):

> These two exceptional teachers could not have been more generous in their efforts to help me understand their teaching methods. Unfortunately, they did not help me very much. They both said, "You have to mean business." I said, "Right! What does that mean?" They said, "Well on the first day of school, the class room will either belong to you or it will belong to them." I said, "Right! What do you do?" They said, "Frankly, a lot of it has to do with expectations. If you do not expect them to learn, they won't." I said, "Right! How do you get them to do that?" They said, "Well a lot of it has to do with the value of learning that you impart to your students." I said, "Wait! Give me credit for good values and good expectations. I want to know what to do…." "Oh yes," they said, "I see. Hmmm. Well, I can tell you this much. You had better mean business."

The kids saw the teacher as in charge of their mathematics learning. In this period, the students made twenty decisions contributing to their math knowledge, and perhaps two decisions about behavior. Most of their behavior was not a matter or decision but of routine. It is expedient that students see the teacher as in charge of behavior. I wonder if kids would benefit from realizing how much power their mathematics choices give them. With respect to mathematics decisions students have been given the driver's seat.

Resolutions: Use all my opportunities to observe other teachers and more kids. When dealing with kids even as aide, observer, walking the hall, or in the mall, always demonstrate authority. Confront misbehavior. Congratulate productive behavior.

Putting It All Together

Most events I observed demonstrated the principle of never doing for students what they can do for themselves. The preceding incidents were the most impressive. Several times, such as the Case of the Inefficient Instruction and the Case of the Awesome Grader, I thought I had caught the teacher doing something that students could do. But I was wrong. Or, more specifically, though groups could grade their own work and do their own vocabulary reviews, they could not yet do so with adequate reliability.

Guiding Classroom Interactions

I had hoped to observe a master teacher guiding student interactions during whole-class, direct instruction. This teacher aimed to minimize direct instruction. He cut back his own talk. He favored questions with simple answers, more to maintain attention than stimulate learning. The teacher consistently and firmly confronted lapses of protocol. Rarely did a student blurt without raising a hand and getting a nod. The teacher confided that before I arrived he confronted impulse control issues for many students I had not noticed as problems. One technique was to twist a question to make a blurted answer wrong. The teacher did not let misbehavior or his response to it disrupt the flow.

> If you stop a lesson to penalize a student, you disrupt the lesson, interrupt an important point you are making, or disturb people while they are working. DO NOT STOP THE LESSON…. When you see a violation of the rules, immediately give out the penalty. Give out the penalty quietly as you continue with the lesson or classwork. (Wong, page 157.)

Wong mentions writing student names on the board, accumulating check marks. I have already noted ways this could reinforce needs for attention. My host teacher merely glared or gestured. On four occasions he motioned a student, “out to the hall. Wait and we’ll talk.” (Deferral to the hall may not be allowed or practical in all circumstances.)

Transitions were austere: “Does that work? OK. New topic.”

On Observing

"You can see a lot by looking."
- Yogi Berra

Action research in someone else's classroom left me at the mercy of my host teacher's choice of action! In seven weeks, there was enough action that I had material for several reports. In addition, I had an advantage from my student teaching experience to be alert for subtle actions and deliberate non-action. By watching someone else, I gained insights that I would never have found by introspection or by trying to both watch and teach. Some school districts frequently release beginning teachers—if not all teachers—to improve themselves by observing other teachers.

Observing a well-managed classroom was like observing a lush cornfield in August. I did not see the routines and expectations the teacher had already planted, the disruptive behavior and mistaken beliefs already weeded out. Thus, I appreciated the teacher's staying after class to answer my questions. He articulated the inter-connections of the tactics I observed. He explained his strategies behind the tactics.

My written reflections provoked hypotheses and exploration. I verified these and memory via 89 hours of audio recordings I kept all along—about one CD of compressed digital audio. Recordings allow better measurements of time. If I could redo, I would wire the expert teacher, the better to analyze hallway and group interactions which I could not attend. Some video recording would have been useful to analyze proximity and body language. I am aware that most information content from a live speaker is via body language, side channels that communicate interest in the hearer, earnestness for the subject, urgency, and more.

This report focuses on my host teacher. I could do another report on what I learned from the students! If I am going to "never do for students what students can do for themselves," I need experience and practice in estimating each student's zone of development. Do I want to understand what really motivates students? Find what they believe? Attempt any rapport? Then I must learn to draw them out and hear what they say in words and deeds. As an aide, I demonstrated respect and understanding of their

lot. Hence, I felt that these students gave frank answers to such questions as, "how can we improve math classes?", "from what teacher did you learn the most, and why?" and other questions reported here.

I intend to remain alert for what happens—and doesn't happen—in the classroom, to reflect, and to distill my insights for the benefit of myself and others.

Should first-time observers of a classroom be provided a checklist of things to seek? Certainly, they should prepare with questions and objectives of their own.

Getting Them All One at A Time

This interview occurred near the end of my observations.

GJ: … How did you get group members to collaborate?

Expert teacher: "Everything contributes. This gets at the heart of your belief system. Lots of teachers give lip service to constructivism, but they don't believe it in their hearts. I actually believe. Because I know from my experience that even the bright kids that do the show and tell math have to make sense of it in their mind. I'd much rather have them do it with the textbook than fighting the textbook… That's not all they need… So we're sitting in a math classroom at the little desks, right? The teacher says, I want the book open, I want the paper out, and I want the manipulatives right there. Students can't comply even if they want to."

"If you honestly believe that a kid—no matter what their IQ—can learn, if they have the right circumstances and the right help; if you honestly believe that they should be constructing the math themselves at whatever level they can understand it; then you don't spend as much time in front of the class, because you're taking time away from their important work."

GJ: Did you have to train some students in working for themselves?

"I had to train every single one of them. Expect it."

GJ: Then how did you train them?

"I had to tell them, just like I had today to [student]. [Student] is having a great week. I had to beat him up first then pick him up off the floor. He had to hit bottom first. You'll notice he's not dependent on me. He's doing fine today."

"You get some of the group. You tell them what you expect. You tell them what you believe. You make sure you structure it so that the majority of them have a reasonable amount of success doing it. Then you pick up your stragglers one at a time. I'm getting them all one at a time."

"Take [another student]. She was a pain…. She's a sweetheart now. I can get her to work. I also know which buttons to push so she would kick herself out of class. But I don't need to do that."

GJ: Teachers take ten minutes to talk about homework, ten minutes to introduce concepts, and then work the first problem. Then students chew over the second problem. The teacher calls on students to summarize their work. By the time students really get working, they have about ten minutes left. I've admired how you conserve time.

"Theoretically, for CMP [Connected Mathematics Project] in sixth seventh and eighth, and IM [Integrated Mathematics / Core-Plus] later, the launch is supposed to be very quick. The summary is supposed to be very quick, and the rest is time the students are doing the work. What happens, the teachers get up and teach the thing…. It has to do with, Oh my god, they'll never do this without me."

"If I could have these kids for another year! Ah well. [A teacher] who gets these kids e-mails me and said, the kids are so self-sufficient. They are so good. They are so hard-working. They know exactly what to do and when to do it. They know what questions to ask. They are just perfect. I said, thanks, I worked real hard to get them that way. Because they fought me tooth and nail."

"You know when you've got them by three indicators. Number One: Everybody gets their question answered, and I don't answer anything, or I refuse to. Number Two: You can walk around the room and they're not paying any attention to you, 'cause they're concentrating on their math. And Number Three: You try to interrupt, and they say, sorry Mr. [], we'll figure it out. Give us a few minutes to work on it. The third one, that's the star on the tree. They say: Go away Mr. [], we want to figure it out ourselves. I'm still waiting for that in these classes. But it has happened in honors classes."

"I tell my student teachers, you know that feeling you get when you've done something and you're proud of it? Well, if it's all show and tell, where's your chance to get that feeling?"

Behavior Management

"Leadership is the art of getting someone else
to do something you want done
because he wants to do it."
- Dwight D. Eisenhower

"Do not do for students what they can do for themselves." I have focused here on how this principle can guide classroom management. This strategy can also inform behavior management. Behavior management focuses on character and productive behavior. At a low level self-management—as noted the student learns a rule and a penalty or reward. Recall The Case of the Irresponsible Eyes: I must shun other students who talk off-task. Teacher will take me out if he catches me listening to another student talk off-task

At a higher level, the teacher I observed has several questions to lead a student to think about what will prevent their misbehavior. For example: "How is this working for you?" This question works with students who have a smidgeon of vision. A kid asked, why am I getting a low grade? The teacher replied, "Half of your assignments are late. How has turning in late assignments worked for you?"

Suppose all a kid wants is to avoid work, to loll in a slimy comfort zone. Disrupt sufficiently, the teacher kicks you out of class. Goal achieved. If the kid wants attention, disruption gets attention. Want to join a gang? Disrupt. Behavior modification practices can bring a student to attention. Relationship and rapport are the modes in which most teachers can confront values. "Has disrupting class made you as happy as eating a pizza?" Confront the student's "I can't" assumptions for achieving a value. Such confrontations require the teacher to show authority that the kid can acknowledge.

Sometimes a harsh image inspires vision. My host teacher smilingly confronted an off-task group, "You're never going to graduate are you? You never do your homework." To another student: "You are going to love having my class next year. Get your paper out and start writing." The teacher later offered that he is careful with negative images. The negative image must be far more effective than the positive one. Contrary students have risen to the challenge to prove him wrong.

"Has this worked for you?" applies to teachers too. Have my "interesting lessons" failed to seize student attention? Has nagging failed to halt chatter? I must consider what might be added or subtracted. Beginning teachers face so many interconnected factors in classroom success. That is more reason to prune activities, so you can better see which ones really work for you and your students.

Analysis: Looking Back

This teacher surprised me most by *not* using some techniques I valued.

Class work minutes were used twice! The students used the minutes to explore. The teacher used the minutes to do what students genuinely cannot do: He or she critically observed students, pro-actively confronted students on content and behavior, and guided groups and individuals who asked questions.

"Never do for students what they can do for themselves." succeeds as an educational strategy only if the teacher has high expectations. As my host put it: "One thing you must honestly, way down deep in your heart believe: that the kids are more capable than you ever thought they were, and hold them to it."

As much as I admire the productivity coming from these unstructured groups, I must wonder if I cannot press on from cooperation to collaboration. I am tempted toward group structuring, such as "jigsaw" mixing of groups and assignment of group roles. This and any other non-textbook activities or worksheets I should weigh skeptically. First impressions will be best with a genuine but short activity likely to yield success. In any case, I and the class must walk before we run.

Groups, calculators, interdisciplinary projects, and other teaching strategies and resources are like power tools. They can accomplish more with less net effort, but the operator must be more careful to plan and constantly attentive in action.

Some of my beliefs about kids' capabilities have not been accurate, both broadly in the Piaget sense, and for individual kids. This action research has given me more data about kids. I am becoming a better reader of kids.

General Implications

"A designer knows he has achieved perfection
not when there is nothing left to add,
but when there is nothing left to take away."
- Antoine de Saint-Exupery

The teacher must ruthlessly prune away non-productive activities so that students will have more time to learn using their books, their group, and resources other than a long lecture. This experience suggested several criteria for judging what few activities might subtract from classwork time.

A recurring theme in my observations and interviews was that proximate, face-to-face talk is many times more effective than lecture. Face-to-face interaction increases thinking time-on-task. A blast to the class may yield zero learning. The teacher actually saves time by repeating a short activity for each group. These observations found that a few words to each individual when returning papers were quite effective, very likely far more memorable than a broadcast motivational message.

Teachers should avoid interrupting all groups at once; a blast to the class does not usually increase learning, does usually disrupt classwork, and encourages the hope that the teacher will rescue everyone, even if they do not ask a question or show effort. Thus, a clarification for the fourth problem of the assignment can be left on the board and referenced in the teacher's initial presentation.

This experience has demonstrated to me that classwork time can be many times more valuable than homework time. This potential value comes from what other students contribute and from the teacher's contribution, especially when these are face-to-face. When the teacher treasures classwork time, the teacher will not let anyone squander it.

The teacher must consistently confront behaviors that distract from individual and group productivity.

Personal Resolutions

I will affirm to myself and to students that my content area, mathematics, is worth their time; that their exploration in that time is what will make them successful; and that their time is so important that I will keep my talk and other talk to a minimum. The textbook, calculators, and other tools of learning just serve to improve the quality of student classwork time.

To all, I will affirm that students can do math for themselves—within limits. Students can control student behavior—their own and others—within limits. I will set high specific expectations for what students can do. I will assess formally and informally kids' potentials.

I need to be firm when students do not regulate themselves, and to fade when students do regulate themselves. To improve my perceptiveness, I continue to talk to students, to interrogate experienced teachers, to read research, and to run mental "what if" experiments of my classroom. If some tactic does not work for me, I need to look at it skeptically.

I will know when I am succeeding when students demonstrate learning. I will work elegantly, discerningly, and personally for the day when they are each self-sufficient learners.

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Thanks!

To MR. EXPERT TEACHER --

Thank you for sharing your deepest beliefs--and making me work so I'd appreciate them. In these pages I hope I've omitted just enough to provoke you to write your own book!

To THE STUDENTS --

Thanks for your energy. Thanks for being real. Thanks for doing what you can do!

To MY ADVISOR --

Thanks for matchmaking so I could meet the above people.

Thank you for holding high expectations of your students!