

## **ISSUES OF STATUS AND VALUES IN THE PROFESSIONAL DEVELOPMENT OF MATHEMATICS TEACHERS**

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### **Abstract**

*This paper identifies issues of status that often arise in the classroom. These issues are difficult to deal with and teachers often lack the necessary tools. A professional development (PD) program for K-12 math teachers attempted to address these issues and train teachers how to recognize and to deal with them, by teaching them about community agreements, group roles and protocols for use in small groups. After two years of a PD program, teacher participants reported seeing positive results among their students. The quiet students were speaking up, while the domineering students were learning to allow equal time for all students to have a voice.*

### **INTRODUCTION**

Low status students are often easy to spot in the classroom. They speak less often than their peers, and when they do try to contribute they are more likely to be ignored. Their ideas are seldom heard, acknowledged or valued by their classmates. They are often physically separated from their group and denied participation in the group task, shut out verbally and by the exclusionary body language and other non-verbal cues of their classmates. In reaction to the pain of exclusion they may demonstrate disruptive behavior in the classroom. When teachers recognize the existence of low status students in their classrooms, they are often ill-equipped to deal with them, and unprepared to integrate them successfully into group activities.

In this paper I address the possible causes of these status issues and suggest several ways to go about resolving the resultant problems. To begin, I will make the connection between status and social justice, and then identify the roots of status in the classroom. I will describe how status can interfere with and even prevent effective group interactions. I will next describe a sequence of effective strategies that were employed in a professional development program with teachers. Lastly I will discuss the results and feedback from the teacher participants.

### **STATUS AND SOCIAL JUSTICE**

It is not possible nor even desirable to eliminate status completely, but it is possible and desirable to nullify its negative effects. Status is an inevitable component of almost any collection of people. It is not an inherently bad thing, for sometimes it provides motivation and promotes the desire to achieve. However, the often negative effects of status lead to social justice infractions.

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Cultural norms and the underlying social values associated with race (white is better), ethnicity (WASP is better), socio-economic status (SES), (wealthy is better), gender (male is better,) naturally give rise to status issues in the classroom. Historically, in the US at least, it was often expected that white males would dominate the class time in discussions, achieving more, contributing more, saying more, and doing more than their non-white, non-male counterparts. Such patterns give rise to considerations of social justice, since the accompanying expectations have an insidious way of being met. Teachers tend to call on white males for their contributions more often than they call on blacks or females (Rosenholtz & Cohen, 1985, Cohen, 1994). This is harmful to low status students since consistent findings show that "the student who took the time [or was afforded the opportunity] to explain, step-by-step, how to solve a problem was the student who gained the most from the small group experience" (Cohen, p.10.) Students who are not afforded the opportunity to explain, or are not confident enough to grasp such an opportunity for themselves, do not gain as much from the same small group experience, and are consequently denied the ability to achieve.

Community agreements or social norms in general, as well as socio-mathematical norms – mathematics classroom rules about expected, desirable behaviors of students when working on mathematics, established by the teacher – establish values in the classroom. For example, in a classroom where the norm is that students will explain their work, then it is clear that in this classroom, explanations – probably both written and verbal - are expected and valued. In other classrooms, it may be the norm that students are expected to submit neat work with correct, boxed answers. In this classroom it is clear that accuracy and neatness in mathematics are valued.<sup>2</sup> But it is possible that these norms and the associated values can be expanded to prevent the ill effects caused by status that operate against all students having a fair chance to excel.

If students are actively prevented from participating in the mathematical activity of the classroom – shut out of investigations, unable to contribute, not able to handle manipulatives, not listened to, it is perhaps being enabled by teachers who are insensitive to the consequences of status issues. This exclusionary behavior is less likely to be observed in a traditional, lecture-style classroom where the teacher does most of the talking and students work individually and quietly on given tasks. In this environment students' work and individual contributions are less valued. That does not mean that such exclusion is not taking place – it is simply not so obvious or immediate, and much less likely to be corrected.

In contrast, in the ideal mathematics classroom environment where open-ended mathematics tasks, large-scale inquiry and modeling activities are stimulated, and where participation and communication via small-group activities and through using manipulatives are encouraged, this kind of status-differentiated behavior is more likely to be observed. It can, however, be addressed and mitigated by careful and thoughtful classroom management. The next section addresses some specific causes of status issues that operate during small group work in mathematics classrooms.

## **THE CAUSES OF STATUS ISSUES IN SMALL GROUP ACTIVITY**

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<sup>2</sup> For more research on the study of values in the mathematics classroom, see Bishop, 2000, (TCM article date), 2002, Bishop, Fitzsimmons, Seah, Clarkson (1999), Clarkson, Bishop, Seah, FitzSimmons 2000.

Cohen (1994) has noted in the working of small groups that individuals seldom share the talk time equally. Most often, some group members will talk a lot, while others contribute little or nothing to the discussion or task. Merely arranging students in groups is no guarantee that meaningful work takes place. In fact Sfard (2000) and Kieran (2001) found that students will often talk past each other without ever engaging in meaningful discourse. In addition, group members themselves associate those who talk more with higher achievement and those who talk less with lower achievement, thus setting up expectations for future participation and achievement of group members and perpetuating the disparity. Cohen (1995) identifies five types of status issues occurring in the classrooms.

The first type is *expert status*, where some individual is recognized as an expert on the particular subject area. This person is not necessarily the brightest, most able student in the classroom, but has for some reason been labeled as expert by his/her peers. This person may dominate the group and will be deferred to for the answers. Students are usually aware of the grades and relative student rankings of all their classmates and will readily defer to the student who is commonly perceived as being the top student in the class. Expert status has traditionally been conferred as an award for achievement and hard work. Expert status exists and we do not want it to go away. The problem that must be addressed is how that "expertness" is defined, acknowledged and rewarded, and by whom. And our very definition of what constitutes "expertness" should be examined.

Cohen (1995) also identifies *reading ability status*. A student with high reading ability is often labeled as a high status individual, and is deferred to in classroom activities and discussions, even when the particular activity does not require special reading ability. Rank status according to reading ability is usually common knowledge in the classroom.

"This means that if you are a poor reader, it is not only you who expect to do poorly – all your classmates expect you to do poorly as well! It is an unenviable status, particularly when one thinks of how many hours a day you are imprisoned in a situation where no one expects you to perform well." (Cohen, p.30)

There is the erroneous perception that high ability in reading implies high ability in other tasks that have little or nothing to do with reading per se.

A third area, *peer status*, derives from social standing due to attractiveness, popularity, maturity or accomplishment in sports, for example. Students who have high peer status in the classroom are more likely to seek out and dominate small group tasks in non-related areas.

*Societal status*, based on general cultural beliefs and values, also comes into play in the classroom. In most Western societies it is customary that males, and particularly white males, have higher social status than those who are of minority race and/or female. Studies have verified that "men are more often dominant [in the US] than women in mixed-sex groups and Anglos are more often dominant than Mexican-Americans who have an ethnically distinctive appearance" (Rosenholtz & Cohen, 1985, in Cohen, 1995, p. 32).

*Socio-economic* ranking outside the classroom also comes into play in the classroom, with children from poor families being routinely assigned low status, while those from wealthy families are assigned high status. This has been the justification for requiring school uniforms, for instance.

### **EXPECTATIONS AND STATUS CHARACTERISTICS**

Status, whether derived from race, gender, social class, socio-economic standing, reading ability or attractiveness, is not altogether bad. It creates expectations for performance and encourages competence for some. High status students are expected to begin contributing

immediately to the group process – they are social leaders. Not only are these students expected and encouraged by their peers to achieve, but they quickly come to expect this of themselves and thus begin a display of competency immediately. This quickly builds on itself. In contrast, low status students are not expected to make significant contributions in group-work nor do they expect it of themselves. Typically they are quiet and contribute little or nothing to the task. This cycle is self-perpetuating, and unless the teacher defeats these negative consequences, serious social justice issues may arise.

There are two primary factors that influence the workings of a small group: the nature of the group task itself and who participates frequently at the outset of the group activity. This is true in school and college classrooms even among students with records of high achievement. Status issues interfere with voluntary participation. It has been well-established that those individuals who “start talking right away, regardless of their status, are likely to become influential” (Cohen, p. 35). It is clear that status issues create a self-perpetuating spiral of positive effects for high status individuals, and of negative effects in the case of low status individuals. A case of “the rich get richer”. To break the spiral, teachers must learn to deal with these issues.

### **DEALING WITH STATUS ISSUES AS A COMPONENT OF A PROFESSIONAL DEVELOPMENT PROGRAM**

Students do not intuitively recognize or display the skills they need to be successful participants in and contributors to group activities. They must be taught these skills by their teacher, who may not be conversant with successful strategies. To address this need amongst teachers, awareness in recognizing and dealing with status issues in small group activities was integrated into a large, federally and state funded professional development program for mathematics and leadership development for K-12 teachers in a western state. I will discuss each of the implementation phases, and follow up with a discussion of changes that occurred among the participants.

#### ***Pre-Institute preparation of faculty***

The faculty instructors in the professional development program (this author was one) who were to provide the mathematics content and the leadership classes for the teacher participants, were a diverse group of individuals selected from district leadership roles, community college, four year public and private college and university faculty from both the mathematics and education communities. Before it was possible for them to work with a large group of K-12 teacher participants, they themselves had to become sensitized to status issues (including their own) and learn how to deal with them.

The first task for the faculty as a group was to arrive at a set of community agreements that would provide the basis for all future interactions. Once prepared, these agreements were prominently displayed at each subsequent meeting, and reviewed frequently. This was a crucial piece of the fabric that would provide a safe environment for people of differently perceived status to participate confidently in the program. Once these were established among the instructors, they were used as the foundation for building a set of community agreements for the teacher participants.

The faculty instructors worked from the premise that, during our time together, we needed a safe and open climate where we would be able to reflect deeply about important ideas related to mathematics, teaching learning and leadership; to work together on complex questions and issues that may challenge our beliefs and practices; to share points of view; and to examine our practices. In this climate we began working towards establishing the community agreements to which we would adhere throughout the program. The main agreements that evolved from our discussion were:

- Be willing to focus, reflect, listen and share.

- Encourage others with positive feedback; suspend negative judgment.
- Be respectful of differences (and wrong answers); ask permission to suggest corrections.
- Acknowledge new ideas and contributions (without interruptions).
- Give your ideas voice without fear of judgment or reprisal.
- Present ideas in a non-threatening (non-demeaning) way.
- Allow and encourage others to speak and ask questions.
- Challenge your own opinions and thinking.
- Take time to process (without side-bar comments).
- Come to class prepared to work and learn.
- Keep in mind your long-term goal to achieve.

This meant that in our professional learning community we agreed to be respectful of each others' ideas, questions and thinking, we would honor and appreciate diversity, embrace change, listen to understand, take risks, collaborate, be introspective, be accountable and have fun.

This heterogeneous group of professionals then engaged in workshops about best practices – how to model what was expected of the teacher participants themselves, and what those “best practices” would look like. Since a crucial component of the best practices model we adopted involved small group work dealing with investigative activities, we focused on strategies for managing small groups. Material from *Designing Groupwork: Strategies for the Heterogeneous Classroom* (Cohen, 1994) was discussed and modeled. The accompanying video *Status Treatments for the Classroom* (Cohen, 1994) was used to provide vivid examples of problems related to status, and as a point to initiate our discussions. We developed the skills we would need for building more effective group participation in the classroom that would mitigate inherent status issues among the K-12 teacher participants during the summer Institute. This was not an easy task.

#### ***Learning about effective small group work***

Establishing community agreements and discussing classroom norms explicitly provides an environment where low status students can have the chance to participate, their voices can be heard, and they can feel valued as important contributors to the tasks. But this would not by itself change the low expectations that others have of the competence of low status students, nor would it change their self-perception of their own abilities. We had to establish expectations for competence and get buy-in from the teacher participants. We learned to do this by paying very careful attention to the design of the mathematical tasks we would use; ones that had multiple entry points and could be worked on meaningfully by teacher participants of varying abilities. We designed activities that required conceptual understanding rather than higher math prerequisites and did not rely heavily or exclusively on algebraic manipulations. This was important since we suspected that many of the elementary teachers would not feel confident of their algebraic skills, whereas secondary teachers would use this approach freely, and often as a first choice. Since all teachers could enter the problem in a meaningful way, no-one would feel excluded.

This preparatory work included an initial phase of identifying and describing status issues, explicitly discussing them, and instructing the faculty in ways to recognize and address them. Only after this detailed step-by-step practice by which instructors in the program became proficient at understanding and modeling ways to deal with status issues in faculty meetings and in the classroom, were they able to then model the desired behavior in the classes with the teacher participants.

#### ***Skill-building exercises for small group effectiveness***

The key to successful small group activities that diffuse status issues lies in giving everyone a role to play. We learned that it was necessary to assign group roles to teacher participants every day, and rotate both the groups and the roles that individuals played in those groups at least daily and sometimes more than once during each 2½ hour class period. By establishing cooperative norms such as “everyone participates, everyone helps” and assigning group roles that ensured everyone had something to do, we would diminish the status issues that might otherwise have been insurmountable.

We rehearsed the guidelines for assigning students to groups, and for assigning roles to each group member. We established four roles that we would use for teacher participant group members: facilitator, recorder/reporter, resource monitor, and team captain. We reviewed the responsibilities of each job: facilitator was responsible for getting the team conversation started, and for making sure that everyone understood the task. The recorder/reporter was responsible for giving update statements on the team’s progress, for organizing and introducing the report on the group’s activities, and for making sure that everyone on the team was recording necessary information in their journal. The resource monitor was responsible for collecting material and resources that the team needed for the activity, calling the teacher if there was a team question, and organizing cleanup. The team captain was responsible for enforcing use of norms and encouraging participation, for finding compromises, and for acting as a substitute for absent jobs (there would sometimes be only three members in a team). See Appendix II for a complete description of these team roles.

This however, is not sufficient to ensure the smooth workings of small groups without any of the debilitating influence of status issues. Simply assigning participants to groups is no guarantee that they will work in the expected way. The Institute faculty had to also learn about and implement group protocols to ensure that everyone in the small groups had the opportunity to participate. We practiced and prepared to implement group protocols such as ‘private think time’, ‘dyad sharing’, ‘go around protocol’, ‘popcorn share’, ‘jigsaw share’, and ‘whole group share’. To become conversant in these group strategies we practiced them amongst ourselves at every planning meeting prior to the Institute, but it wasn’t until we actually implemented them that we built a really solid foundation. When I recall how much effort it took for these professionals to be effective, I realize how much of a challenge it is for any K-12 teacher to be successful at managing group work.

### **TEACHER PARTICIPANTS**

During the Institute, with K-12 teacher participants from diverse geographical regions, from both urban and rural settings, in the same classroom for the content and leadership classes, issues of status immediately arose. Fortunately, because of their previous training, the faculty knew how to respond. We addressed these issues by cooperatively establishing a set of community agreements that both faculty and teacher participants would adhere to, and a set of agreements (social and socio-mathematical norms) for the mathematics classroom environment. The community agreements that we established were very similar to the ones that the faculty had established for use amongst themselves. We agreed that everyone had the right to be heard; that we all had the duty to listen for understanding (as opposed to listening to respond); that we would not refer to the grade level that we taught; that we would not tolerate any negative self-talk (e.g., I can’t do this). The full text of our community agreements may be found in Appendix 1.

The social and socio-mathematical norms we established were that everyone had the right to ask any question; the right to an answer to their mathematical question; that mathematical answers, both correct and incorrect or incomplete, were accepted gratefully; that incomplete or incorrect answers would become a step to build on to further knowledge;

that we would try to justify all mathematical comments; that we would try to generalize our mathematical findings. We kept our agreements visible at the front of the room and reviewed them on a daily basis throughout the three-week Institute.

### **First year results**

In this PD program, the program coordinators had borrowed from the 'best practices' camp – namely, by requiring faculty to model the practices that they wanted to see the teacher participants use in their own classrooms. Faculty necessarily addressed status issues directly and explicitly as part of the program. Because the program involved teachers from kindergarten through twelfth grade taking content mathematics classes together, and also involved these same teachers participating in a leadership class with each other and their own administrators, status issues were bound to occur.

During the first year of the Institute we did not lay a solid foundation and as a result we heard some grumblings from some teacher participants who felt they were being dismissed by their peers as not knowing mathematics since they were "only" elementary school teachers. The grumblings were almost entirely absent during the second year.

There were tears and frustrations, there was joy and fear, to be sure. But with the agreements established and clearly in place in the classroom, and reviewed *every day*, the teacher participants learned how to respond reflectively, and were able to step out of their habitual behaviors and recover quickly to minimize the negative effects of status.

During the summer Institute, the faculty systematically enforced group roles and responsibilities in the content classes. At first we assigned the teacher participants randomly to groups and within each group established roles for each group member. Sometimes this enforcement was over the objections of the teacher participants: "Why do we have to keep doing these jobs? This is silly!" they would complain. "Why must we keep reviewing the responsibilities of each group member?" Eventually, it turned that they would thank us for our persistence in enforcing group roles. They came to see the importance of team roles and responsibilities in "evening the playing field", providing an environment in which all students were given a voice, all students were able to participate, and all students were valued. They were also grateful for having practiced them so much; many said it made it so much easier to implement in their own classrooms, since it had become automatic for them. There were times when the group roles broke down, and then the teacher participants would experience the discomfort of not being able to contribute, of not being listened to, of being shut out of the activity. This had a lasting impact on them. They were determined that their students would not have these negative experiences, and were convinced that effective group management was the key.

### **Second year results**

In year two of the project, many participants reported feeling far less intimidated and/or insecure about their participation with other K-12 teachers. This was due, in large part, to the excellent preparation in status issues that the teacher participants and the faculty had received. Our work in modeling and enforcing small group or team roles was critical. All of the classroom activities were designed with small groups in mind. We used random groups of size four as much as we could, and enforced and rotated group roles of team captain, team facilitator, team recorder/reporter, and team resource monitor. During this second year, the teachers complained far less about our strict enforcement of the group roles. In their evaluations, teacher participants reported that their experiences put them in touch with how their students must feel in similar situations, when someone of relatively high status prevails over someone with lower status, when they felt ill-equipped to answer the questions, and were somewhat intimidated by the higher status teachers, often teachers of

higher grades. All felt that the challenge was a big one, but everyone reported learning gains from the experience. They also shared stories about the changes in their classrooms because of their awareness of status issues, and how to deal with them.

We found that during the second summer, the consequences of status issues were greatly reduced from the previous year. When we did group work, the teacher participants were respectful of everyone's thinking. One teacher responded that during the first summer, she had found it difficult to work with many of the high school/middle school teachers as she often didn't have time to adequately process information before they had the answer. She said that she found she had to move on before she had a good handle on the concept. The second summer was different for her. 'Private think time' afforded her the opportunity to consider the problem before discussing it with her group. Teachers for whom English was a second language reported that they appreciated the group protocols that were established during the Institute. One of their concerns had been that they would not have sufficient time to understand the task before being expected to complete it. With protocols such as 'private think time' firmly in place, the small group facilitator understood that it was his/her job to make sure that private think time was enforced prior to engaging in each group activity, so that every participant had time to read the directions and secure a clear understanding of the task.

Back in their classrooms, the teacher participants reported that it was important that they had been required to practice these roles, internalize them, and have sufficient familiarity with them so as to make it natural for them to implement them smoothly in their own classrooms. Enforcing these group roles was the single most reported, and criticized, but helpful strategy learned during the Institute that would help them address status issues in their own classrooms later on. One teacher reported "I try to create a climate that celebrates wrong answers as a place to start new learning. I also need to implement more protocols into my lesson plans and make sure that I enforce the classroom agreements." Clearly for this teacher the classroom agreements and the group protocols have had a lasting impact on her every day teaching.

## **CONCLUSIONS**

Status issues are present in almost every setting where people get together in groups. It is important to realize that these issues are ubiquitous, and that we need to be shown how to nullify their effects. In our work with K-12 teachers, through modeling and practicing behaviors that work we have made significant progress towards addressing this issue. Teachers report increased discourse in their mathematics classes as all students participate more fully and freely in group activities. Imagine a world in which small groups of people working together understand the issues of status, and know how to address them, where their time is spent devising explicit community agreements and reviewing group roles and agreements frequently during their work, and where group protocols are used freely as they carry out their assigned tasks.

## **Appendix I**

### **Community agreements – expanded version**

We agreed to be **respectful of each others' ideas, questions and thinking** by recognizing that everyone had something to contribute. Each participant agreed to be an *active* participant; we agreed to give everyone a chance to lead; we agreed to interact with interest; to be encouraging; to respectfully discuss disagreements about ideas; to use constructive problem solving and feedback; to allow time for reflection and think time by

all; to honor our own ideas and thoughts; to assure all the freedom to work without fear of reprisal; and to present ideas in a non-threatening manner.

We also agreed to **honor and appreciate diversity** by providing an environment where all voices can be heard and listened to; to allow for and support everyone, regardless of their mathematical backgrounds; to accept that we are all at different levels in our mathematical knowledge; to embrace different opinions and perspectives and learn from them; to value all ideas and suspend judgment; and to strive for equitable participation.

Further, we agreed to **embrace change** through being open-minded; being open to change; being open to new ideas about learning, teaching, and mathematics; challenging our thinking; maintaining a positive attitude towards self and others and to the reasons we are here together; and by taking time to process events.

We agreed that listening was key, and so we agreed to **listen to understand** by being an active listener; by asking clarifying questions; by allowing time for reflection; by allowing everyone to have a voice without judgment; by allowing for thinking and reflection time; by asking genuine and thoughtful questions; by limiting side-bar conversations; and by listening to others without interruption.

We agreed that we would **take risks**, be willing to cross grade level lines to learn from others; that risk taking was okay by remembering that failure and discomfort are part of the learning process; that we would validate other points of view; share concerns openly; and respond supportively to other ideas.

We agreed to **collaborate** with each other by working together to increase understanding and by acknowledging that this was the responsibility of all group members; to work cooperatively; to allow everyone to participate, but to not force those who weren't ready; to remember that all individuals need to work in the group; to respect everyone's need for think time and processing; and to celebrate our own and each others' AHA's.

We agreed to **be introspective** by being non-defensive and reflective about our own practices; by being responsible for our own learning, thoughts, actions and participation; by being present and positive; by being willing to be wrong and to compromise; and by examining discomfort.

We agreed to **be accountable** by honoring time commitments; by being responsible participants; by being present and being prepared; by making what we learned useful to take back to students and colleagues; by participating and sharing knowledge, ideas, learning strategies, and learning styles with each other.

Last of all, we agreed to **have fun** by having a sense of humor and laughing with each other!

## **Appendix II**

### **Team Jobs and Responsibilities**

#### **Facilitator:**

- Gets the conversation started
- Makes sure everyone understands the task

Sample questions: Does everyone get what we are supposed to do? Are we ready to go on to the next part?

**Recorder/Reporter:**

- Gives update statements on team's progress
- Organizes and introduces the report
- Makes sure the team is recording in their journal

Sample questions: We need to keep moving so we can .... Did everyone get that information? Slow down, I need to get this recorded.

**Resource Monitor:**

- Collects material and resources that the team needs
- Calls the teacher if there is a team question
- Organizes clean up

Sample questions: Do we all have the same question? We need to clean up. Can you ... while I ...?

**Team Captain:**

- Enforces the use of norms and encourages participation
- Finds compromises
- Substitutes for absent jobs

Sample questions: We need to work on listening to each other; Remember, no talking outside our team; Let's find a way to work this out.

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