CLASSROOM MANAGEMENT and Inquiry-Based Learning

Finding the Balance

by Chew-Leng Poon, Doris Tan, and Aik-Ling Tan

Inquiry practices often involve more student-centered activities where students interact more intensively with materials and with other students during investigations. In addition to monitoring the learning taking place, teachers in an inquiry classroom have to manage more movements of materials and equipment and the social dynamics among students. The imagery that comes readily to many teachers' minds is that of active kids running around the classroom, playing around with materials and equipment, leaving a mess to be cleared up at the end of the lesson, as well as a noise level that not only attracts disapproving frowns from administrators (and colleagues in nearby classrooms) but also leaves the teacher hoarse with the effort of trying to be heard above the din. As one teacher put it, just thinking about the possible scenario was already very "tiring." In this article, we would like to share seven successful strategies one teacher used in managing a grade 6 class that gave her confidence in transitioning from a traditional classroom to a more inquiry-based classroom.

Doris and her sixth-grade class

The classroom management strategies described in this article arose from observing a sixth-grade science class in Temasek Primary over three semesters. Temasek Primary is a large, government-funded school in Singapore that caters to more than 2,000 students from a multiethnic background. It was established in 1980 and, over its short history, has achieved fairly good standing among neighborhood schools (schools mainly serving students from surrounding government-subsidized housing estates)

in terms of academic achievement and as a school of choice among parents residing in the area.

Doris, a veteran teacher with 40 years of teaching experience, is the sixth-grade science teacher at Temasek. There are 22 girls and 21 boys in her class. She sees her students three times a week for a total of 2.5 hours of science.

Classroom management strategies for inquiry

There are various theories that guide the development and choice of classroom management strategies. Basing their work on a number of theories that include Skinner's behaviorist theory, Glasser's choice theory, Bronfenbrenner's ecological theory, and Dreikurs' goal-centered theory, Arthur-Kelly et al. (2006) developed an integrated model of classroom management. In this model, classroom management strategies are classified into two broad categories: (1) preventative practices that seek to create positive learning environments and student behavior, and (2) intervention practices that are used to deal with disruptive behaviors. The classroom management strategies observed in Doris's class fell into the category of preventative practices and could be further grouped into two clusters, one centering on curriculum and instruction and the other focusing on classroom organization.

Curriculum and instruction

Classroom management not only involves organizing the physical environment, but also curriculum and instruction to create an environment conducive for learning. The relevance and appeal of tasks and activities chosen and how they are organized for teaching and learning can have an impact on student behavior in the classroom. Classroom research has shown that students are motivated when they experience success in completing their tasks. Therefore, tasks must be designed to be achievable (Brophy 1987). At the same time, when tasks are not sufficiently challenging, bored students could choose disruptive behavior such as horsing around, bothering the teacher, or talking to a friend (Hayes 2008).

Use of hands-on, minds-on investigative activities

Students in Doris's class noted in their reflection journals that they were engaged by activities that were not only fun, but also demanding. They preferred hands-on activities that made them think and generate solutions on their own. For example, in a lesson on electricity, instead of building circuits using given circuit diagrams, Doris's students competed in groups to design circuits with two different arrangements of bulbs (without the aid of circuit diagrams) before they compared the relative brightness of the bulbs. The following are two examples of what students wrote in their journals after the lesson.

Suhail: "It is even more challenging if we don't have clues and have to work our brains harder."

Tricia: "I also like the way Mrs. Doris teaches the class about electricity. I like the part that we can use batteries and wires to make different circuits. It really makes you think. You have to figure out ways to make the lightbulbs light up."

Use of science journals

Students kept a science journal where they wrote their own lesson notes. Keeping a journal brought about a greater sense of ownership and was a more active way of learning than reading their science texts. It also served as a way of keeping students meaningfully occupied while waiting for other students to complete their activities. See Figure 1 for examples of student journal entries.

Use of group-based activities

Student investigative activities were central to Doris's inquiry-based classroom. We observed that students in her class spent about 43% of their curriculum time on group-based investigations. Doris divided the class into eight groups, with five or six students in each group. Apart from the cognitive and social values attached to cooperative learning, group-based investigations also served secondary purposes for a large class size. They enabled Doris to manage the amount of equipment and materials that had to be prepared and supplied to students for their investigations. At the same time, group-based investigations allowed Doris to move among all the groups during students' investigations and interact directly with students. Student participation and teacher-student interaction have increased compared to the previous whole-class approach where it was more challenging to provide opportunities for most students to be heard.

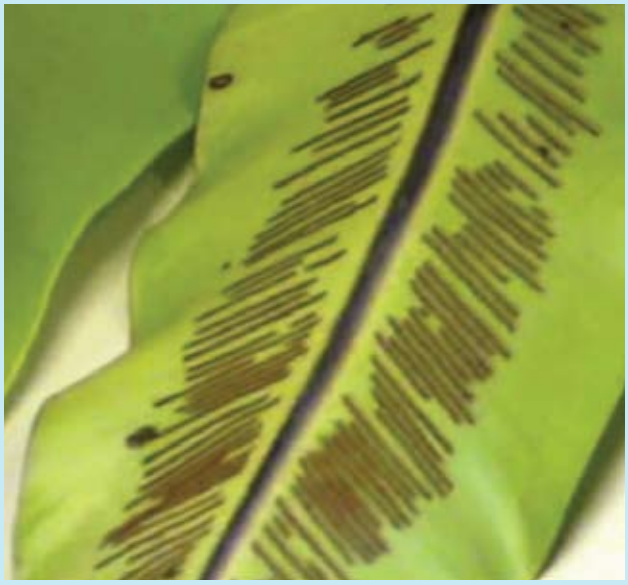
Guiding students to reflect on their learning process

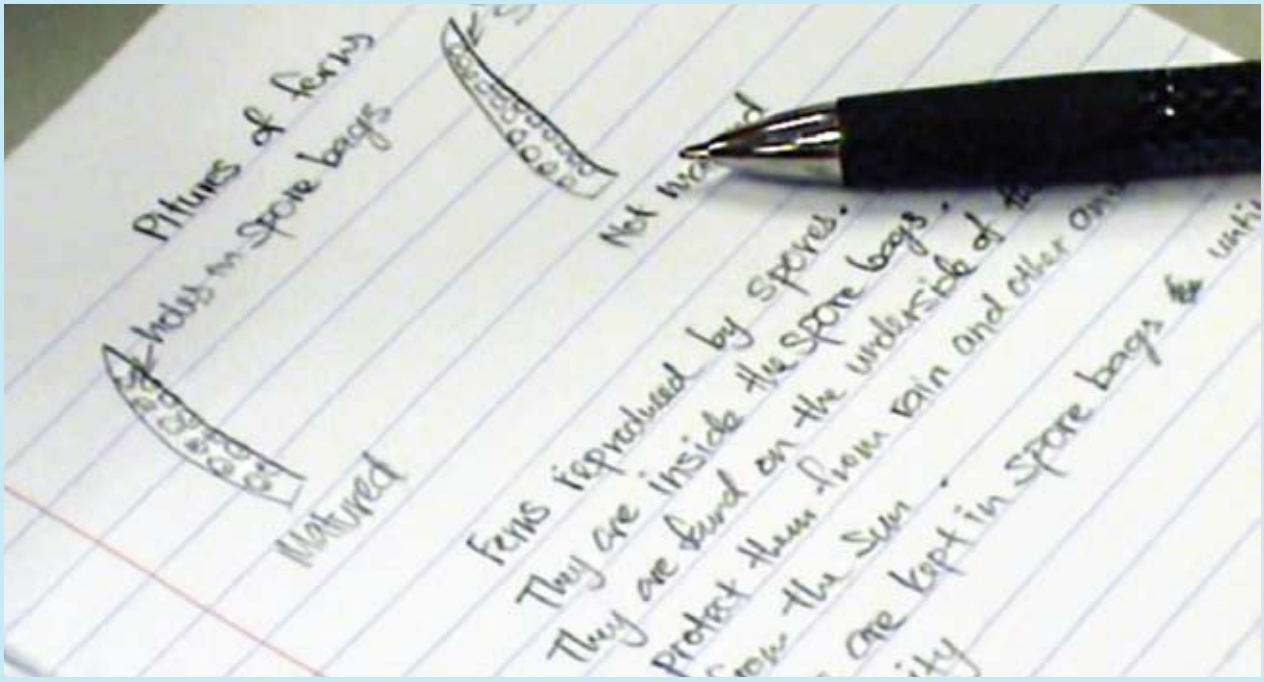
Occasionally, Doris guided her students to reflect on the value of an inquiry approach to learning. Students' reflection on their own learning processes helped build shared values in the classroom and motivated students to cooperate with Doris. Because students wanted to learn through collaborative investigative activities, they regulated their own behaviors and sometimes censored group members who threatened to disrupt their activi-

FIGURE 1 **Sample journal entries from two students**

This student observes a leaf and then sketches it into her science journal.

From this... ...to this.





This student made notes of the reproductive spores of the bracken fern in his science journal.

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ties with off-task behaviors. This is a powerful form of peer self-regulation, which reduces the need for the teacher to take active intervention measures.

Classroom organization

Organizing resources for investigative activities

For a large group of students, movement to obtain equipment and materials for investigative activities is time-consuming and provides opportunities for off-task behaviors. To reduce the need for such movements, Doris packed required materials into small plastic boxes. For example, a lesson on electricity, she obtained the assistance of two students to help her pack wires, bulbs, and batteries into small, plastic boxes. These simple experimental kits were distributed to each of the eight groups at the start of every lesson. At the end of each lesson, students in each group helped to put all the materials back into the kit neatly, ready for the next lesson. An alternative approach implemented by one of Doris's colleagues was to appoint a representative from each group who was responsible for collecting the kit and ensuring that the materials were returned to the kit in their original form at the end of the lesson.

Seating arrangement

The tables in Doris's science room were permanently arranged in a way that facilitated group work. There were eight rectangular tables, each with six laboratory wooden stools that could be tucked neatly under the table. The tables were big enough to comfortably accommodate six students and to also allow for several pieces of equipment and specimens to be placed on the tabletops. At the beginning of the school year, Doris had assigned students to each group, her main criteria being a fairly equal number of boys and girls at each table. She explained that, based on her experience with students, a group composed entirely of boys or girls is more likely to encourage off-task behavior than a mixed group of boys and girls. As the year progressed and Doris had the opportunity to observe the behavior of her students, she made changes to the group composition, particularly in separating students who tended to exhibit off-task behaviors when they were in the same group. The assigned seating also meant that students were familiar with the routine when they moved from their homeroom to the science room and could quickly settle into their places for the lesson to begin.

Managing transitions and gaining attention

In Doris's inquiry classroom, there were frequent transitions between whole-class interactions and small-group activities. In a typical lesson, Doris might begin the lesson with a review of concepts relevant to the investigation and give some procedural instructions to prepare students for the investigation. This was done in a whole-class approach. Students then carried out their investigations in their groups.

During the investigations, Doris might interrupt students' activities to give further instructions. At the end of the investigation, students usually gathered together as a class to report their findings or to co-construct concepts based on the data they had collected. One of the key strategies Doris used to capture students' attention during transitions between activities in the class was to establish a clapping signal. When she wanted students to focus their attention on her, she would clap five times and students responded by clapping two times. There was an agreed rhythm to the clapping and occasionally Doris sang the five notes instead of using clapping (and students obliged her by singing their part as well!). The strength of students' clapping in response to Doris served as a gauge of their readiness to give her the attention she required. The establishment of this signal as a routine reduced the need for Doris to raise her voice to draw students' attention and ensured a more efficient use of time in her classroom.

Conclusion

Good classroom management strategies are integral to the successful implementation of inquiry-based learning. We have found the seven strategies shared here to be simple and implementable and hope that they will be useful for teachers embarking on the inquiry journey. ■

References

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