Optimizing Student Learning with Complex Instruction

KSTF Teaching Fellows often ask questions about the achievement levels of individual students in their classrooms, including, “How do we get all of our students learning at optimal levels?” Developing equitable approaches to instruction and creating environments that support learning for all students is a challenge faced by all teachers. What kinds of things might we consider when thinking about students and their learning in classroom contexts?

One thing to think about is the way in which we have students learn. Groupwork is an effective technique for achieving certain goals around learning and equity. Cooperative learning, as envisioned by Johnson and Johnson (1994), is an educational approach which aims to organize classroom activities into academic and social learning experiences. Students work in groups to complete tasks collectively toward academic and social goals. Unlike individual learning, which can be competitive in nature, students learning cooperatively can capitalize on one another’s resources and skills.

However, issues sometimes arise when students work in groups. Teachers may observe that some students participate more than others. Some students may dominate a group while others essentially remain silent by choice. Still other students’ ideas are actively ignored. So what may initially seem like a good idea—grouping students so that they are able to collectively learn from each other—turns into yet another opportunity for certain students to shine.

Who are these students who shine? These students have either an academic or social status that affords them the opportunity to gain the floor and direct the work of their group. These students talk more frequently and their ideas are more often taken up by their groups, whether the idea is correct or not. And what research has shown is that the students who do the most talking do the most learning (Cohen, Lotan, & Leechor, 1989).

A particular type of learning environment that utilizes some of the principles of cooperative learning while including others to increase the likelihood of more equitable student engagement is something called Complex Instruction (CI). Elizabeth Cohen and her colleagues at Stanford University developed Complex Instruction as a way to address the learning needs of heterogeneous groups of learners. CI invites more equitable student participation by assigning competence

to students that helps to equalize status issues. In assigning competence, teachers pay attention to the things that low status students do well that move the group forward in the task. He or she then tells the students what they did well and the ways in which their contribution was important to their group. This serves the purpose of elevating students' status in their groups. When students are on a more equal footing in terms of how they are perceived by the group, they are more likely to participate.

Additionally, successful cooperative learning involves students engaging in tasks that have multiple entry points, so that students bringing various talents to the table can access the task. This is also true for Complex Instruction. The tasks utilized in CI must be intellectually demanding, creative, open-ended, involve higher order thinking skills, and have multiple solution paths. Tasks such as these are not commonly found in traditional curriculum materials and teachers often must create them.

As part of the Fellows five-year learning trajectory, we provide opportunities for them to engage in and critically evaluate instructional strategies grounded in accepted theories of learning. We've included opportunities to learn about Complex Instruction for some of our cohorts since 2013. Moving forward, it will be an important part of Phase Two (years three and four) of the Teaching Fellows Program. During Phase Two, Fellows examine issues of equity and the ways in which various instructional practices might advantage certain students over others. Complex Instruction provides Fellows with a lens to examine instructional tasks and practices, facilitating the discovery of ways to improve access for all students. Some of the more senior Teaching Fellows formed a Complex Instruction study group as a way to share their experiences and learn with, and from, each other. Access to the group's site is open to others in the KSTF community and provides a way for the Fellows to share tasks they are developing in both math and science, reflect on implementation of those tasks, and share other successes and challenges they are experiencing.

Research shows that everyone learns more when CI is done effectively. "Everyone" includes learners who are usually successful in situations of cooperative learning and learners who otherwise might be seen by their peers as having little to contribute to the group working together. At its heart, CI is an academic intervention achieved through the manipulation of the classroom social structure by an informed and effective teacher.

Cohen, E. G., Lotan, R., & Leechor, C. (1989). Can classrooms learn? Sociology of education, 62, 75-94.

Johnson, D. W., & Johnson, R. T., (1994). Learning together and alone: Cooperative, competitive, and individual learning (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.