

we intended in your classrooms, because students naturally construct their own meaning from experiences. So, our purpose is not to demonstrate how to use these technologies, but rather to demonstrate how learners can use these technologies. The process may be more difficult, but the meaning that you and your students derive from it will be deeper. We believe this approach is worth the effort.

New Roles for Technology

As stated in Chapter 1, we believe that although technologies can be used to provide additional testing practice, when they are used to engage students in active, constructive, intentional, authentic, and cooperative learning, then students will derive more meaning. Throughout this book, we contend that learning takes place in environments where students truly understand the nature of the tasks they are undertaking. Only then, when individuals understand and freely invest the effort needed to complete a task or activity, does meaningful, authentic learning occur. When learning tasks are relevant and embedded in a meaningful context, students see them as more than simply busywork.

Using technologies to engage meaningful learning assumes that our conceptions of education will change, that schools or classrooms (at least those that use technologies in the ways that we describe) will rethink the educational process. Although few people would ever publicly state that schools should not emphasize meaningful learning, meaningful learning is not engaged or assessed using standardized tests. Meaningful learning presupposes that parents, students, and teachers will realize the implications and demand change, so that meaningful learning is valued as much as memorization. Technologies will not be the cause of the social change that is required for a renaissance in learning, but they can catalyze that change and support it if it comes.

Implications for Teachers

In order for students to learn *with* technology, teachers must accept and learn a new model of learning. Traditionally, teachers' primary responsibility and activity have been directly instructing students, where teachers were the purveyors of knowledge and students the recipients. That is, the teacher told the students what they knew and how they interpreted the world according to the curriculum, textbooks, and other resources they have studied. Teachers are hired and rewarded for their content expertise. This assumes that the ways that teachers know the world are correct and should be emulated by the students. Students take notes on what teachers tell them and try to comprehend the world as their teachers do. Successful students develop concepts similar to those of their teachers. In this kind of learning context, students will not be able to learn *with* technology because they will not be able to construct their own meaning and manage their own learning if the teacher does it for them.