IT and Your Classroom: Learning With Technology

Information technology (IT) represents a rich and varied set of resources that may be used to enhance the effectiveness of instruction for all students. How IT is used (or not used) is critical in how pivotal it will be in the acquisition of knowledge and development of skills for students with and without disabilities. Sound instructional philosophies and classroom activities must be merged to maximize the potential of IT.

As technology becomes more central to schooling and federal legislation mandates state achievement testing for all students, it is imperative for both general and special education teachers to examine their current use of IT and its potential to improve educational outcomes for all students. This fact sheet examines the use of IT in three different inclusive classrooms and explores the notion of learning with technology, not from it.

Introduction
Three fifth-grade science teachers are teaching an *Animals in the Rainforest* unit. Each uses the same curriculum and educational software. Each teacher has an inclusive classroom. While these three classrooms are similar in some respects, there are variations in how students are accommodated in the instructional process.

Scenario One

Mrs. King uses a software program about the rainforest to help her class experience the sights and sounds of this environment. When Mrs. King previews the software, she is unaware of the accessibility features and thinks her students who are deaf will not be able to "hear" the animal sounds; she decides to use it anyway. She presumes these students will pick up enough information by watching the pictures on the screen.

On the day of the lesson, students are grouped into 12 pairs, with one pair at each computer. Her two students who are deaf are paired so that they can easily work together. Mrs. King starts the lesson with a lecture on the rainforest and then instructs students to take a virtual tour of this environment and answer the questions at the end of the software program.

After a virtual tour, she asks each student to write a paragraph about one of the animals they met in the rainforest. Mrs. King tells the students that the paragraph should contain descriptive information about the animal and its habitat. Each student reads his or her paragraph aloud; the students who are deaf present their stories using sign language as an interpreter narrates.

Scenario Two

Mr. Hudson believes all of his students should experience the sights and sounds of the rainforest, so he familiarizes himself with the accessibility features of the rainforest software.

Mr. Hudson groups his students into pairs. He starts the lesson by talking about the rainforest and then has students view the software and answer the questions at the end of the program. For homework, he instructs each student to select one rainforest animal and write a report about it. Mr. Hudson explains that students can use library books or Internet articles to learn more about their animals, but they must work alone. Students are asked to read their reports aloud to their classmates. When it's time for the students who are deaf to share their work, each uses sign language to report and an interpreter narrates.

Scenario Three

Ms. Garza is experienced with the accessibility features of the rainforest software. On the day of the lesson, she divides her class into small cooperative learning groups of four students each. The hard-of-hearing students in Ms. Garza's class are assigned to different groups.

Ms. Garza introduces the lesson by telling students to imagine they are teams of scientists who have been asked by the governments of South American countries to study the animals living in the rainforest. They have been flown to South America to tour the Amazon rainforest and meet with a task force of government officials.

As the chairwoman of this task force, Ms. Garza provides each "scientist" with a portfolio of information about the countries represented. Each portfolio includes background information on each country and their concerns about the rainforest and its animals. She explains that each student should identify animals living in the rainforest and those that no longer exist. They will also determine which animals are endangered and how certain species have adapted to survive.

Ms. Garza asks that the students work in their teams to devise a list of questions.

Each group has 3 weeks to complete the assignment and submit a report of their findings with a list of recommendations that can be implemented to save the remaining animals in the rainforest.

At the computers, Ms. Garza observes one of the hard-of-hearing students e-mailing a Brazilian botanist who has studied the rainforest for years. Another student is searching the Internet for pictures of endangered rainforest animals to include in her team's report. Two others are communicating electronically with a zoology professor via a chatroom operated by an internationally renowned environmental organization. At the reading table, two students, one of whom is hard-of-hearing, are exchanging electronic books on the rainforest, writing notes to each other about their readings, and identifying additional electronic books on the topics to be researched. At the back of the room, Ms. Garza spots another group of students discussing their readings and recording their findings on index cards.

Use of IT in the Classroom

Information technologies are frequently used in today's classrooms, but how effectively IT is used in the classroom is highly variable and can make a significant difference in learning educational outcomes for all students.

Mrs. King's lack of knowledge about accessibility features fails to provide accessible and usable instructional IT. Her methods of using IT limits the learning potential of the entire class. Not incorporating the accessibility features of IT isolates some students from vital aspects of the lesson.

Although he facilitates inclusion by using the accessibility features of the rainforest software, Mr. Hudson inadvertently hinders student learning. Since both he and Mrs. King believe the goal of the lesson is to increase students' knowledge about rainforest animals, they use technology to do little more than dispense information and practice basic skills. Learning experiences like these are not as effective in developing the analytical skills needed for higher-level academic achievement.

Ms. Garza provides accessible IT for her students. She also views learning as a process of inquiry rather than an acquisition of facts. She structures the lesson about rainforest animals and incorporates the use of IT with other instructional tools so students spend their class time on activities emphasizing problem solving, researching, analyzing, synthesizing, evaluating, reflecting, discussing, writing, and collaborating. Ms. Garza believes in learning with technology, not from it.

Beliefs About Teaching and Learning

Educators who believe that teaching is a learner-centered process know the challenge is to create classrooms that support, rather than hinder, students' inherent ability to learn. As facilitators of knowledge, teachers in learner-centered classrooms provide students with a variety of opportunities for them to work both independently and collaboratively to make decisions about their learning.

Teachers who believe learning is an active process are more likely to view IT as a tool for enhancing learning. These teachers tend to use IT, along with other tools, to facilitate

critical thinking. In learning with technology, students use IT to create knowledge, make decisions about their own learning, and reflect on their understandings, beliefs, and thinking processes. Furthermore, students are more apt to become lifelong learners because they view learning as challenging and fun.

Conclusion

Access to information technology is critical for all students. As outlined in the scenarios, IT is one potential element of effective instruction. IT alone does not produce results; it is only a tool. Effective use of accessible IT can help minimize students' inherent limitations to allow for the development of the complex and abstract thinking skills, motivated learning, higher self-esteem, and independence that are needed to succeed in academic and post-school settings.

References

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