

# INSTRUCTIONAL LEADER

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## Why You Should Use Technology to Help Differentiate Instruction in Elementary Classrooms

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Imagine walking into a restaurant and finding only one item on the menu—steamed eels; or into an art supply store and finding only one tool—a brown crayon—to create your drawing; or into a clothing store and finding only one style of hat—pink and one-size-fits-all.

Now you may be in the group of people who loves steamed eels, brown crayons, and pink, one-sized hats. However, the rest of us may not be overly engaged in these finds.

So it is with students we teach.

Many times we offer students only one choice from a menu, one tool with which to do work, and a one-role hat to wear.

Classrooms with single, limited choices contradict every known teaching and learning principle that engages children in their learning. Research shows that students are more successful in school and find it more satisfying when they are taught in ways that are responsive to their readiness levels, interests, and learning profiles (Vygotsky, 1986, Csikszentmihalyi, 1997, Sternberg, Torff, & Grigorenko, 1998).

Such single-option classrooms ignore instructional strategies which stimulate student thinking, student choice, and student productivity. Single-option choices disrespect diversity and fail to prepare students for the global marketplace of the future.

Sadly, these “one choice fits all” classrooms frequent elementary buildings across the country because single-mode or whole group instruction is easier to prepare than differentiated instruction. Besides, whole group is the way most teachers were taught in K-12 settings and at the university. Teaching in the whole-group, one-option style is inherently natural to us because that’s how we learned.

Today’s students, though, are very different than those of the classrooms in which we grew up. Nowadays, students come from a variety of cultural, familial and academic backgrounds, bringing with them unique, multidimensional learning profiles. As “digital natives,” many of our students surpass us in the area of technological know-how and integration, since current digital tools and systems play a vital role in their daily lives. In fact, as Marc Prensky writes in “Digital Natives, Digital Immigrants,” “Today’s students are no longer the people our educational system was designed to teach.”

### **Differentiated Learning in the Workplace**

In the corporate world, whole group instruction is experienced only during a professional development lecture, an orientation session or a company-wide address. Nearly all work is performed independently or in teams, some face-to-face. Some team

members connect only through digital means such as email or in an online environment. In fact, today's team members may reside in different countries and never meet in person.

Team members perform individually, according to their own learning styles, to produce collaborative products based on shared groupthink, with each team member contributing a piece to the whole. Team members contract for product parts based on their own skills, interests, experiences, or abilities. Individual team members often conduct their own research, collaborate with one or more colleagues, and present findings as a group, to a group. Adjustments to a final project are made based on feedback, new ideas, field tests, surveys, and other forms of input from peers, coaches, superiors, and customers. Frequently the feedback is via electronic means.

The process of a work group's project—from beginning to end—honors diverse team members' skills, strengths, interests, knowledge, abilities, and partnership.

### Differentiated Learning in School

Flash back to the present elementary classroom. Which world-of-work strategies do you or your teachers use? Here are a few strategies commonly used in the workplace:

- Individual learning and research tasks based on skills, interests and abilities
- Collaborative learning and planning tasks
- Individual contributions to a group product
- Collaborative group products
- Peer, superior and customer input
- Individual and team presentations

Interestingly enough, the strategies bulleted above replicate those found in a differentiated classroom. How? A differentiated classroom centers on the recognition and

honoring of differences between students in several areas (academic, cultural, familial, etc.) and the modification of instruction that both addresses that diversity and meets curricular objectives. Teachers who practice differentiated instruction realize that they need to address the varied interests and levels of readiness that they find in their classrooms. Educators, however, don't shoulder all of the responsibility. Rather, they make use of flexible grouping (not homogeneous) and simultaneous activities (such as learning centers) that involve a high amount of student participation and accountability for learning. In addition, differentiated instruction is grounded in assessment practices that are ongoing, not static. Assessment is continuous, just as it is in the workplace.

Differentiated instruction focuses on using the teaching strategies that connect with the ways students learn. Teachers respond to learners' needs by differentiating one or more of four curricular elements: content, product, process, and learning environment—according to four student traits: readiness, learning profile, interest and affect—through a range of instructional and management strategies. See Table 1 for definitions of the aforementioned curricular elements and traits.

Although differentiated instruction appears to be a relatively new idea to many, it really isn't. Differentiated instruction is a *retro* idea. Historically speaking, teachers in one-room schools have differentiated instruction for a range of grades and ages with *no* modern technology. Today's teachers have the advantage of using technology as both a tool and a tutor. Adding technology to differentiated instruction has several benefits:

1. Personalizes learning
2. Enhances learning through multimedia components
3. Encourages collaborative learning and problem solving

#### Four Curricular Elements:

- Content – what is taught and learned
- Process – the activities students do to make sense of ideas, concepts and information
- Product – the assessments or demonstrations of learning such as the artifacts students produce
- Learning Environment – the management and “climate” of the classroom

#### Four Student Traits:

- Readiness – what students know; current preparedness
- Interest – students' curiosity or passion
- Learning Profile – students' preferred way to learn
- Affect – how students feel about themselves, their work and the classroom

4. Helps students construct new knowledge and produce artifacts (products)
5. Prepares students for the world of work
6. Motivates students!

Technology enables teachers to customize students' learning experiences according to their interests, levels of readiness and learning styles. In addition, digital resources found on the web, along with multimedia software, offer a vast range of learning options and information that are not available to our students via traditional textbooks and media centers/libraries. In our experience, students' levels of motivation and enthusiasm skyrocket when we allow technology to play a key role in instructional activities. As students carry out research, interact with software, formulate products, and communicate with others within and beyond classroom walls, technology can assist in the improvement of student thinking and overall preparedness for the workplace of the future.

In our recent book, *Differentiating Instruction with Technology in K-5 Classrooms* (ISTE, 2007), we cite a Chinese proverb: *When the student is ready, the teacher will appear*. As we write about the need to use technology to differentiate instruction, we contemplate the converse: *When the teacher is ready, the student will appear*. Teachers who practice differentiated instruction are students of their students, and as educators, we are to be life-long learners. To what extent are we "readying" ourselves to effectively reach our digital age students?

## Authors

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