Examining, Evaluating, and Infusing Technology into the Curriculum as a Response to the Theory of Multiple Intelligences
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Introduction

My research investigates how technology might be used in the classroom to address students' different learning styles and motivational levels.

I am proud to work at Annandale High School (AHS) in Annandale, Virginia. This educational institution has a diverse population of over 2000 students from all over the world. On any given day you might hear one of more than 70 different languages spoken in the halls. AHS, like many other high schools in the United States, has become more economically and ethnically diverse, and even though we may try to tell ourselves that our students are “equal,” they are not similar. Each student brings a different learning style and a blend of Multiple Intelligences according to his or her own cultural background.

My research question came to life one cold afternoon in March of 2000. I was in my Spanish W7 class, using “traditional educational methods,” (the board, the projector, the book, and some photocopies with exercises), when I realized that my students were not learning as well as I wished. Some were sleeping, some were disruptive, and others were asking me to go to the bathroom. When I asked them to sit down and listen, I would get comments like “Juan doesn’t like me,” or “Melissa is calling me names,” and finally the worst comment that all teachers fear, “His class is boring.” So what did I do? My first response was to assign more written work, believing that more work would take care of all the disruptions. Some were sleeping, some were disruptive, and others were asking me to go to the bathroom. When I asked them to sit down and listen, I would get comments like “Juan doesn’t like me,” or “Melissa is calling me names,” and finally the worst comment that all teachers fear, “His class is boring.” So what did I do? My first response was to assign more written work, believing that more work would take care of all the disruptions. Oh, what a mistake. The discipline became worse. The African-American students started to argue against the Hispanic students and the Asian-Americans turned their heads and rolled their eyes in disbelief because they could not believe the level of disturbance. And here I was in the middle of the classroom trying to find a solution to this problem.

Finding a Solution: Can Learning Styles Help?

I took some time and began to watch my students more closely. I observed that the students in my W7 class learned differently from each other. Some worked well in groups; others preferred to work alone. Some needed absolute quiet in order to concentrate, others did well with noise and movement. Some needed a great deal of structure and support; others were more independent and self-motivated. Some students grasped oral instructions quickly; others needed to see the instructions in writing.

When my students were not learning, I looked for an emotional block or conflict, or a learning disability. I ignored the possibility that the children were not
learning because they were not motivated to use their own style of learning in the classroom.

What are learning styles? A comprehensive definition of learning style was adopted by a National Task Force comprised of leading theorists in the field and sponsored by the National Association of Secondary School Principals. This group defined “learning styles” as the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment (Keene, 1979). Included in this comprehensive definition are “cognitive styles,” which are intrinsic information-processing patterns that represent a person’s typical mode of perceiving, thinking, remembering, and problem-solving.

In my class, Vonetta had problems completing her warm up activity because she loves to talk, she is loud, and she loves to dance at the beginning of class. But once she was immersed (motivated), she went deeper than many of her classmates. The quick and repetitive changes of learning activity, typical in my classroom, (warm up, grammar, theory, speaking group activity and peer assessments) made it harder for Vonetta to complete her work. The frequent change of activity was frustrating and discouraging because once into an activity she had difficulty shifting to a new one. Maybe her learning style was not addressed by my teaching style. Maybe I was not giving her enough opportunities to use her own learning style.

What are Multiple Intelligences?

An exploration of multiple intelligences gave me some ideas of how I might vary the kinds of learning opportunities I offered to my students. According to leading educational theorist, Howard Gardner of Harvard University, there are at least eight relatively independent forms of intelligence. The eight intelligences or “eight ways of knowing” are logical/mathematical intelligence, visual/spatial intelligence, naturalist intelligence, body/kinesthetic intelligence, musical/rhythmic intelligence, interpersonal intelligence, intrapersonal intelligence, and verbal/linguistic intelligence.

These intelligences are best thought of as potentials or proclivities, which are realized or not realized depending on the cultural context in which they are found. Intelligences are always an interaction between biological proclivities and the opportunities for learning which exist in a culture.

Individuals possess each of these intelligences, but the strength of each and the ways in which they combine or conflict can differ widely. When I studied Howard Gardner’s theory of the eight intelligences, I began to realize that the majority of my students were receptive to visual stimulus. In other words, every time that I played a Spanish movie, “Destinos,” the kids were quite and attentive. My surprise grew when I started to ask questions about the movie in Spanish and the students were competing to give me the right answer. This was my first positive experience with technology, using it to enhance student learning.
What is Technology?

According to The American Heritage Dictionary of the English Language, 3rd Edition, “Technology is the application of science, especially to industrial or commercial objectives or the scientific method and material used to achieve a commercial or industrial objective.”

Since the 1970s, teachers have been using projects, screens, and tape recorders in their classes, so the concept of using technology in the classroom is not new. The bottleneck is that teacher’s minds have not evolved as fast as technology. We are too intimidated to use DVDs, multimedia, computers, digital cameras and other devices because we lack the experience to use them or because we consider these products as toys that cannot be sued for instructional purposes.

In this induction program, many researchers have found positive reactions to the use of technology in the classroom. The use of software like Power Point, WebQuest, CU-SeeMe and E-mail attracts the attention of the students and enhances their performance. What researchers have not stated is “What level of technology should be introduced into the classroom.” My answer is simple. As high as you can. Kids right now use the latest forms of technology in their daily lives. You will not find a student that does not know what a MP3 player, RIO player, compact disks, Digital Video Device (DVD), satellite TV, interactive games such as Sega Dreamcast, or SONY Play station is.

The level of technology to be infused in the classroom is limited by the teacher’s skills, not the student’s. In my classroom I used primarily a multimedia computer and the results were incredible. First the discipline problems disappeared. Secondly, my students were motivated to learn and their grades improved from an average of C+ in the first quarter and C in the second quarter to B in the third quarter. Thirdly, now I am the “cool teacher” on the block because I use and allow my students to use technology.

I have observed that technology is a tool that helps create a perfect multicultural learning environment, because it addresses many of the multiple intelligences. Technology transforms our students into individual learning identities, where there is no difference between races, religions, and economic or cultural barriers. They become equal and are willing to learn at their own pace. Evidences of these statements are the following students’ comments:

- “Mr. Rivadneira, making video clips in Spanish is such a fun activity.” Motivation factor addresses through visual and spatial intelligence.
- “Mr. R. when we videoconference in Spanish with another school, I have the opportunity to practice what we have learned in class. Let’s do it again.” Cognitive factor addressed through visual/spatial, verbal/linguistic and interpersonal intelligences.
- “Mr. R. I want to make a recording with Nora. She knows a lot about El Salvador. I didn’t know she was so smart.” Cooperative learning addressed through visual/spatial, interpersonal, and verbal/linguistic intelligences.
• “Mr. R. your class (videos, materials, activities) has taught me how Hispanic people really are.” Meaning addressed through visual/spatial, verbal linguistic and intrapersonal intelligences.
• “Hasta la vista amigo, you are so cool.”

At this point, it is important to state that the Internet allows teachers to access the best sources of information, (because you can be online with the best educational institutions, the best curriculums, and the best teachers in the world.) This fact has destroyed the concept that only the richest classes can get the best education.

Teachers must learn to switch from being the traditional “information provider” to being a “skillful research director.” The Internet provides more information to our students than 1,000,000 teachers put together. Technology is a powerful tool to motivate and empower our students. It gives lessons in meaning for authentic cognitively complex learning.

Reflections

What I can conclude is that teachers must infuse technology into their classrooms because students and their multiple intelligences have embraced it in their daily lives. If a teacher does not use technology in his or her classroom, he/she becomes an obsolete product. Even though he/she is an excellent product, the teacher is not efficient in today’s rapidly changing world.

Finally, and according to Marjorie Haley, PhD. at George Mason University, it is important to state that technology is one of the many components of effective teaching, but it will never ensure excellence in the field. The rational use of information or in another words, a great teacher, will never be substituted by technology.

References and appendices available upon request.