

## ***STAR TECH: THE NET GENERATION!***

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***DISCLAIMER:*** No, this isn't about William Shatner or Leonard Nimoy. They're busy on *Boston Legal*, commercials, and whateveeer. The operative word is "Tech," not "Trek." The technology has changed this generation of students and will change those in utero even more. (*Author Alert:* Before we continue, you need to know that I'm not a teacher educator and don't know whether I could even pick one out of a line-up if he or she were right in front of me. However, I am an educator and I did take teacher preparation courses to teach at the secondary level and actually taught elementary and junior high school for several years in Washington, DC. That being said, let's get back to the disclaimer.) "How different is this current generation of K–12 students, who have grown up with the Internet and the burgeoning technology?" Try visualizing a typical tween or teen text messaging her bud, while listening to her fave pop singer on her iPod, watching *Real World* on TV, and Googling the local movie theater to order tickets online *all at the same time*. Answer to the question: Really different from all previous generations. "How much has teacher education changed over the past decade to address these differences?" Not enough to keep pace with the students' changes. A renaissance in teacher preparation is needed. Teacher education has to reinvent itself. Teachers must change along with their students. Hang on to your laser pointer and smart phone. You're in for an exciting, but fun, ride. See you at the end of the chapter.

What We Know about Teaching and Students

The current foundation of what happens in K–12 classrooms throughout the U.S. rests on the training and inservice teachers receive and what they know about how students learn. Let’s briefly examine those elements before considering what might be changed to redirect teacher preparation in the future.

### Teacher Education Curricula

The curricula of teacher education programs K–12 consist of three components:

- (1) Content or “what” is taught in the classroom,
- (2) Pedagogy or “how” the content is delivered, and
- (3) Practice or “live student teaching” in real school settings.

The “what” is defined by district and state level standards that describe the knowledge, skills, and abilities (KSAs) for every grade level and subject or course. I couldn’t even begin to cover the “what” in this chapter because I don’t have a clue what KSA means.

The practice is the application of the “what” and the “how” in actual classrooms.

By a process of elimination, I have chosen to cover the “how”; otherwise, this chapter will have lots of blank pages. Over the past decade, two major trends or shifts in teaching methods emerged: (1) *learner-centered teaching*, such as active, collaborative, and cooperative learning techniques, with more than a thousand journal articles and 119 studies on its effectiveness (Cornelius-White, 2007), and (2) the burgeoning *instructional technology*, which may be online, offline, inline, or outteline. Based on this methods foundation, the remainder of this section examines the students’ characteristics and how they affect the teaching process.

### Student Characteristics

Teaching methods must be built on what we know about our students. They:

- (1) *possess 8.5 intelligences* and each student has a unique intelligence profile (Gardner, 1983, 1993, 1999, 2005; Gardner & Hatch, 1989; Marks-Tarlow, 1995; White, 1998; Williams, Blythe, White, Li, Sternberg, & Gardner, 1996);
- (2) *have 3–7 different learning styles* (Conner & Hodgins, 2000; Felder & Soloman, 2000; Kolb, 2005; Rose, 1985; Schroeder, 1997);
- (3) *learn by inductive discovery*, participating, by doing rather than being told what to do, experiential, hands-on, engaged, constantly connected with first-person learning, games, simulations, and role playing (Oblinger & Oblinger, 2006b; Tapscott, 1998);
- (4) *are intuitive visual communicators*, visually literate, comfortable in an image-rich rather than text-only environment, able to weave together images, text, and sound easily, move between the real and the virtual instantaneously (Frاند, 2000; Manuel, 2002);
- (5) *crave social face-to face interaction* and gravitate toward activities that promote and reinforce conversation, collaboration, and teamwork (Howe & Strauss, 2000; Manuel, 2002; Ramaley & Zia, 2006; Windham, 2005); can move seamlessly between physical and virtual interactions;
- (6) *are emotionally open* to express their feelings, meet new people, and experience different cultures; openness to diversity, differences, and sharing personal information with others, whether online or in class (Lenhart, Rainie, & Lewis, 2001; Oblinger & Oblinger, 2006b);
- (7) *respond quickly and expect rapid responses in return*, multitask, moving quickly from one activity or medium to another, such as using instant

messaging (IM), the cell or smart phone, and e-mail all at once, while surfing the Web and watching TV (Prensky, 2002; Roberts, 2006); and

(8) *shift attention rapidly from one task to another*, extremely short attention span, thrive on immediate gratification, accustomed to the twitch-speed, multitasking, random access, graphics-first, active, connected, fun, fantasy, quick pay-off world of video games, MTV, and Internet (Foreman, 2003; Prensky, 2001).

### *MultipleIntelligences and Learning Styles*

The content teachers usually teach is in a verbal or quantitative form. Most often teachers teach reading or English verbally and math quantitatively. That's natural and, perhaps, the easiest for the teacher. However, learning that content isn't as easy. Every student has strengths and weaknesses and, for example, if Jerome doesn't have a strength in quantitative ability, he will struggle in his math courses.

Fortunately, Jerome has other abilities or intelligences according to the latest research in cognitive psychology, up to 8.5 intelligences. In addition to the aforementioned verbal and quantitative intelligences, there are visual/spatial, bodily/kinesthetic, musical/rhythmic, interpersonal and intrapersonal (equivalent to Goleman's [1998] emotional intelligences), naturalistic, and environmental. (*Note: Gardner [2005] assigns environmental intelligence a .5 based on current evidence.*) Jerome's strengths may lie in visual/spatial and musical/rhythmic. Just imagine: If all teachers could teach by drawing on these intelligences AND quantitative ability, how much more effective they could be? In fact, if they could *teach so that four to six intelligences are tapped, probably every student could learn the material on most topics without struggling*. Such strategies build

on students' strengths rather than their weaknesses. Those strengths are translated into their learning styles (Kolb, 2005). Designing teaching methods that systematically consider students' multiple intelligences and their different learning styles is essential for effective teaching of ALL students (Berk, 2001).

### *Impact of Technology*

The remaining six characteristics listed previously relate to the Millennials (Howe & Strauss, 2000), this *Net Generation* of students who has grown up with the Internet and the related technology (Oblinger & Oblinger, 2006b), born between 1981 and 1994, and post-Millennials, 1995 to present. They are “digital natives” (Prensky, 2001). We are “digital immigrants,” because we have had to learn the technology on the fly. Among children ages 8–18, 96% have gone online; 74% have access at home and 61% use the Internet every day (Oblinger & Oblinger, 2006a). Instant messaging (IM) is nearly as common a form of communication and socializing (70%) as e-mail (81%) among teenagers. Almost 13 million use IM.

These experiential, technology savvy *Net Geners* with the attention span of goat cheese (Berk, 2002) want interactivity in the classroom with their peers, the teacher, tools, and concepts. Team experiences provide these students with the active, participatory, visual, collaborative, fast moving, quick thinking, rapid responding, emotionally freeing, spontaneous, combustible vehicle they so badly desire. The learning environment must be active, collaborative, social, and learner-centered for these students to thrive and be successful. Anything less will be considered BORRRRRRRING.

Tweaking the Direction of Teacher Preparation for the Future

The foundation described in the preceding section still isn't adequate to address the needs of ALL students in an ever changing culture. Teachers will need to incorporate the students' culture if they are to be effective. That means knowing the ingredients in a student's world and incorporating those ingredients in the methods teachers are already using, plus creating new and over-the-top strategies to reach all students. An image of our students in 2008 and what can be expected in the future are described next.

Recommendations for how all that we know about teaching and learning can be integrated into teacher preparation so teachers will be effective in tackling future challenges are also proffered. Four salient issues are examined: (1) ingredients in a student's world, (2) active, social, learner-centered environment, (3) activating prior knowledge, and (4) unique, over-the-top learning experiences.

#### Ingredients in a Student's World

"School is boring. Everything is boring." Ring a bell? I hear this from almost every kid, regardless of age, K-college. (*Legal Note:* Yes, I know this is nonscientific, hearsay evidence not admissible in a court on *Law & Order* or *Shark*. But this stuff isn't going anywhere. It's just part of a book.) What teacher or parent hasn't heard those complaints? UCLA's Higher Education Research Institute conducts a national survey of 250,000 college freshman at nearly 500 colleges and universities every year. One of their findings is that 40+ % of the students report "they are frequently bored in class." That percentage keeps climbing. Despite the fact that we know more about student characteristics, how to teach, how students learn, and technological applications to learning than at anytime previously, nearly half the class of students is probably unmotivated and disinterested in learning now more than they ever have been. Where's the disconnection?

### *Students' Uses of Technology*

It's a function of what these students deem important. This *Net Generation* (Oblinger & Oblinger, 2006b) has grown up with *Sesame Street*, MTV, PCs, video games, iPods, MP3 players, PDAs, cell/smart phones, and TV/DVD remotes as appendages to their bodies. More than 2 million children ages 6–17 have their own Web site. These are key ingredients in their world. Their use of the technology focuses on *music, music videos, movies, PC and video games, and TV programs*. They live in a complicated remixed, mashed-up, digital, mobile, always-on media environment (Jenkins, 2006). Their world involves instant communication and produces media overstimulation, where from 6.5–11 hours per day are consumed with multitasking using multimedia. As the lyrics to the Peabo Bryson and Regina Belle hit song from *Aladdin* tell us, we are entering:

A whole new world

A new fantastic point of view

No one to tell us no

Or where to go

Or say we're only dreaming ... (Menkin, A., & Rice, T., 1992 © Wonderland

Music Co., Inc., BMI/Walt Disney Co., ASCAP)

The students' world is not better than or inferior to the teachers'; it's just different. When the students cross the threshold of the classroom door, they enter culture shock. They're numb with understimulation. How can you possibly compete with their world? You can't. Therein lies the disconnection and it will worsen as their stimulation accelerates with the cultural manifestations of the technology in the future. That's the problem. Now, how do we fix it?

### *Recommendations*

The characteristics of the *Net Geners* should be clearly communicated in foundation courses so future teachers are thoroughly informed from the get-go of the types of students they will be teaching. The impact of these characteristics should be communicated throughout the curriculum as a distinctive strand. The “what” and “how” of teaching at the different levels need to be systematically linked to those characteristics to be able to custom-tailor teaching methods and content to the students at each level. The methods course links are described in the next three sections.

#### Active, Social, and Learner-Centered Environment

Effective teaching must consider all of the students’ characteristics in order to build novel learning experiences in the classroom; otherwise, students will find ways to access the required information from home, a library, or a mall. That means going far beyond the traditional modes of lecture and textbook-based instruction to innovative and creative techniques that draw on their multimediated world, multiple intelligences, multiple learning styles, and technological skills AND what we know about effective teaching practices, such as “learner-centered” teaching (e.g., active and cooperative learning), blended learning, and online teaching. These *Net Geners* want interactivity with their teachers, peers, and technology that permit them to discover their own solutions. They are experiential learners, part of what Jenkins (2006) calls a *participatory culture*; they are not spectators.

#### *Effective Teaching*

The most appropriate mantra for “effective teaching” is: *Teaching Is All about the Students, Not about the Teachers!* If the students’ world and characteristics are ignored

and teachers simply use their content expertise and learner-centered teaching methods taught in teacher education methods courses, they will probably be ineffective with many students now and in the future. Teachers have to get into their students' brains and think like them, not like teachers. They need to mentally perform neurosurgery on their right hemisphere and cerebral cortex to find out what makes them tick and view how they teach from their students' perspective, through their eye-sockets (Berk, 2003, 2005).

### *Recommendations*

Methods courses must integrate the elements in the students' world into learner-centered teaching strategies. Collaborative learning techniques may range from the most highly-structured cooperative learning exercises (Johnson, Johnson, & Smith, 1991; Kagan, 1992; Millis & Cottell, 1998) at one end of a continuum to the less-structured spontaneity of improvisation at the other. Courses should emphasize how to design new "team" approaches to learning. That's what *Net Geners* want.

The application of theatrical techniques to teaching would be an asset in the live classroom (Berk, 2002, 2003; Millbower, 2003; Patterson, McKenna-Cook, & Swick, 2006; Timpson, Burgoyne, Jones, & Jones, 1997). Just as theatre can be scripted and also unscripted (improvisation), so can these team activities be scripted cooperative learning exercises and unscripted collaborative learning (improvisation) exercises. For example, one *theatre model* could involve five students role-playing the following:

1. *Director*: guides everyone to focus on a content topic, concept, or process to develop a skit/parody with/without script
2. *Designer*: creates scenery, costumes, props, lighting, sound, music, videos, and games

3. *Technician*: determines equipment, tools, and resources to execute skit/parody
4. *Writer*: prepares script, if required, and sequence of steps to execute skit/parody
5. *Actor(s)*: performs skit/parody

This production team will flesh out the visual image they want to create using the following teaching tools: music, videos, sound effects, games, props, costumes, lighting, sets, and movement. When the final product is performed to illustrate a concept, principle, or process, it will be an unforgettable experience for the team, performers, and entire class. Not only does this collaborative learning activity match the aforementioned characteristics and cultural world of these students, but it draws on their multiple intelligences (i.e., verbal, quantitative, visual/spatial, bodily/kinesthetic, musical/rhythmic, interpersonal, and intrapersonal) and learning styles, plus it fosters deep learning.

Another variation on the theme of collaborative learning is *improvisation* with groups of four or five students. The spontaneity of improvisation can build trust, respect, and team spirit as well as listening, verbal and nonverbal communication, ad-libbing, role-playing, risk-taking, and storytelling skills (Barkley et al., 2005; Moshavi, 2001). A content-generic, easy-to-execute activity, such as “one word at a time/one sentence at a time,” “freeze tag,” “speech tag,” or “gibberish” (Gesell, 1997; Koppett, 2001; Spolin, 1986, 1999) may be more palatable to *Net Geners* at first than the more structured, formal cooperative learning methods. Improvisation involves the co-creation of ideas rather than a teacher-directed or scripted group activity. It can serve as the warm-up or segue to

cooperative learning exercises. The methods courses should include all of these strategies in a future teacher's arsenal.

#### Activating Prior Knowledge

*Teachers need to leverage the music to which the students are listening, the videos and TV programs they're watching, and the games they're playing as instructional tools.*

These activities are driven by *their* interests and passions as well as by *their* gifts and abilities. Teachers can capitalize on those activities to increase learning. From a cognitive psychology perspective, teachers can activate the students' prior knowledge of these cultural elements in *their world* to generate motivation, interest, and attention to learn new information in the *teachers' world* (Berk, 2001). Only by entering the students' world will teachers be able to connect with them, draw on their interests and what they already know, and extend their knowledge base. That is how teachers can connect with their students.

#### *Recommendations*

Technology courses in the teacher preparation program should emphasize the pedagogical value of music, videos, and games in teaching. They can be powerful teaching tools (Berk, 2001, 2002). Teachers should be taught PowerPoint® skills way beyond the basics of just text material on slides. The classes must cover custom animation, transitions, extracting and converting music to wav format and videos to mpeg, avi, and wmv formats for PCs (Macs don't require the same conversions), video streaming, and other techniques to arm teachers with the latest skills.

Pertinent legal issues related to copyright infringement in the use of these various forms of media should also be covered. The U.S. copyright law supports this broad

approach to mediated teaching. All of the preceding media as well as print materials can be used by teachers in their classrooms. Title 17 of the U.S. Code in Chapter 1§107 defines the “fair use” provision:

*The fair use of copyrighted work...for purposes such as ...teaching, scholarship, or research, is not an infringement of copyright.*

Teachers should be aware of the requirement that an acknowledgment be given of the copyright holder as the source of the material (e.g., print, music, video clips, cartoons).

#### Unique, Over-the-Top Learning Experiences

When students are present in the classroom, teachers need to stretch their imaginations to design learning activities to justify their physical presence in that venue. The time should be used for meaningful, valuable, and unique, yet nonreplicable experiences the students couldn't obtain anywhere else. The students need to be engaged, interacting with peers, and connected to the learning activity. Teachers need to produce learning experiences that students would perceive as worthy of being in class, experiences that will be unforgettable (Berk, 2001, 2005). Over-the-top exercises are appropriate if that's what it takes to get the job done. What can be executed in the live classroom environment that can't be transmitted online or in any other context? That's the standard or criterion all teachers should strive to attain.

#### *Recommendations*

Before entering the classroom for student teaching, maybe the future teachers could take a capstone course in their teacher education programs that would provide an inventory of all the possible teaching and testing strategies one could possibly use. Sorting out the appropriate venues where they may be best implemented would furnish a

useful perspective for their application in the classroom. What activities could be completed online, at home, in the library, in the mall, and in class? Consider which activities would waste in-class time and could be assigned elsewhere. *What collaborative, theatrical, mediated, participatory exercises could be executed in real class time that would take advantage of the live interaction of students with other students and the teacher?* The classroom is the stage for that live performance that can never be repeated. If that's the "how" teachers and students see in their futures, then everyone will be excited to come to class and, maybe, even learn the "what."

### A Metaphor for Teaching

How do you conclude a chapter like this? The content has been presented and the recommendations for redirecting teacher education have been given. But something's missing. Why go to all the trouble of preparing the various activities for the students, day after day? Teaching is unlike any other profession. There is something special or unique about it. *Teaching is more of a calling than a chosen job.* It draws on our gifts and intelligences and applies them in creative ways in the classroom. Why do we do it?

I have taught for 37 years. Maybe you have taught even longer. As noted in the disclaimer, I taught elementary school and junior high for several years before completing a 30-year stint at Johns Hopkins University. I thought some type of "timeless" metaphor that represents my passion for teaching and its significance as a profession would be appropriate. Hopefully, those of you who share that passion now or in the past will agree.

Putting It on the Line

My search for a metaphor for teaching brought to mind a Broadway musical that opened 33 years ago and then again two years ago: *A Chorus Line* (original in April 1975; revival in October 2006). That show was all about *putting it on the line*, literally and figuratively. A white tape line was placed on the floor across the width of the stage, downstage (near the front), on which the dancers auditioning for the show (within a show) were told to stand. The musical is all about dancers (the gypsies who go from show to show) and the sacrifices they make mentally, physically, and emotionally when they walk onto that stage and put themselves on the line in every performance. They bare their body and soul before a live audience every day, sometimes twice a day; every part of their being is being tested. There is no where to hide.

*Putting it on the line* could be a metaphor for other careers and even life in general. The show's creator, director, and choreographer, the late Michael Bennett, didn't realize the symbolism in this line until it was drawn on the stage before one of the out-of-town pre-Broadway try-outs. The significance and meaningfulness of that line became apparent as members of the theatre audience communicated how the line related to their occupations and lives.

Consider for a moment how our soldiers in Iraq and Afghanistan, police officers, and firefighters put their lives on the line every day. Many other professionals put their skills on the line in a variety of ways by the manner in which they execute their jobs. Examples include physicians, lawyers, athletes, bank robbers, and Jack Bauer on *24*.

The line has had personal significance to most anyone who saw the show. He or she could relate to that line and what it meant through the songs in the show:

- the commitment (“The Music and the Mirror”),

- the sacrifices (“What I Did for Love”),
- the preparation (“I Can Do That”; “At the Ballet”; “Nothing”),
- the performance (“One”), and
- the satisfaction.

### Application to Teaching

Do teachers *put it on the line*? They must or the preceding paragraphs are totally pointless. The parallels between Broadway dancing and teaching in the classroom are striking:

- Have you made the *commitment* to be the best teacher you can be?
- Have you made significant *sacrifices* in the process?
- What teacher *preparation* did you complete to become the teacher you are today? Do you continue learning new techniques to add to your repertoire? Do you pass down your knowledge and experiences through your *preparation* for every class?
- Are you *performing* every day in real time? Do you feel you are constantly being tested or challenged by your students? Do you bare your mind, heart, and soul before your students? It’s almost impossible not to, given the time you’re together. ~~Do you lose your mind...?~~  
 [NOTE TO EDITOR: Please don’t edit out double-line phrase; it’s suppose to be humorous!]
- Are you *satisfied* at the end of your class or day? Do you experience a “teaching high”?

Certainly, the BEST teachers experience all of the above, and more. They probably finish their performance exhausted, but also extremely satisfied with what they accomplished. What a feeling when you know you've given it everything you have. That is *putting it on the line* for your students. *Ultimately, it's the students' futures on the line.*

### Challenge to Teacher Education

Teacher education programs represent the “working rehearsals” for the live performance of a career in teaching. Those rehearsals must be thorough and demanding in covering the content and the pedagogy. The latter, in particular, will need to shift direction with this new generation of students and those to come in the future. Basic foundations and methods courses in elementary and secondary level teacher preparation programs need to address all of the characteristics of these students by incorporating the following in the curricula: music, videos, TV programs, and games; improvisation and cooperative learning methods; theatrical techniques; and the latest technology. These strategies will draw on the students' multiple intelligences, learning styles, uses of multiple media, and their abilities to multitask.

The challenge will be to make these changes to facilitate the teacher-student connection and effective teaching before student teaching begins. Student teaching is the “dress rehearsal” and “previews.” All of these preparation experiences in the programs lead to opening day. Of course, in between graduation and opening day, it is assumed that the state teacher licensure/certification exam has been passed.

“Opening day” in the classroom is just like a Broadway opening. The students will immediately size up the first class as a smash hit or a flop. The reviews will come in quickly. The quality of the teacher preparation and student teaching rehearsals will

ultimately determine the nature of the opening as well as the success and run of the production for the rest of the year. The challenge is clear. May the efforts invested to update and refocus teacher education programs in the areas described in this chapter result eventually in lots of long-running hits in classrooms nationwide.

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