

I could just show samples of lessons utilizing the research, but the fundamentals would not be apparent. So in order for you to best improve your practice, it is worthwhile to summarize the evolution of several great minds in educational design: Robert Sylwester, Grant Wiggins, Jay McTighe, Carol Ann Tomlinson, Rick Wormeli, Marilyn Bizar and Harvey “Smokey” Daniels. In this way, we can fully appreciate, and verify our integration of their work, for great classroom experiences incorporate a symphony of factors. I find it fascinating to study the success of educators and it’s my heartfelt wish that we can all feel the excitement that comes with exploration, discovery and ultimate mastery in understanding. Many of these people have done profound work, and I am attempting to explain in a condensed form what glimmers of truth they’ve conveyed.

Robert Sylwester started with an interest in Biology and subsequently merged his interest in Education with the new field of Brain Research. He has a noted career and is published in a monthly e-journal, *Brain Connection*. In March, he wrote about how frontal lobes develop in two major progressions. First, from one through ten years of age and secondly, from ten to twenty, children with immature frontal lobes acquiesce to their parents’ decision-making frontal lobes. So when they start to “buck” us, it’s because their frontal lobes are beginning to mature. Just as toddlers need practice learning to walk, adolescents require an adjustment and practice period to acquire the skills necessary to function at adult levels which incorporate decision-making and social skills.

One of the best ways to develop these attributes in a safe environment is to work on collaborative projects and promote exploratory learning. Rich family experiences and extra curricular activities further increase the repertoire of students’ capabilities.

Additionally, the right side of the brain usually processes novel challenges and creative solutions and the left hemisphere correlates to familiar and established habits of mind. Although most activities are not exclusive to individual hemispheres, we recognize that creative arts use the right and crafts use the left hemisphere more. Developing minds exercise their right hemispheres, so anything that promotes the use of this side can benefit cognitive development.

The recent discovery of mirror neurons lends us a deeper understanding of what majesty Allah has in His design. Mirror neurons occur in the frontal lobes and they account for how we learn through empathy, observation and imitation. Autistic children seem to have a deficit of mirror neurons, and their function may guide us in future mentoring and pedagogy. We should capitalize on students of differing abilities collaborating; thereby, developing cooperative models for growth in cognition and performance.

As we recognized that students learn by doing meaningful, engaging work, the relevance of Backward Design originated from recognition that one must know where the goal is in order to plan the incremental steps to achieve that goal. Grant Wiggins and Jay McTighe were lauded for their work in *Understanding by Design*, in 1998.

Understanding by Design (UbD) was characterized by these principles:

1. Students learn through active, not passive, experiential based activities.
 - a) Learning is constructivist, so the past affects the present and future.
 - b) Brains crave order, and emotion evokes a desire to learn.
 - c) Learning is built by modeling, guided practice and independent work.

2. Teaching implies student mastery of declarative knowledge and procedural knowledge.
3. There should be a consensus of what is worthy of being learned.
4. UbD has three parts:
 - a) Identifying what to learn.
 - b) Evaluation of assessments to verify learning.
 - c) What activities build this knowledge?

The ultimate in qualifying performance is coined by Wiggins and McTighe as GRASPS.

G—Goals from the real world

R—Roles students assume in authentic projects/products

A—Audience to whom the students present

S—Situations as authentic, legitimate and real

P—Products and performances culminating from their work

S—Standards for evaluation of products and performances

In Step 3—Planning the learning activities—they use the acronym WHERETO.

Each of these should be considered in planning:

W—Why do they need this? Where will this go? What ways will they be evaluated?

H—How will you “hook” their interest? Can you offer an engaging experience?

E—What experiential opportunities can you incorporate to make their learning real?

R—How can you get them to reflect, revise or rethink?

E—Every student needs to express themselves. How will their expression verify understanding and self evaluation?

T—Attempt to tailor or differentiate for every unique learner.

O—Organize the progression of teacher guided learning toward independent applications.

What is to hold us back? This UbD comes highly recommended! Some criticisms have been that it takes time to design, there is resistance to change, we are stretched as educators to negotiate a middle ground between miles of content and an inch of depth, this stuff is only reserved for a few who could pull it off.

The time has come to break the traditional education habits. Administrators and teachers need to see the relevance. Have you ever felt that you did your best teaching and still had kids who flunked the test? They may be the ones who were really good at “acting” attentive, but were they never summoned to engage and prove their understanding until the final assessment?

What should administrators do to support adoption of this process?

- 1) Provide ongoing training, peer analysis and coaching.
- 2) Ensure all staff members are informed of its efficacy.
- 3) Support adoption by educational leaders on staff and promote their active aid to mentor new and resistant teachers.
- 4) Provide follow-up that insures teachers are utilizing the UbD process and supporting their feedback as they refine their use of it in their practice.

Now that we have outlined what UbD is about, we should delve into the framework of what the student experiences. R. J. Marzano has studied the parameters which are

affected by schools, teachers and students. He has developed a realization of the multifaceted components and interventions which promote successful learning experiences. Marzano has identified nine categories of strategies to be used in instructional planning:

- 1) Identifying similarities and differences.
- 2) Summarizing and note taking.
- 3) Reinforcing effort and providing recognition.
- 4) Homework and practice.
- 5) Non-linguistic representations.
- 6) Cooperative learning.
- 7) Generating and testing hypotheses.
- 8) Questions, cues and advance organizers.

He considers three strategies in the design phase:

- 1) Set learning goals
- 2) Include the means for
 - monitoring progress
 - introducing new knowledge
 - practicing, reviewing and applying knowledge
- 3) At the end of a unit, help students determine how well they've learned.

Carol Ann Tomlinson has been the leading name in Differentiation, the crafting of appropriate level work for diverse academic levels and learning styles. She has partnered

with Jay McTighe in *Integrating Differentiated Instruction & Understanding by Design* (2006) to help teachers make the best of both.

In common, is the clarification of terms, Understanding versus Knowledge. We traditionally have practiced rote memorization for the sake of nothing in many cases. The circumstances we face today, and what our students must be versed in deal with broader scopes of understanding, cooperative effort and problem solving with issues never before facing humanity, or at least never resolved.

Wiggins and McTighe have qualified six facets of Understanding to be: explain, interpret, apply, that students can have perspective, empathy and self-knowledge. They clarify that the means for giving evidence of understanding lie in authentic products or presentations whenever possible. They advocate pre-assessment before teaching, giving students choice of assignments relevant to their goals and capabilities and providing feedback so students get accurate assessments of their performance.

The teacher should evaluate what each level of learner can do to improve their shortcomings. In practice, we see students who continually make the same mistakes. Wouldn't it be great to specifically design activities which would permanently resolve those problems? Differentiation can succeed in giving students the tools to help themselves as they establish habits of success.

Sam Intrator, a veteran teacher wrote for *Educational Leadership*, after shadowing high school students for 130 days. He reported that students' academic experiences were often "listless and tedious." He also noted classes where teachers really had students involved in positive engagement and where productive exchange of thought and learning occurred.

He characterized these episodes where teachers held the attention of students, altered the pace, promoted a respectful discourse whereby students sensed ownership in the class community and felt free to express themselves. They wanted their teachers to understand them and sought to relate their lessons to their own lives. These were the seeds of dynamic classes.

Even if we are not differentiating now, haven't we seen "clusters" of students in our classes? These are those whose reading levels are low, those who need assistance with vocabulary, those who take longer than others, some students cannot stay in their seats and others whiz through whatever they are assigned and then look for something else to do while everyone else isn't finished. What if we anticipated these situations in each class and provided alternatives so students could progress and feel accomplished at whatever their level?

Now how can you manage it? How can a teacher give special attention to one sub-group while others are left to their own projects? There are some "tricks of the trade" for teachers to train their classes because learning is best promoted in a quiet and controlled setting. Students should monitor noise levels and hand signals should be implemented by all when the volume rises. Student leaders on each team can be the only ones out of their seats and have "project leader" status which rotates. "Rome wasn't built in a day" as they say, but soon students should realize the benefit of this arrangement.

It's never too late! By this time of year, you may think that you should wait to implement these ideas for next fall, but don't delay. You already know who you are teaching and which students can benefit most from these strategies. This is typically the time when teachers and students are tired of routines not altered enough, perhaps not

altered at all. So give these strategies a try and see what excitement it brings to your students and in your own life.

I'm often heard harping to my students, "The one who works is the one who learns." That is why I know my content well. Understanding is the job of the learner; the design of possibilities is the work of the teacher. InshaAllah, we come to understand the process of learning through effective design in order to expand the possibilities of our human endeavor.

A Powerpoint presentation will accompany this with additional examples from Rick Wormeli and Harvey "Smokey" Daniels incorporating novel methods.

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Your Reflections