The Achievement Gap and the Education Conspiracy Against Low Income Children

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Abstract

Despite changing rhetoric, fifty years of educational reforms have largely relied on deductive, didactic pedagogy focused on rote memorization and knowledge consumption. This article focuses on inductive, investigative approaches to schooling that lead to enjoyment, engagement, and enthusiasm for learning. The Enrichment Triad Model and Prism Model, for reversing underachievement, are based on students' strengths and interests and the promotion of joyful learning. As such, these counterintuitive approaches to school improvement offer promising alternatives to "drill and kill" approaches that have left vulnerable at-risk students bored and alienated. Our goals are to minimize boredom and to improve achievement and creative productivity by the infusing of enrichment experiences into any and all aspects of the curriculum. Judicious use of technology and professional development can help make enjoyable enrichment learning a reality, developing in young people an enduring passion for learning. Infusion of this type has been shown to improve the culture and atmosphere of a school, to expand the repertoire of teachers, and change the mindsets of students.

***Keywords*:** Enrichment Triad Model; creativity; student achievement; alternative education; achievement gap.

> *Nobody believes in action anymore, so words have become a substitute for action, all the way to the top, a substitute for the truth nobody wants to hear because they can't change it, or they'll lose their jobs if they change it, or maybe they simply don't know how to change it.*
>
> **John Le Carré, *The Russia House***

While a major challenge facing today's schools is the achievement gap that exists between advantaged and low income students, the ways we have addressed this problem have also produced flatline academic growth among our most able students, rampant boredom among students at all levels, and public dissatisfaction with an education system that is immune to anything but the superficial trappings of change. The National Assessment of Educational Progress (NAEP) reports in *The Nation's Report Card* in 2005 that half of all immigrant, minority, and low-income children never graduate from high school, and in many of our cities more than 30 percent of low-income students score at the lowest percentiles on national reading and math tests. We have addressed this achievement problem inadequately; indeed, the "collateral damage" has seriously undermined effective teaching and learning, in even our best schools. Many of our teachers are being deskilled, and outside of essential math, science, and reading courses, there is an erosion of creative curricula that include art, music, and drama. Experiential learning and a holistic vision of education have been undermined. Data juggling, test result falsification, making state tests easier, and outright lying on the parts of desperate administrators who will do almost anything to avoid being branded leaders of "failing schools" are outcomes of this short-sighted and narrow specialization. Even when we do see reports of test improvements, they sometimes mask other types of collateral damage such as increased dropout rates, de-emphasis of the arts, sciences, and social studies, and diminished matriculation to post high school education.

The Three Trillion Dollar Misunderstanding

How did we get into this mess? Why has the estimated three *trillion* dollars spent on school reform since the 1960s not made more of an impact (Miami-Dade County Public Schools, 2008)? We

have tried just about everything – smaller schools, year-round schools, longer-school days, single-sex classes, after school mentoring, school uniforms, vouchers, charter schools, school-business partnerships, merit pay for teachers, paying students (and even parents) for higher scores, private management companies and for-profit schools, takeovers by mayors and state departments of education, distributive leadership, site-based management, data-based decision making, and just about every scheme imaginable into which someone can insert the words, "standards-based," "accountability," or "brain-based." Every buzz word in a profession that already thrives on too much jargon eventually creeps into the repertoire of policy-makers, shifting the focus off student needs and appropriate pedagogy for meeting these needs and on to inflexible bureaucratic solutions that ignore individual learning needs. All of these suggested solutions, usually launched with much fanfare, endless and usually mind-numbing workshops for teachers, and little if any research or track record for success have been offered as "silver bullets" that can "save" our schools and raise the test scores of our lowest-achieving students. The sad fact is these schemes simply have not worked.

What do all of these reform initiatives have in common? Most are built on structural changes, designed by well-intentioned policy-makers or agencies (usually far removed from the classroom), and calculated to have an impact on entire school districts, states, or even the entire nation. More importantly, however, is that these structural changes have drawn mainly upon (and even forced) a low level pedagogy that is highly prescriptive and didactic, approaches to learning that emphasize the accumulation, storage, and retrieval of information that will show up on the next round of standardized tests. We have become so obsessed with content standards and test scores that assess mainly memory, that we have lost sight of the most important outcomes of schooling: thinking; reasoning; creativity; and problem solving skills that allow young people to *use* the information driven by content standards in interesting and engaging ways.

Are there Reasonable and Practical Alternatives?

Over the past decade the mainstream diet for the majority of low income and struggling learners has been dominated by a remedial and compensatory pedagogy that has not diminished the achievement gap, but, as research has shown, has actually contributed to its perpetuation (Ford, Howard, Harris & Tyson, 2000; American Educational Research Association [AERA], 2004). Many of these programs are designed to find out what a child cannot do, does not like to do, and sees no reason for doing, and then teachers are told to spend the majority of classroom time making sure the child concentrates on these programs to the point of boredom. This pedagogy of prescription and practice simply has not worked!

Documentation of this failure is plainly evident in one national report after another (National Assessment of Educational Progress [NAEP], 2005; Center on Education Policy [CEP], 2008), and yet we continue our search for yet another quick-fix through structural rearrangements of schools, rather than alternative pedagogical modifications that deal directly with the enjoyment, engagement, and enthusiasm that results from a more inductive and investigative brand of learning. The solutions offered by whatever new names we give them (e.g., Competency-Based, Outcomes-Based, Standards-Based) are always reiterations of the same pedagogy – the same drill-and-practice model for learning that simply has not worked. The universal criterion for accountability always remains the same, again with new names given to the same old achievement tests that mainly measure memorized factual information. It is the singular reliance on these tests for accountability, at the exclusion of other important performance-based outcomes that forces the pedagogy of prescription, a pedagogy that drives good teachers from the profession, and that prevents those teachers who remain from teaching creatively. Is it any wonder that some of our very best teachers are fleeing urban schools where prescription has become the almost universally practiced pedagogy?

Learning Theory 101: The Short Course

All learning experiences exist on a continuum ranging from deductive, didactic, and prescriptive on one hand to inductive, investigative, and inquiry-oriented on the other. Students who

have not achieved are subjected to endless amounts of repetitious practice material guided by the didactic model. Then, when scores do not improve, we often think that the obvious solution is to simply redouble our efforts with what has been popularly called a "drill and kill" approach to learning; an approach that has turned many of our schools into joyless places that promote mind-numbing boredom, lack of genuine student and teacher engagement, absenteeism, increased dropout rates, and other byproducts of over-dependence on mechanized learning. Proponents of popular but highly prescriptive reading programs frequently boast about test score gains, but the endless "drill and practice" only prepare students for taking tests correlated to the worksheets *rather than actually learning to read*, let alone enjoying reading, and making reading an important part of their lives (Reis et al, 2004). Many students subjected to over-prescription never pick up a book on their own. This is a sad commentary on how we have messed up the teaching of reading by turning the teaching of reading into the teaching of taking tests.

With this kind of track record should we not be smart enough to blend the benefits of an inductive and investigative pedagogy into a system that has mainly failed our at-risk populations? Should we not also be smart enough to note the rising dissatisfaction of middle class parents whose children are also becoming subjected to the same drill-oriented, test-prep curriculum? One high school student recently described her Advanced Placement (AP) courses as "…nothing more than *high-speed* test prep". Two Ohio students from an affluent school district wrote in a letter to their governor, "Schools once renowned for their unique learning programs are becoming nothing more than soulless factories that churn out those that can excel at standardized tests while discarding those who can't." Is it any wonder that a parent from a high status community speculated that there was indeed a sinister conspiracy afoot to close the achievement gap, and the conspiracy consisted of dragging down the scores of high-achieving students.

Research on the role of student engagement is clear and unequivocal. High engagement results in higher achievement, improved self-concept and self-efficacy, and more favorable attitudes toward school and learning (Herrington, Oliver & Reeves, 2002; Ainley, 1993). There is a strong body of research that points out the crucial difference between time-spent and time-engaged in school activities. In the recently published Program for International Student Assessment (PISA) study (Organization for Economic Cooperation and Development [OECD], 2007), the single criterion that distinguished between nations with the highest and lowest levels of student achievement was the degree to which students were engaged in their studies. This finding took into account demographic factors such as ethnicity and the socioeconomic differences among the groups studied**.**

The Most Important Outcomes of Education

The pedagogy of prescription has perhaps unintentionally, but clearly in terms of demonstrated results, withheld from low-income children the exact kinds of thinking skills that are necessary for successful participation in today's higher education and our growing global economy. The word, "perhaps" is used because I do not think there is a clandestine conspiracy on the parts of policy makers and the textbook/testing cartel to keep low-income children poorly educated thereby limiting access to economic mobility. However, make no mistake, neglect, mismanagement, and a lack of courage to challenge unsuccessful practices is the equivalent of a *bona fide* conspiracy.

If failed approaches have continued to produce dismal results, perhaps it is time to examine a counter-intuitive approach based on a pedagogy that is the polar opposite of the pedagogy that Pavlov used to train his dogs. Accountability for the truly-educated mind in today's knowledge-driven economy should first and foremost attend to students' ability to:

- plan a task and consider alternatives;
- monitor one's understanding and the need for additional information;
- identify patterns, relationships, and discrepancies in information;
- generate *reasonable* arguments, explanations, hypotheses, and ideas using appropriate information sources, vocabulary, and concepts;

- draw comparisons and analogies to other problems;
- formulate meaningful questions;
- apply and transform factual information into usable knowledge;
- rapidly and efficiently access just-in-time information and selectively extract meaning from that information;
- extend one's thinking beyond the information given;
- detect bias, make comparisons, draw conclusions, and predict outcomes;
- apportion time, schedules, and resources;
- apply knowledge and problem solving strategies to real-world problems;
- work effectively with others;
- communicate effectively in different genres, languages, and formats;
- derive enjoyment from active engagement in the act of learning; and
- creatively solve problems and produce new ideas.

These are the student engagement-oriented skills that grow young minds, promote genuine enthusiasm for learning, and, as our research has shown, increase achievement (Renzulli & Reis, 1985). Although student engagement has been defined in many ways, I view it as the infectious enthusiasm that students display when working on something that is of personal interest and that is pursued in an inductive and investigative approach to learning. It takes into account student-learning styles and preferred modes of expression as well as interests and levels of knowledge in an area of study. It is through these highly engaging approaches that students are motivated to improve basic skills and bring their work to higher levels of perfection. True engagement results from learning activities that challenge young people to "stretch" above their current comfort level, activities that are based on resources and methods of inquiry that are qualitatively different from excessive practice. Our research has shown that teaching students to think critically, analytically, and creatively actually improves plain old-fashioned achievement (Renzulli & Reis, 1997; Renzulli, 2008). Our guiding principle in this kind of learning is simply: *No Child Left Bored!*

Moreover, the key role of engagement cannot be overemphasized for students whose achievement has been hampered by limited experiences, resources, or supports. In a longitudinal study comparing time-spent versus time-engaged on the achievement of at-risk students, conventional-instructional practices were found to be responsible for the students' increased risk of academic delay (Greenwood, 1991). Another study reported important differences in achievement outcomes favoring engaged over disengaged students of similar ability (Greenwood, 1991). Hours of drilling on ACT test questions in Chicago high schools may be hurting, not helping, students' scores on the college-admission exam, according to a study released recently by a university-based research organization (Samuels, 2008). The Consortium on Chicago School Research (2008), based at the University of Chicago, found in their 2005 report that teachers in the 409,000-student district would spend about one month of instructional time on ACT test practice in the core classes offered during junior year. However, the ACT test scores were lower in schools where 11th grade teachers reported spending 40 percent of their time on test preparation, compared with schools where teachers devoted less than 20 percent of their class time to the ACT. The boredom factor was cited as an explanation for this seemingly counterintuitive finding.

Although focusing on the engagement-oriented outcomes listed above may be counterintuitive to the "more-practice-is-better" pedagogy; we need only look at the track record of compensatory learning models to realize we have been banging our collective heads against the wall and following an endless parade of failed reforms being forced through the schoolhouse door by people far removed from classrooms, schools, and local level decision-makers.

How did we allow committees of bureaucrats to write endless lists of content standards without equal or even greater attention to standards for good thinking and the kinds of authentic assessment that shows how good thinking is demonstrated? How did we allow textbook companies to "stuff"

their books with more and more mind-numbing practice materials that prescribe and dictate what teachers must do every minute of the school day? How did we give the test publishers the gun that is held against the collective heads of every superintendent, principal, teacher, and student in the nation? Even state-education commissioners and their agencies, some of which are responsible for buying into various silver-bullet solutions, are now being "held accountable" for low scores in their states.

If we are going to break the stranglehold that the perpetrators of failed practices have had on our schools and the lives of children, we need some leaders at all levels (federal, state, and local) courageous enough to explore bolder and more innovative alternatives that will provide all students with a more highly enriched diet – the kind of diet that characterizes learning in the nation's very best public and private schools. This is not to say that we should abandon a strong curriculum that focuses on basic competencies, nor should we forget to demand accountability data to evaluate returns on investment for alternate approaches to addressing the problem. We need to move the focus away from memorizing content and toward the kinds of thinking skills listed above. We need to develop accountability procedures (not just tests) that show us how well students are learning to *apply* their thinking to authentic problem-solving situations. This kind of accountability may not put the bubble sheet companies out of business, but it will help force the issue of building a richer school pedagogy.

We also need to infuse into the curriculum a series of motivationally-rich experiences that promote student engagement, enjoyment, and a genuine enthusiasm for learning. Common sense and our own experiences tell us that we always do a better job when we are working on something in which we are personally engaged, something that we are really "into," and that we truly enjoy doing. For instance, the demonstrated benefits in performance that result from extra-curricular activities are based on a pedagogy that is the polar opposite of the pedagogy of "drill and practice" (Kaufman & Gabler, 2004). How many *un*engaged students have you seen on the school newspaper staff, the basketball team, the chess club, the debate team, or the concert choir? Their engagement occurs because these students have some choice in the area in which they will participate; they interact in a real-world goal oriented environment with other likeminded students interested in developing expertise in their chosen area; they use authentic problem solving, interpersonal, and creative strategies; they produce a product, service, or performance that is evidence of the level and quality of their work; and their work is brought to bear on one or more intended audiences other than, or at least in addition to, the teacher (Renzulli & Reis, 1985). The engagement that results from these kinds of experiences exemplifies the best way to approach joyful and engaging learning; one that differs completely from the prescriptive and remedial education that are the main approaches to learning in low-income classrooms.

Is There a Way to Make Real Change Rather than the Appearance of Change?

Recognition of the achievement gap problem and the effect that failed solutions have had on schools that serve *all* of our young people have resulted in some very predictable activity. The usual national commissions and new rounds of federal, state, and foundation reports calling for "bolder and broader approaches" have at least recognized the existence of the crisis facing our schools; but we must be cautious of looking for approaches that emphasize the same structural solutions without primary consideration to the pedagogy which is at the core of any substantive changes in learning. We must also be cautious about seeking solutions from the same people and practices that caused these problems in the first place! Requiring all students to take *x* number of courses, raising passionate calls for more teacher and administrator training, rigorous standards-based curriculum, extending the regular school day and year, providing tutoring, homework helpers and summer school will not bring about substantive change unless we change *how* the required courses, tutoring, or summer school are taught. Let us take as an example the tutoring issue and the $595 million spent on this service in 2006-07. Findings on tutoring from three cities presented before the American Educational Research Association (AERA) (2008) support previous research about the effectiveness of tutoring (Arnott, Hastings & Allbritton, 2008). In Milwaukee, however, researchers found no improvements in the scores of students receiving tutoring. "One reason," says Patricia Burch of the University of Wisconsin-Madison, "is that, in many sessions, tutors used uninspired practices, such as handing out

worksheets. Researchers in L. A. found similar results." This example points out the disconnect between a perfectly good (indeed, ancient, and honorable) educational practice [tutoring] and the pedagogical way in which it was carried out.

Two approaches that have been used to make changes that serve challenged as well as traditionally high-achieving students are a pedagogical approach called The Enrichment Triad Model and an approach that guided research on underachieving students called The Prism Metaphor. The Enrichment Triad Model (see Figure 1) set out to transform high-ability students from lesson learners or consumers of facts to producers of new knowledge (Renzulli, 1977; Renzulli & Reis, 1997).

The model laid out three categories of experience: *Type I enrichment* consisting of general exploratory activities to expose students to new, exciting material not covered in the basic curriculum; *Type II enrichment* involving group-training activities to develop creative and cognitive skills and research, communication, learning-how-to-learn, and affective skills and; and *Type III enrichment* featuring the application of these skills to self-selected investigative and creative projects. More specifically, at the Type III level, children become actual investigators of real-world problems and target their work for real-life audiences. They produce creative products through the collection of raw data, the use of advanced problem-solving techniques, and the application of research strategies or artistic innovations that are employed by front-line people in various fields, albeit at a more junior level than adult investigators.

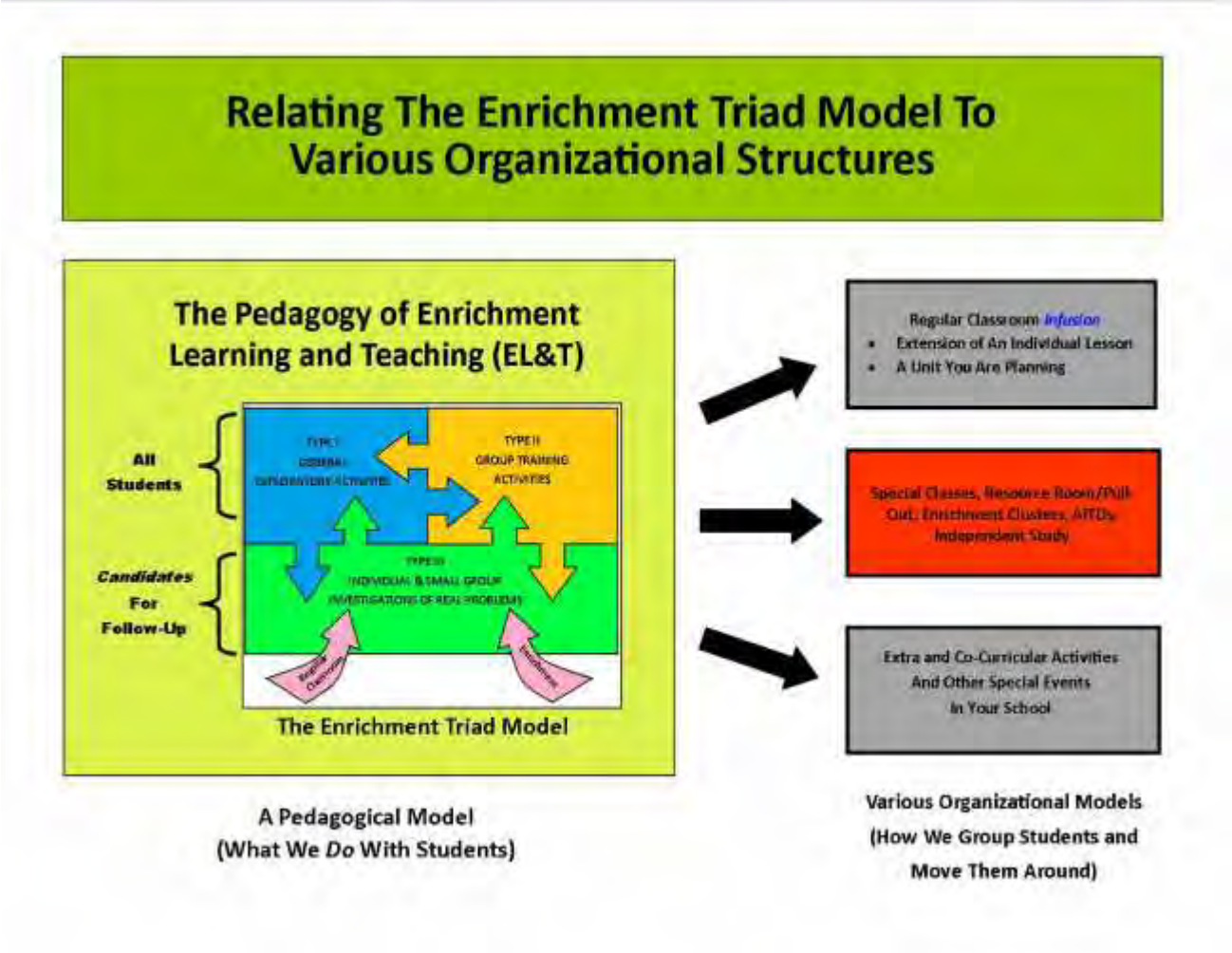

Figure 1: The Enrichment Triad Model.

Baum, Renzulli, and Hébert (1995) built upon this foundation to propose another highly original way to view and motivate reluctant children and youth. Specifically, their Prism Metaphor – presented schematically in Figure 2 – highlights the potential impact enrichment can have on underachievement. According to this visual metaphor, underachieving students are overwhelmed by learning and emotional problems, social/behavioral issues, and inappropriate curriculum. They are not moving forward, likely because interventions to date have used the wrong lens (i.e., traditional teacher-directed approaches) to focus the problem. However, once relevant Type III Enrichment activities, involving mentoring, real-world problem solving, and self-selected topics, are put in place, things change for the better. Indeed, just as a prism somehow converts nondescript white light into a magical array of colors, so can Type III enrichment inspire and lead underperforming gifted students toward positive outcomes and productivity. Although somewhat speculative, the optimistic undercurrent of this framework is uplifting.

Renzulli and his team went on to demonstrate the value of The Prism Metaphor in a tangible fashion by exploring the possibility of using Type III enrichment activities to reverse underachievement in talented children (Baum, Renzulli, & Hébert, 1995). In their study, twelve teachers, all trained in The Enrichment Triad approach, selected seventeen identified gifted students who were performing below potential in school.

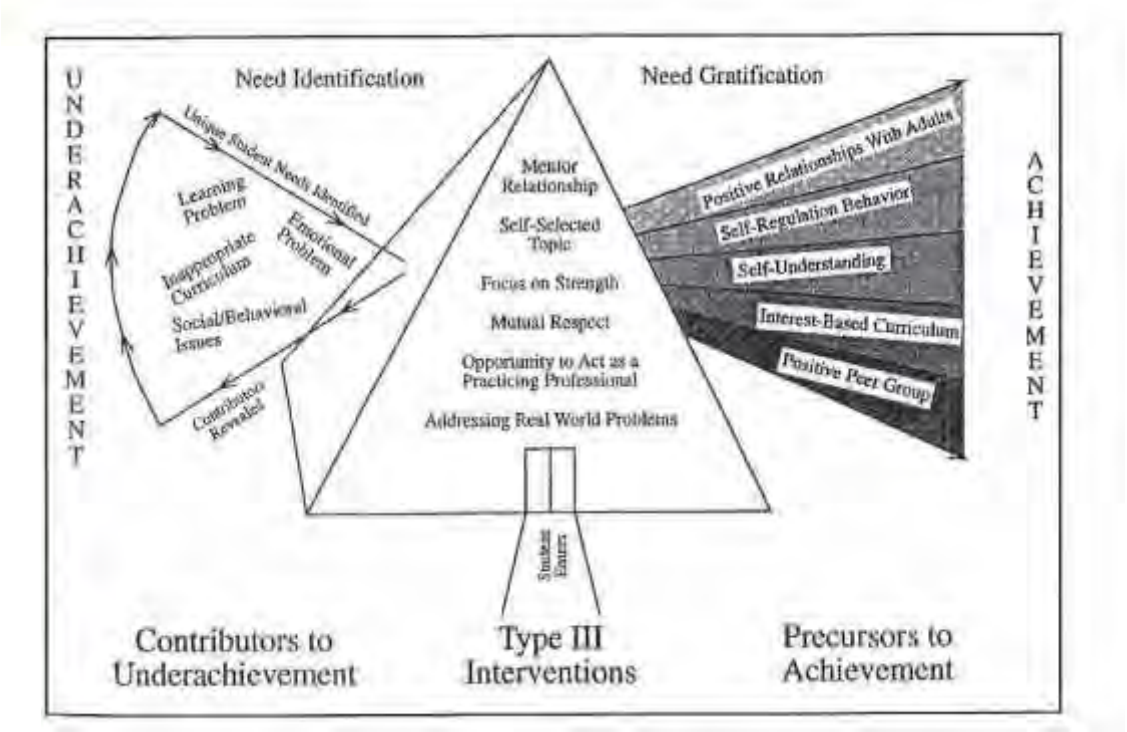

Figure 2: The Prism Metaphor for Reversing Underachievement (Baum, Renzulli, and Hébert, 1995). Used with permission of the National Research Center on the Gifted and Talented, The University of Connecticut.

The children, five girls and twelve boys, ranged in age from eight to thirteen. Each was guided through a Type III experience by the referring teacher, who took on the role of researcher. Rather than assume control of the learning process, the teachers became facilitators – helping students to focus problems, to secure necessary materials, to review and revise their work, and to overcome obstacles within the context of pursuing a topic that had great personal meaning. The teachers also assumed the roles of mentor and confidant to the students and, as such, discovered much about the personal lives, frustrations, interests, and dreams of their young students. In their extended role as

educators-researchers, the teachers also acted as participant observers, recording their observations systematically, reflecting upon their entries, and documenting effective strategies.

Three Things We Can Do To Create A 21st Century Pedagogy

Before describing three things we can do to change the pedagogy, a word is in order about the role of technology in the modern world. To a large degree, we have become what our technology has made us. We began communicating more effectively because of inventions such as the telegraph, the telephone, and the Internet; and travel became faster and more efficient with the inventions of the steam engine, the airplane, and jet engines. In his book, *The Power Makers: Steam, Electricity and the Men Who Invented Modern America* (2008), Klein documents the well-known economic principle that supply creates its own demand. Education changed dramatically when the technology evolved from books that families and the schoolmaster had at hand to textbooks from which all students could learn simultaneously. When schools gained the technology of copy machines, easily-reproducible workbooks and practice materials became a mainstay of the learning process. This technology has driven both what and how young people have learned for most of the past and present century. Students memorize factual material and engage in endless practice simply because such material is available. Supply creates its own demand!

Almost every area of modern life has made imaginative uses of technology, while in education we have settled for electronic applications of the same old technology that did not differ pedagogically from standard "drill and practice" forms of teaching (i.e., worksheets-on-line). These early generations of educational technology may have given teachers some extra "helpers," but because they were based on a knowledge-acquisition pedagogy the skills that students need for success in the 21st century are still only by-products of present-day models of teaching and learning.

How can we bring about the changes in the engagement-oriented pedagogy necessary to turn things around? Although I will not argue that technology without planned teacher involvement and technology-savvy teachers is the answer to our prayers, we now have the next generation of education technology that can give teachers the tools to do several important things to promote a high-engagement pedagogy. However, we must be careful not to use this technology to recreate electronic forms of the same old pedagogy we are trying to improve upon. This technology goes beyond the on-line, electronic encyclopedias, and courses-on-line worksheets that were the earliest applications of technology to classroom use. These applications did not differ pedagogically from the standard "drill and practice" forms of teaching.

Although it may sound clichéd, the advent of the Internet and easy access to most of the world's knowledge by young people is literally changing the time- honored learning theories that have guided curriculum and instruction for several centuries. Teachers and textbooks are no longer the gatekeepers of knowledge and the old curriculum paradigm that consisted mainly of to-be-presented knowledge is giving way to what I call just-in-time (JIT) knowledge. It is the kind of knowledge that students seek out when it is necessary to solve a problem, whether posed by the teacher or self-selected by a student (or small group) because of personal interest. Students will obviously need to learn the basic skills of the three Rs, but they will also need to learn the following technology skills of inquiry in order to make efficient use of JIT knowledge:

- the ability to identify trustworthy and useful information;
- the ability to selectively manage overabundant information;
- the ability to organize, classify, and evaluate information;
- the ability to conduct self-assessments of web-based information;
- the ability to use relevant information to advance the quality of one's work; and
- the ability to communicate information effectively in various genres and modes of expression.

This use of JIT knowledge, once the method of inquiry employed exclusively by scholars, researchers, and creative producers, is the paradigm that is now available to all young people and the paradigm that will create the motivation and engagement that has largely been lost when most of the

learning followed a "to-be-presented" curriculum and a brand of learning that minimized the sheer joy of finding-out things on one's own. So let us now look at three things we can do to apply this new generation of education technology to modern-day learning.

1. Assessment of Student Strengths. The first innovative use of this next-generation technology is that teachers can now get a comprehensive look at *all* the major characteristics of their students, characteristics that go beyond simply knowing a student's standardized achievement test standings compared to a norm-based reference group. Using a computer-generated student profile developed at the University of Connecticut, we are able to quickly and easily provide information about student interests, learning styles, and preferred modes of expression as well as how students perceive their strengths in the traditional academic subject areas (Reis & Renzulli, 2008). The simple assumption underlying the use of this technology-generated profile is that the more teachers know about *all* of these dimensions of the learner, the better able they will be to make decisions about what materials and activities have the highest potential for engaging that learner.

2. Matching Resources to Student Profiles. Although "differentiation" is an important contemporary goal of much of today's efforts to make learning more meaningful for young people, the sad fact is that most teachers simply do not have the time to seek out the resources that can accommodate the varied learning needs of a increasingly diverse school population. The second way technology can affect pedagogy is by giving teachers easy access to the wealth of enrichment and engagement-oriented material that is available through the Internet and through materials and activities that have been purposefully selected and placed into easily accessible databases. Now let us look at a little of the "magic" of combining these two uses of technology and why we consider this work to be a new generation of education technology. Through advanced programming techniques, a search engine can examine thousands of multiple classified (e.g., subject areas, reading level, state standards, interests, learning styles, and expression styles) high-engagement resources and match these resources to information about learner characteristics revealed in student profiles. This tool provides teachers with the kind of tool that allows for true differentiation based on individual student profiles, and the computer has done the heavy lifting. In view of the number and diversity of young people that teachers must deal with every day, it would be impossible to achieve this kind of personalized learning without the use of technology. What is even more important is that the easy availability of highly-engaging resources and the matching capability of the technology "forces" the kind of engagement-oriented pedagogy we are trying to infuse into the curriculum.

3. Teacher Training. The third thing we can do is re-examine the ways that we train teachers, especially already employed teachers who have not had access to the technology courses now routinely available in most undergraduate teacher-training programs. The research shows that most school-based professional development has had little or no effect on teachers' classroom behaviors. Most teachers can tell their own horror stories about sitting through endless hours of irrelevant workshops. Endless lists of glittering generalities, flashy slide shows, flavor-of-the-month "innovations," and strategies with absolutely no research support are delivered by entertaining, motivational speakers. I have no argument with a certain amount of professional development in general and content-specific-teaching strategies, and all teachers should be constantly improving their subject-matter competency, but the focus of professional development in a technology-driven pedagogy should be on the skills that allow teachers to help young people master the technology skills of inquiry listed above. The acquisition and application of these skills will turn our teachers into the proverbial "guides-on-the-side" rather than simply traditional disseminators of information which have characterized so much of our education system in pre-technology approaches to learning. This transformed role of teachers and approaches to instruction will bring about the sought- after differentiation and changes in engagement and motivation that have eluded us in reform efforts thus far.

Many national education leaders and politicians are describing the current challenges facing our schools as a crisis in the American education system. It will not be easy to turn around a school system whose leaders have made massive financial and policy investments in one particular brand of

learning, nor will it be easy to circumvent the powerful influence of the textbook and test-publishing industries that have thrived on a prescriptive curriculum and standardized test-driven approaches to accountability. But a gentle and evolutionary rather than revolutionary approach to school reform is possible if we begin to take advantage of the remarkable advances that have taken place in the information technologies, advances that have brought within reach the equivalent of a dozen teaching assistants in every classroom, all day, every day. These technologies now make it possible to quickly and easily assess students' interests, learning styles, and preferred modes of expressing themselves. What formerly took teachers weeks or even months to learn about student strengths can now be assessed in less than an hour through computer-generated profiles, and powerful search engines can examine thousands of high-end learning resources that *match* these resources to individual student profiles. True differentiation, much talked about but seldom achieved, can take place if we can let the technology do the hard work of finding and matching resources that are engagement- oriented rather than practice-oriented.

Dr. Leon Lederman, the Nobel Prize winning physicist (1988), recently said, "*Once upon a time, America sheltered an Einstein, went to the Moon, and gave the world the laser, electronic computer, nylon stockings, television, and the cure for polio. Today we are in the process, albeit unwittingly, of abandoning this leadership role."* Every school and classroom in this country has in it young people who are capable of continuing this remarkable tradition. However, the tradition will not survive without a national resolve and bold action on the parts of policy makers at all levels to change the pedagogy that drives instruction in classrooms that serve *all* of our young people. You do not produce future scientists and inventors such as Jonas Salk, George Washington Carver, Thomas Edison, Sally Ride, or Marie Curie by forcing them to learn in a one-size-fits-all "drill and practice" curriculum or by spending hundreds of hours preparing for state achievement tests. You do not develop the potential of thousands of Leonard Bernsteins, Aretha Franklins, or Miles Davis's without providing them with highly engaging opportunities in music that typically are only available in out-of-school opportunities and mainly to the children of the well-to-do. You do not develop world leaders such as Martin Luther King, Golda Meir, Eleanor Roosevelt, and Mahatma Gandhi by having them memorize endless lists of facts that today's technology-savvy young people can find *when they need them* using a few clicks on the web. You do not produce the next generation of talented writers such as Rachel Carson, Langston Hughes, and Tennessee Williams by having them spend endless hours completing mindless worksheets in preparation for the next round of state-mastery tests. It is only through expanding our pedagogy, engaging *all* students, and making imaginative uses of technology that America's schools will be able to truly engage our children and develop their creative potential, as well as their love of learning.

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About the Author

Dr. Joseph S. Renzulli is a Distinguished Professor of Educational Psychology at the University of Connecticut, where he also serves as the director of the National Research Center on the Gifted and Talented. His research has focused on strength-based assessment, the identification and development of creativity and giftedness in young people through personalized learning strategies, and on curricular and organizational models for differentiated learning environments. A focus of his work has been on applying the pedagogy of gifted education to the improvement of learning for all students. His most recent work is a computer-based assessment of student strengths integrated with an Internet based search engine that matches highly-challenging resources to individual student profiles. The American Psychological Association named Dr. Renzulli among the 25 most influential psychologists in the world and in 2009 Dr. Renzulli received the Harold W. McGraw, Jr. Award for Innovation in Education, considered by many to be "the Nobel Prize" for educators.