First Annual Colloquium on Evidence-based Education

Leverage Points for Improving Teacher Effectiveness

Post-Colloquium 2013 Commentaries by Participants

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Post-Colloquium 2013 Commentary
Marty Cavanaugh

It is indeed deplorable that we have not changed student achievement over time despite spending billions of dollars in teacher professional development models. Money, professional development workshops, class size reduction, human incentives, and sanctions to school districts have made virtually no difference in changing the flatness of that pancake. The group discussions following all presentations were beneficial, but the conversations about teacher coaching and cost/impact decision making were of particular interest because school district administrators can readily use this information to improve teaching skills.

It is clear that teacher coaching is a tricky business. The points that Jim Knight made, excerpted from his book Instructional Coaching: A Partnership Approach to Improving Instruction, are essential for any central office, school site administrator, and potential teacher coach to hear. In particular, the point made about status—that the coach-teacher relationship can be unequal when the coach is tasked with judging the teacher—hits home. Teachers tend to become defensive and resistant when they believe that coaches perceive themselves to be more competent than the teachers. Video review is the best way to allow teachers to see clearly the effects of their teaching behavior on students. Video used as a coaching tool for guiding a teacher as he or she openly critiques his or her own teaching behavior has the greatest likelihood of producing awareness and potential behavior change.

As a group we touched on but didn't discuss in depth the fact that habituating a new behavior in a teaching repertoire takes significant practice. No one should assume that a new behavioral skill will be perfectly executed in the beginning. Risk taking diminishes when teachers believe that the school culture punishes failure. This belief also denotes that teachers are unclear about expectations. It's not uncommon for teachers who have taught for many years to be stressed out for weeks prior to their teaching evaluations. Schools have not consistently communicated their expectations, leaving teachers anxious about what to anticipate.

My recommendation for next year is to invite several outstanding teachers to explain what they do, what has been most beneficial in their learning, and how they acquired the teaching behaviors that are making a difference in the achievement of their students. Several colloquium participants brought up the term "drifting." It would be interesting to see what information can be ascribed to a teacher's repertoire in the time between exiting the teacher training program and teaching for a year. Understanding how the school culture influenced which behaviors the new teacher utilized in the new situation and how they differed from those incorporated during training would be instructive. We might gain further insight into why beginning teachers often leave the teaching profession within 5 years.

In conclusion, my interest in attending the colloquium after my retirement was to glean information that I could use in my discussions and consultations with other school administrators I am in frequent contact with throughout California.

Post-Colloquium 2013 Commentary

Teacher Effectiveness, the Only Issue

Stephen Cederborg

I would argue that teacher effectiveness is the only issue that really matters in education. Curriculum, instructional strategies, assessment methods and data, behavior management systems, latest technologies, facilities, and all other resources are of little or no value without effective teachers.

My position on this issue is reflected in my response on the pre-summit survey: "I'm not comfortable with the use of the word 'skills' as a basis for defining an effective teacher. Teaching is both an art and a science. Skills can be taught, but effective teaching is rooted in the qualities/characteristics of the individual." I listed the following qualities: authenticity, a genuine desire to work with kids as individuals, flexibility, diversity of interests, a recognition that learning is a lifelong process, listening skills, observation skills, adeptness at record keeping and interpretation, good general health, and cultural sensitivity.

Most of these characteristics can be nurtured but not taught. The implication is clear. We should likely pay much greater attention to the criteria for selecting teacher candidates in the first place and then focus on developing them as high-level professionals.

Teacher as Researcher, the Only Skill Set That Matters

Successful professionals are those who have the skills, and are given the authority, to evaluate and seek solutions to their own problems. My undergraduate and graduate degrees were both taken in programs dedicated to research. Behaviorists who were largely doing research on animals dominated the department where I earned my undergraduate degree in psychology. With my graduate studies in educational psychology, the focus shifted to human subjects, but the emphasis on research remained. While completing my degree, I began my professional career as a school psychologist. Within 6 years, I was encouraged to make a move to special education administration. It was a move that appealed to me, but I did not have an administrative credential.

Fortunately, at that time, one option for obtaining this credential was a competency test. I had never taken a course in school administration, yet I passed the test somewhere above the 90th percentile. I then spent 30 years in administration without ever having taken a formal course in school administration, and I concluded those years with a deep sense of accomplishment. With no coursework, what prepared me? I sincerely believe it was a combination of personal qualities and my strong research background.

Another personal/professional experience that shaped my perspective came through classes I taught at Sonoma State University. For many years in California, special education teachers were required, within 5 years of completing a preliminary credential, to return to a Level II university program for additional coursework to obtain a clear credential. The program at SSU required the teachers to develop an "applied field study project" for each class they took, and they were given

an introduction to this process. However, in teaching the classes, I was struck by the fact that most of the teachers had no knowledge about how to carry out any kind of study in their classroom or school community. Furthermore, it was clear that previously they had not been introduced to the notion that this was something they could or should do.

Working in education at any level is a process of solving problems. Research methodology is simply a framework for problem solving and a very effective one. Without the ability to evaluate what's put before us, we are subject to all the fads and waves of influence that have historically governed decisions in education. If teachers are not given the skills and the license to evaluate the effectiveness of curriculum, methods, systems, and material resources, they will never fully achieve their potential to be effective. This is not about eliminating the bulk of what is included in current teacher training programs. It's about giving teachers the authority to say and show that some things just don't work in their setting.

Factors at Play in Helping Relationships

Giving teachers research skills and the authority to implement those skills addresses all five factors Jim Knight cites in his book Unmistakable Impact: A Partnership Approach to Dramatically Improving Instruction as being at play in helping relationships.

Change – There is recognition that change is inevitable. To quote Knight, "Teachers are living, breathing, complicated professionals, and they work with living, breathing, complicated young human beings." This statement shouts change, and it implies a need to continually evaluate our methods and resources.

Status – Giving the teacher the skills and authority to be a researcher fully addresses this factor. We are giving the teacher equal status in the process of evaluating what does and does not work in the classroom.

Identity – This expands the teacher's identity and level of competence. It could also bring about a profound identity shift. When we give the teacher the "necessary" resources, we are implying that the resources have been tested and should work. The implication is clear that, if they don't work, the teacher is responsible. The teacher as researcher looks at the whole picture, and implementation is just part of the equation.

Thinking – This is the most compelling reason to consider the teacher as researcher. Knight cites the work of Thomas Davenport (Thinking for a Living, 2005), who describes the attributes of "knowledge workers." They are people who think for a living. Given the work that teachers are called to do, Knight argues that they are a good example of knowledge workers. But do we treat them as such? Knight points out that today "many teachers are confronted with scripts and pacing guides that they are told to follow to the letter, along with other well-intentioned but problematic models for change. Not surprisingly, when the thinking is taken out of teaching, teachers resist."

Motivation – Again, I will quote Knight, as he puts it so concisely: " . . . if we assume we simply need to prescribe to teachers what they need to do and then hold them accountable to do it, we trample over much of what we scientists have learned about motivation. We do so, it must be

added, at our peril." Change will really happen when the teacher is, at least, a participant in the process of identifying the need and setting new goals.

Evidence-Based Education

In my 40-plus years in education, I think I've pretty much seen it all, and very little if any of that "all" has been based on good research. I've seen some great things done in pilot programs and non-public schools. However, for the most part, our massive public education system is governed by politicians, lobbyists, and snake-oil salespeople. The solutions to our failed schools come in the form of "accountability" and oversimplified fixes that teachers are told to implement. For example, just do more of what hasn't worked before, perhaps in smaller groups or for longer periods.

There is no question we need what the Wing Institute is committed to: some actual evidence-based education. But I suggest that we haven't done enough to include the classroom teacher in this process, to empower the teacher to be a researcher in his or her own classroom. There are programs pointing us in this direction, such as the Teacher Scholars Program at Mills College in Oakland. Following is the program's mission statement:

"We exist to put learning at the heart of teaching by building communities where teachers grow in their knowledge, skills, and dispositions to be high-level professionals. We do this by helping teachers address the complex circumstances of their students' learning through the systematic, on-going collaborative study of their students' work."

More specifically, Mills is conducting research on a system being implemented in Japan called "lesson study." This is a process in which teachers jointly plan, observe, analyze, and refine actual classroom lessons called "research lessons." According to the Mills website, lesson study is widely credited for the steady improvement of Japanese elementary mathematics and science instruction. Furthermore, lesson study is rapidly emerging in many locations across the United States.

As I began this commentary, I suggested that "teacher effectiveness" is the only issue that really matters in education. In concluding, I propose that we continue to explore this issue at next year's Colloquium. Perhaps we can ask this question: How can we engage the classroom teacher in the process of developing evidenced-based education?

Post-Colloquium 2013 Commentary

Start Small to Make Big Changes

Jill Dardig

To make big changes in education, I think we have to start small (and be stealthy). I think this way because many (most?) approaches advancing global system changes have not made enough inroads or produced the lasting impact in classrooms that we thought they would or should make.

So let's go micro in responding to the question: How can we (university faculty, grant personnel, graduate students in a practicum/seminar? who else?) influence most of the teachers in one school to adopt one evidence-based practice and continue to use it correctly well after external supports are withdrawn—for 5 years or more? Surely on the surface it sounds like a relatively simple task, but as we know even this will not be very easy to achieve.

What evidence-based practice am I talking about? It could be choral responding; response cards; the "my turn, our turn, your turn" error correction sequence; or the use of specific praise or guided notes, to name a few. Each of these is an effective technique when used appropriately and judiciously within a data-driven decision-making framework. All are low tech, low cost/no cost, and require a minimum amount of training to learn. Most are not taught (and are even maligned) in many traditional teacher-training programs.

How can we get most of the teachers in one school to correctly use one of these evidence-based practices?

Perhaps we could start with a teachers union as the entryway into the system. We could ask to present two or three fairly simple-to-implement evidence-based practices to some key union staff to see if they were interested in working with us to implement the practice of their choice in one school. Could they target a school with a receptive principal we could approach with an offer of short-term training and a few weeks of monitoring plus some long-term follow-up? Could they help us present the technique to the school using a clear explanation and rationale and avoiding technical jargon so that teachers were convinced of its merit and were willing to give it a try to maximize their students' learning?

What incentives and simple monitoring system could the principal use to get teachers started and continuing with this practice? Could the principal or other building administrator be given a brief scripted training/refresher module to present or make available to the teachers every year?

Could we follow up at regular intervals for 5 or more years to see if teachers were still using the technique? If they were, could another one or two evidence-based practices be introduced, say, one a year, and given the same treatment? Would these small changes eventually add up to significant ones? Would they change the culture of teaching in that one school?

I mentioned a stealthy approach earlier in this commentary. If we went crashing in talking about applied behavior analysis and about changing the whole system, the resistance would continue to

be strong and unpleasant, even though our intentions were good and the data on our side. Of course, we're not the only group talking about changing the educational system, and schools and teachers have been subjected to massive changes in recent years, sometimes with outcomes of questionable value, not to mention schools and teachers having been the targets of some really bad publicity.

So maybe we should go in softly and small, getting the unions and others invested in the changes from the start, and see where we can go with this approach.

Post-Colloquium 2013 Commentary

Schoolwide Interventions: Simplifying the Language
Michael Elium

Urban School Districts
Urban school districts face well-documented challenges in the populations they serve and the concomitant staffing issues of teacher turnover and leadership changes. Consistently low academic performance and high levels of disciplinary problems, with disproportionality in each realm, has placed many urban schools in the crosshairs of the Office for Civil Rights, state departments of education, and advocacy groups. As a result, a succession of superintendents and school boards has issued mandates to school sites that they must improve. The knee-jerk response has been a parade of "programs in a box," consultants, and takeover efforts. In most cases, student results have not changed measurably over a sustained period.

Organized Teachers
Veteran teachers are the one constant in the equation. In unionized states the teachers have considerable leverage in the district and at school sites. The lack of sustained leadership and guidance has galvanized teachers into an organized force that makes or breaks schoolwide interventions. The teachers fully realize that today's new principal will be replaced in 3 years and the superintendent will be replaced in 5 years or less. They have seen fads—all with different and catchy names, yet remarkably similar—come and go. They have come to expect efforts that are underfunded, poorly thought through, and implemented in a haphazard manner. Any reasonable professional understands the value of consistency, and the teachers have created their own environment of consistency by taking control.

Middle Management
Caught between the mandates and the teachers is middle management, which consists of principals and vice principals. Successful implementation of interventions on a schoolwide scale in urban districts places a considerable demand on middle management. In urban districts they are likely to be relatively new to leadership, have limited backgrounds in interventions of a non-academic nature (namely, behavioral issues), and are under pressure to "do something fast." Most came from a general education background and, along with the general education teachers on the site, have limited exposure to behavioral interventions and vocabulary. Most interventions have their genesis in special education and psychology, which general education teachers view as limited to special populations or not applicable to large groups of students. The result is a complete disconnect when general education teachers are expected to operate out of their comfort zone and perform something new and different. The problem is that schoolwide interventions depend heavily if not completely on general education teachers.

When disciplinary or disproportionality issues are points of contention, the desire for a safe environment trumps implementation of schoolwide positive behavior supports. The school culture quickly adopts a "get that student out of my classroom" and then "get that student off campus" approach. The teachers shift into survival mode. The resulting levels of suspensions and expulsions remain high, and middle management is relatively powerless to change the situation

without significant support. The challenges cannot be corrected simply by providing training, coaching, and technical assistance to the teachers. The support must extend to strategy and skill building for middle management.

Simplifying the Language

Most trainers/consultants leading schoolwide positive behavior support efforts tend to use standard behavioral language. This language is excellent for the right audience, such as special educators and school psychologists, but for general education teachers it is a signal to tune out. Their prior exposure to behavioral terms was typically in a theoretical format in college, and all they know is that "this stuff" does not work in the real world of classrooms. Behavioral leaders cannot achieve system change if the audience does not understand them and the language they are using. Teachers tend to overpersonalize. and when asked to do something they don't understand, they feel like failures—which engenders resistance and refusal to make any changes.

When Training…

In addition to "re-languaging" the vocabulary, trainers must anticipate defensiveness and be able to deal with doubters in a public forum. There must be a direct benefit to the general education teachers for adopting behavioral programming, and it must be explicitly clear. They must have a hand in creating the intervention on their campus if they are to support it. The training must be very task oriented with concrete accomplishments outlined—that is, they must walk away from the training with products and an action plan. There must a distant vision created that benefits them directly (not the district), and there must be an up-close focus on what to do immediately. Credibility and believability must be established right away. Some teachers will be blunt in saying that they do not believe that all kids can learn and that the trainer has never seen kids and a community like theirs. Are they wrong? The effective trainer addresses these issues proactively and is able to field and redirect the anxiety into methods that allow the teachers to be successful.

Supporting the District With Effective Strategy

Superintendents and principals need to understand that the choice of site-level leadership teams is critical. The wrong personnel will result in the loss of a full year of implementation. Full faculty meetings are often a place where organized and vocal teachers bring planned intervention efforts to a standstill. When the agenda is to discuss schoolwide implementation, third-party facilitation is required. The principal or vice principal cannot be expected to field complex questions alone and should not be put in the position of handling this aspect. They do not know the depth of the intervention and their understanding is likely to be superficial, regardless of recent training. Skilled facilitation also takes attention off the principal or vice principal and allows him or her to become part of the solution-generating team while the trainer or consultant absorbs the front-line pressure and asks the provocative and difficult questions.

Unions should be included in the discussion months ahead of training. Meeting with union leaders is critical to demystify misconceptions about the challenges, the content of the training, and the upcoming district expectations, and to stop rumors before they start. Unions are game changers in some states. When an advocacy group is involved, there may be fear and rampant rumors that working conditions are at risk or that wholesale teacher transfers are in the future. Meetings with parent groups are best managed by the skilled consultant, providing the district administration with a tool to empower middle management. External pressures are ideal for

leverage if employed strategically. It is important to consistently communicate the message that for anything to last, it must be have a strong infrastructure and be built within a realistic time frame. Significant changes of any magnitude cannot be achieved immediately, and to create that impression is a recipe for failure. Finally, an understanding of human nature and strategic thinking must be in the toolbox of a consultant. That is how skilled special educators walk the walk.

Post-Colloquium 2013 Commentary
David Forbush

For me, the "Colloquium" was so reinforcing! I enjoyed the structure, conversations, activities, and, most of all, the other participants. This was my fourth year and yet I left feeling that I was part of something instead of simply having attended a conference.

Considering the discouraging information about the chasm between what is known and what is done in education, I could be discouraged if not for fact that I see good things happening in select locations in my state, Utah. By and large, much is as dreary as discussed, but I am blessed to work in a district where reading is taught by direct instruction. Within my program, the proportion of students with disabilities demonstrating proficiency on high-stakes tests is an added 25% to 30% above the state average for students with disabilities. I am pleased with this and still striving with my staff to put before these students evidence-based curricula with evidence-supported instructional strategies.

I believe change can occur, but it requires contingency management, specifically in the form of coaching with explicit and timely feedback, and directly in the complex and messy setting of the classroom. With regard to coaching, I hope you don't mind me sharing some thoughts from my article in a teacher-read journal published in Utah that I use to share my perspective. I believe the following relates directly to our conversations at the Colloquium.

In his discourse "A Slip of the Tongue," C. S. Lewis suggested, "When a layman has to preach a sermon, I think he is most likely to be useful, or even interesting, if he starts exactly from where he is himself; not so much presuming to instruct as comparing notes." With the motivation of making my notes available for readers to compare with their own, I pose two questions and then figuratively lay my notes on the table. First, if I were to drive learning into a corner and reduce it to its lowest terms, or powerful component parts, what would I find? Second, what educational practices produce sufficient juice or student learning for the squeeze/effort? (I shared seven notes in my article, and I now share the seventh, relating to coaching, with you.)

Note 7: Teaching that produces student learning requires a complex but obtainable set of teaching behaviors. These behaviors can be acquired through professional development rising from eight understandings:

First, a person who possesses a complex set of teaching skills stands little chance of transferring these skills to another person, through either oral or written communication. Complex skills are best transferred when physically demonstrated, with oral descriptions supporting physical demonstrations. Additionally, thinking behaviors (or internal events) must be voiced so the person being taught has access to them. Complex teaching behaviors are replete with thinking behaviors that must be made transparent for acquisition by professional development participants and that display targeted complex teaching behaviors.

Second, complex skills are most painlessly learned when practiced in a controlled setting where many of the complexities of a real classroom are suspended, allowing learners to acquire the

complex skill. After a teacher can display accurate and fluent reproductions of the learned skills in a controlled setting, increased levels of authentic complexity can be added to simulate the challenges of displaying skills in authentic settings. Ultimately, to leverage student learning, complex teaching skills must be delivered accurately and fluently in the classroom.

Third, skills should be taught explicitly by professional development trainers and should include clear models ("I do"), guided practice ("we do"), and finally independent practice ("you do"). One definition of instructional scaffolding is prompts and supports provided to learners so they can display a skill that could not be displayed without the scaffolding. With this definition in mind, instructional scaffolding should be present to enable teachers to acquire and display complex teaching behaviors, and then be incrementally dismantled as the teachers demonstrate the capability of displaying targeted skills with less scaffolding. High levels of success should be sustained from the earliest stages of skill acquisition to the latest stages of skill application. The successes of professional development participants should be used as a guide for reducing scaffolding.

Fourth, even with carefully engineered professional development, reproducing a complex teaching behavior in the "real classroom," with "real learners" can be disheartening, as these experiences reveal the complexity of the setting and the difficulty of displaying the new behavior outside the presence of the trainer/coach. A strong instructional coach is key to shepherding a professional development participant through the initial demonstrations of a newly acquired teaching behavior, in the "real setting."

Fifth, experts generally do not rise to the highest skill level—whether in skiing, gymnastics, chess, or any other discipline—without a capable coach who, standing objective and somewhat to the outside of the "authentic setting," can tease apart component parts of the new complex teaching behavior and the participant's initial efforts to display the behavior. A bright, insightful, keen-eyed coach can offer clear direction in displaying a newly acquired behavior in a setting significantly more complex than the training setting. To do this, a coach must possess a strong sense of the skill to be displayed and the variables within the setting that facilitate display of the newly taught skill or act as obstacles to its display. Additionally, to tease teaching behaviors apart and then put them back together again, the coach must be free to simply observe. While the professional development participant is busy teaching, the coach is busy watching! Thinking! Taking notes! Thinking! Taking notes! Collaborating!

Sixth, complex teaching behaviors generally don't come about simply through verbal discourse between teacher and professional development trainer or coach. A teacher must display the teaching behavior in the target setting and receive immediate oral feedback during and after the demonstration. Teaching behaviors must be directly observed, and prompted. Words typically convey too little information about how a person is to actually perform in a specific situation and therefore are an inadequate vehicle to transfer targeted skills from coach to professional development participant.

Seventh, for professional development to be successful, planning must focus on a participant's acquisition of the targeted skill and on accurate reproduction of the skill, fluent reproduction of the skill, and relevant applications of the skill.

Eighth, for complex skills to arise in complex settings, site-based coaching must focus on teacher reproduction of the learned skill, and coaching sessions must occur in close succession to the initial introduction of the learned skill. For successive collaboration, the coach and the teacher must have a common language for the elements of effective instruction and the ability to use and interpret this language.

In regard to coaching, years ago I took a wood shop class and was assigned to lathe out a spindle (an ornate feature of most staircases). For me, coaching is like lathing a spindle. You must know what you want to see in the end. When turning a spindle, you mark out the final shape on the raw wood. When coaching, from the beginning you must have a clear picture of the teaching behaviors and practices you want to see. Next, you decide which tools to use to shape the final product. In lathing, you start out with heavy tools that remove significant portions of wood. In coaching, initially you remove practices and teaching behaviors that do not support student learning. Then you switch to finer tools to begin smoothing and producing the finer features. In lathing, you begin the smoothing process with coarse sandpaper that you apply to the contours of the spindle, being careful not to sand away the finer features. Increasingly fine sandpaper is used to polish the fine features of the spindle. In coaching, these same principles apply. Greater finesse is needed over time to model desired behaviors for the teacher and to prompt display of subtle teaching behaviors.

One principle absent in turning a spindle is the relationship between the teacher and coach. This relationship must focus on producing within the teacher a powerful set of skills that consistently impact and sustain student learning. Do not mistake the relationship as founded primarily on friendship. A coach hones the skills of an athlete based not on the friendliness of the relationship but rather on the clarity of the goal, the intensity of the practice, the expertise of the coach, and the desire of the athlete. The friendship between coach and teacher is best achieved by accomplishing the purposes that initiated the relationship (i.e., getting the teacher to be very good at displaying complex teaching behaviors that produce strong and consistent learning in students).

Post-Colloquium 2013 Commentary
Karen Hager

Based on my own experiences as a student in a couple of teacher preparation programs (undergraduate and master's levels), as a faculty member in a couple of programs, reading the literature about teacher preparation programs, and attending the Colloquia, I continue to be completely confounded by the poor quality of most programs. I spend a lot of time trying to figure out why our profession tolerates the current state. There are good programs in which pre-service teachers learn to develop high-quality lessons, progress-monitor student achievement, collect and analyze data, and make instructional decisions based on those data. Then there are other programs in which the quality of the overall program is so poor that the students cannot pass the state-required assessments for certification—and note that most states don't set the bar that high to begin with. Hypotheses such as the following are advanced to explain away poor outcomes: "Those tests are exhausting. They probably have low blood sugar from sitting there so long and that is why they do not pass." No kidding, I am not making that up. How can any profession, let alone one as critical to our society as teacher preparation, tolerate such a situation?

Unfortunately, just ranting will not get us far. I have done enough ranting to know that if it could move us forward, it would have by now. So, what do we do? The accrediting bodies continue to approve ineffective programs. The last time I went through an accreditation process, the accrediting body did not seem the least bit interested in data that demonstrated the effectiveness of our teacher candidates. It reviewed a boatload of data, just not data that addressed the effectiveness of the graduates. So, accrediting bodies are probably not going to help much. Trying to fix the problem after the fact does not seem to be working. My local schools have been in "needs improvement" status for several years now, and I have had a chance to see the professional development provided to the teachers. It consists mostly of Friday in-services, which, without any follow-up, we know are not likely to be effective. A couple of local schools that were to be shut down this year after years of poor outcomes were given another chance at the last minute, and they have plans to teach the staff how to write lesson plans—maybe that will take care of the problem.

I just keep trying to figure out what would actually prompt real change. It does not seem that the government, accrediting bodies, or institutions of higher education are motivated to address real change. What I keep coming back to is that we have to get to the parents. People banding together and demanding better have initiated so many changes in our society (e.g., civil rights, special education, environmental issues), so somehow we have to educate parents on what they should see in their child's classroom and school and get them to flood every school board meeting. We need them in every principal's and superintendent's office on a regular basis.

How about a national public service campaign on teacher coaching? If I had to pick one strategy to target, that would be a good one. We have models of schools that work well; there were examples of such schools at the Colloquium. These schools have a positive climate and good educational outcomes, so we know a few things about creating effective schools. And yet, as a society, we have not been sufficiently motivated to replicate these models across the larger

system. I am not exactly sure how we do this, but getting parents together in an organized manner is the only hope I currently have for real change in our schools. Perhaps change would then follow in our teacher preparation programs—a person can dream, right?

Post-Colloquium 2013 Commentary

Reflections on Behavioral Instruction and the Field of Education

Kent Johnson

As I examine the list of effective teaching elements that we collectively generated at the Colloquium, I see a preponderance of explicit procedures for teaching well-defined, convergent outcomes to any student—not surprising, given the behavior analytic orientation of most Colloquium participants. Indeed, behaviorally based educational engineers employ a wealth of powerful procedures for teaching basic repertoires under controlled conditions. We focus on the teaching procedure employed, and the learner's response as it meets or fails to meet pre-specified criteria. Our unstated assumption is that education should focus on methods that serve a generalized imitation-training function: "I know something, I want you to know it as well as me, so I'll teach it to you until you've got it."

Tom Gilbert (the late psychologist known as the founder of Human Performance Technology)said that behavior analysts emphasize training, not education. But what about education that is not specifically about training? For the last 2 years at the Colloquium we've heard voices that question our assumptions and ask this question. We behavior analysts seem to ignore and sometimes actively eschew holistic practices, divergent thinking, and unspecified learning outcomes.

We Colloquium attendees have lots of friends in evidence-based educational research—their focus on investigating micro-procedures and measuring specific learning outcomes confirms our assumptions. I remember when the federal government's reading research panel published its results in 2000, many (most?) educators were appalled at how more constructivist practices were ignored. A big controversy erupted in education newspapers, magazines, and blogs. Since then, molecular-level research questions, procedures, and measures continue to dominate what little quality educational research exists.

Yet, as behavior analysts we should ask a few fundamental questions: Is explicit teaching always the best approach? Are we content to focus on basic repertoires? Are behavioral engineers arranging suitable contingencies to teach repertoires that will survive in real-world contexts? Are we arranging suitable contingencies to produce desired outcomes under novel circumstances? Can we make a contribution to the development of novel, complex repertoires that occur in real-world settings?

I believe we have confirmation that our explicit procedures for teaching basic repertoires are sound. I also believe we can go beyond our solid base and contribute to the development of complex repertoires. Siegfried Engelmann, co-developer of direct instruction, a cousin of behavior analysis, has been at the forefront of promoting procedures that teach two kinds of complex behavior: concepts and principles.1 Behavior analysts appear to approvingly let direct

[1] Examples of conceptual behavior include responding "chair" or "proper fraction" in the presence of all chairs or proper fractions, even those not presented during instruction. Principles

instruction do its thing. I believe we should embrace such procedures in our own behavior analytic research and practices, from our unique behavior analytic perspective.

In fact, our programmed instruction heritage led the way in the 1960s. Lately, our instructional research has included multiple exemplar training, which is only half the story about teaching conceptual and principle-applying behavior. In programmed instruction we behavior analysts focus on not only multiple example instruction but also multiple non-example-based teaching. We've lost our programmed instruction heritage, and I think we should reclaim it. As behavior analysts, we have a unique perspective not fully captured by the Direct Instruction advocates.

I believe we are also in a position to contribute to teaching other levels of complex behavior. Behavior analysts in several small camps2 have begun to focus on how to present complex stimuli and events that recruit novel recombinations of a learner's current relevant repertoire as novel contingencies require. For example, Jesús Rosales-Ruiz, associate professor in the department of behavior analysis at the University of North Texas, demonstrated that a dog that has been taught to raise its paw with one command and walk with another command will limp forward in the presence of a new command that combines the previous two.

At Morningside Academy, the laboratory K–9 school I founded in Seattle, students begin to make predictions without being explicitly instructed how to do so after their teachers arrange contingencies to recruit two current relevant repertoires: how to draw a conclusion and how to describe behavior in the future. Students also combine whole number word problem and fraction computation procedures to solve novel fraction word problems without instruction. We can engineer discovery learning, efficiently and effectively, as we do in our Internet program, Headsprout Early Reading.

So far, I've discussed explicit teaching as generalized imitation training and alternatives to explicit instruction while still focusing on meeting pre-specified objectives and criteria. It is an easy step to see how these procedures could be used to promote successful divergent thinking (no answer key required or relevant) and teaching with outcomes that have not been previously specified—a gold standard in the broader world of educational practice and highly relevant to effective citizenry. To expand behavior analysis in these areas of education can greatly benefit from reading outside the behavior analytic literature.

For example, Arthur Whimbey, a cognitive psychologist and constructivist, developed a reasoning routine called Think Aloud Pair Problem Solving, which contains many components easily incorporated in a behavior analysis of problem solving. At Morningside, Joanne Robbins and I have behavioralized his routine and other reasoning and questioning routines from

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combine two or more concepts, such as *round things roll* and *how to make an inference about a character in a story.* Teaching principles, like concepts, requires presenting new examples and nonexamples after instruction, in addition to those presented during instruction..

[2] Those following at least seven paths: Skinner and Epstein's generativity demonstrations, Goldiamond's non-linear research model, Johnson and Layng's generative instruction model, Vicci Tucci's competent learner model, Sidman's stimulus equivalence model, Hayes' RFT model, and matrix and other recombinative elements programmers.

cognitive psychology into our Talk Aloud Problem Solving (TAPS) approach. We teach a generic verbal routine for proceeding through a verbal, quantitative, or interpersonal problem. We prompt students to engage in TAPS in the presence of new puzzles, number games, and other brainteasers, and then we fade out. Their generic TAPS repertoire provides supplementary stimulation that primes and prompts successful thinking, reasoning, and problem solving. Engaging in TAPS allows them to learn many instructional objectives and other verbal and social repertoires without explicit instruction.

Not only can behavior analysts play ball in teaching complex behavior, but we can also extend our prowess in explicit teaching (e.g., discrete trial training, Direct Instruction) and explicit practice (i.e., Precision Teaching) to the arrangement of contingencies that promote real-world application of a learner's new repertoire. Years ago, Roy Moxley (1982) wrote Writing and Reading in Early Childhood: A Functional Approach, which behavioralized John Dewey's progressive education approach. The 2013 book I co-wrote with Elizabeth Street, Response to Intervention and Precision Teaching, contains a chapter about behavioral approaches to progressive, holistic practices such as project-based learning.

Perhaps we enjoy our comfort level at our peril. Behavior analysis will become dominant in educational practices when it shows how to effectively deal with complex behavior and real-world application.

Post-Colloquium 2013 Commentary
Teri Lewis

"Critical value implications frequently emerge when the test is placed in the particular social context of an applied setting." (Messick, 1988).1 It may be that when we as behavior analysts lament our "unpopularity" in schools and classrooms we could use validity as a means of understanding the underuse of evidence-based practices. It seems clear that having valid, or empirically supported treatment (EST), is insufficient for adoption and sustained use. Messick provides an unified view of validity that includes test use and interpretation and evidential and consequential basis.

	Test Interpretation	Test Use
Evidential Basis	Construct Validity	Construct Validity + Relevance Utility
Consequential Basis	Value Implications	Social Consequences

While Messick's intent was to broaden the view of validity when developing and using assessments, the distinction between evidential and consequential basis is useful in increasing practitioner use of EST. Given the reliance on evidence to establish both the efficacy and effectiveness of interventions, it is likely that our practices meet the evidential basis for test interpretation and test use. While behavior analysts value data and data-based decision making and often find all that goes along with data as positive reinforcement, this is not the case for consumers of behavior analysis.

Several times during the Colloquium, comments were made about adoption and acceptance of evidence-based practice having occurred when schools were trying to respond to sanctions and criticisms. For Messick, social consequences motivate change, most often because of a desire to avoid further punishers. At this point, adoption of EST is maintained by negative reinforcement. But what happens when aversive antecedents are removed? Often, sustained use of EST declines even when demonstrated and acknowledged as effective in producing desired outcomes.

If we broaden Messick's test interpretation and test use to interpretation and use, then considering both value implications and social consequences provides a means of understanding lack of acceptance of behavior analysis. As the quote at the beginning of this commentary highlights, values emerge when we place EST in an applied setting, or more accurately, attempt to place it in an applied setting. We are often met with resistance based on misinformation about behavior analysis, in particular, that deterministic approaches are unethical and not any more

[1] Messick, S. (1988). The once and future issues of validity: Assessing the meaning and consequences of measurement. In H. Wainer & I. H. Braun. (Eds.). *Test validity* (pp. 33–45). Hillsdale, NJ: Lawrence Erlbaum.

effective than other approaches. Again, it seems that the values of the setting cancel out the validity of the EST. The more time I spend in schools coaching and developing assessments, the more I am convinced that face validity and predictive validity are the necessary and sufficient aspects for implementation. First, do the practices meet the standard of EST, that is, when implemented with fidelity result in significant changes in target behaviors? Second, do the consumers (teachers, administrators, parents) believe that adopting behavior analytic practices will be beneficial?

It is disappointing that a field focused on the analysis and change of behavior continues to struggle with marketability. Whether it is applying a competing pathway analysis to identify competing schedules of reinforcement or expanding our focus on validity to include softer aspects, something needs to change.

Post-Colloquium 2013 Commentary
Larry Maheady

I came to the Colloquim feeling rather bad about the state of teacher education. Shortly thereafter I felt even worse. The data provided by Wing Institute were indeed troubling and depressing for a discipline that holds itself in such high regard. However, as Sam Redding, director of the Center on Innovation & Improvement, noted, the "behaviorist mindset" of most Colloquium participants is refreshing and much more optimistic than the other or is it (under-) world of my existence. I, too, have spent most of my professional life immersed in the constructivist world of general education where problems are described, explained, and fiercely debated but rarely addressed or solved. How bad is it?

Well, in preparing a chapter on the use of evidence-based practice in teacher education, my colleagues and I did a cursory review of five prestigious teacher education journals *(American Educational Research Journal, Educational Evaluation and Policy Analysis, Educational Researcher, Journal of Teacher Education,* and *Teaching and Teacher Education)* from 2010 to 2012 to see if "evidence-based practice" or "scientifically based practice" was included in article titles. Only 2 of 813 article titles included either term—a rather low rate for a topic that many of us consider so important. Moreover, both articles spoke disparagingly about the evidence-based movement.

Yet, too many students continue to fail to achieve academic success in our schools, and many others behave in ways that impede their social acceptance in school and society. We also learned at the Colloquium that high-cost structural reforms, most teacher preparation programs, and traditional professional development activities have not improved pupil outcomes primarily because they have not impacted teacher practice. Therein lies the challenge! How to affect and sustain change in teaching practice across diverse settings, teachers, school leaders, pupils, and communities? Colloquium participants agreed for the most part on a common set of practices that if implemented well could improve student learning and behavior. Moreover, we shared a belief that teaching practice can be changed through some forms of instructional coaching and performance feedback, although unanswered questions remain. This is a reasonable starting point to continue our dialogue and work.

The function of the Colloquium for me has been to re-energize myself professionally, refocus my efforts for the upcoming year, and re-envision what I can do to make a difference. It is in this spirit that I find at least four reasons for optimism about expanding the role of evidence-based practice (both process and interventions) in education. First, federal legislation mandates the use of practices with empirical support, particularly for students with special needs. While the mandate alone does not guarantee increased usage, it raises the visibility of evidence-based practice in education and sets the occasion for such occurrences. Second, policy-driven accountability systems that link teacher evaluation to pupil learning, such as Annual Professional Performance Reviews (APPR), should increase demand for practices that reliably improve student outcomes. The consequences of these newly created contingencies are very real to teachers and they are responding accordingly. When in P–12 schools, for example, we get

numerous requests for two things: (a) practices to improve students' academic and behavioral performance and (b) guidelines for using data to make better instructional decisions.

A third catalyst for change may be the clinically rich teacher preparation movement, which calls for (a) more direct and extensive instructional experiences for teachers in preparation and (b) the improvement of P–12 student learning as the focal point of these teaching opportunities. The movement provides a golden opportunity for practitioners, teacher educators, and educational researchers to work collaboratively to improve teaching practice and pupil learning. Clinical experiences also provide authentic vehicles for studying the effects of empirically supported interventions on important pupil outcomes while simultaneously meeting P–12 student needs.

Finally, the emergence of a practice-based evidence (PBE) approach to research and practice should expand the role of evidence-based practice in education. Practice-based evidence is an alternative perspective for identifying effective practices that has gained popularity in medicine, psychiatry, clinical psychology, and social work. PBE has been described as a bottom-up approach to problem identification and solution that brings rigorous research methods to common practice settings to improve service delivery to students and help teachers meet their instructional challenges. PBE mines research evidence from practitioners' daily experiences; this evidence, in turn, should be valuable to teachers because they want to know if practices work with their own students and if they can be carried out under classroom and school realities.

So what's on the professional improvement agenda for the coming year? To begin, I am taking a new position just as I enter my last functional decade on the planet. The position allows more time to design and conduct applied research and to collaborate in new and existing partner schools with new and familiar colleagues. The goal is to develop a two-pronged approach for working with partner schools. The first prong focuses on developing a coherent and comprehensive professional development program for teachers and school leaders in at least one partner school. An instructional coaching model will be used in conjunction with a menu of instructional practices with varying levels of empirical support (e.g., Class Wide Peer Tutoring, response cards, guided notes, group contingencies with randomized components, and cooperative learning strategies) to address practitioner-identified needs. Coaching and selected teaching practices will be defined and measured directly and data will be used to support teacher performance in the existing evaluation system.

The second prong is a practice-based evidence research agenda. The immediate purposes of this agenda are to (a) improve student learning, (b) strengthen the external validity of selected practices, and (c) accelerate the delivery of evidence-based practices to common practice settings. Practices that are deemed effective can be disseminated systematically within the building while those without empirical support can be examined for impact. Practice-based evidence methods can also be used to identify *naturally occurring* effective teaching arrangements.

To summarize, the Colloquium was exciting, enlightening, and troubling. So much to do, so few to do it, and so little time before education and the public moves on to the next fad or crisis! Yet, I remain optimistic! Fred Keller, a father of behavioral education, told this story to one of Bill Heward's graduate classes at Ohio State: B. F. Skinner was asked how behavioral educators could best promote and advocate for better teaching practice in our schools. Skinner paused

momentarily and said, “Well, I guess we just keep nibbling.” By that he meant that we should continue working in our small ways to promote the good things that we see.

Whenever we see good teachers and schools using solid instructional practices, we should thank them for what they are doing. When we see educators working effectively with parents, teachers unions, and the community to improve student learning, we should recognize and support them. When we see teachers, school leaders, and teacher educators using research evidence to improve instructional decision making, we should advertise their success. There is great value in our collective efforts to affect meaningful change so that some children, families, and teachers have better days.

Post-Colloquium 2013 Commentary
Sam Redding

I find the behaviorist mindset of most of the Colloquium participants refreshing, especially because the world of education seems to be populated by people who operate from no consistent theoretical (or philosophical) foundation or with assumptions that reflect a mindset they have absorbed rather than intentionally and rationally chosen. On the other hand, I loved the give-and-take at the table when Jim Knight was there articulating a more eclectic approach to instruction and challenging the pure behaviorists. All of this led me to examine my own philosophy and assumptions. At the time (long, long ago) that I worked on my master's degree in psychology, behaviorism reigned, and as I moved into my doctoral study in special education it remained the solid, underlying approach. So the concepts have come back to me now, and I find myself in concert with most of them. But . . . since graduate school, I have been immersed in the real world, where my behaviorist instincts have been diluted.

My mentors over the many years have included Ben Bloom (then in his final years at the University of Chicago), James Coleman (a great friend before his early death), Herb Walberg (with whom I have collaborated for 25 years), and Margaret Wang (whose expertise on classroom management and instruction I eagerly and imperfectly attempted to acquire). Meeting Albert Bandura when we were authoring chapters for the same book opened me to social learning theory, and my years of acquaintance with Roger Weissberg impressed upon me the significance of social and emotional learning. Now I have the fine folks associated with the Wing Institute to challenge my thinking in new ways.

I would hold to the principles of intentional/explicit (Jim Knight's term) or direct instruction for the introduction and mastery of skills and content that lend themselves to clear objectives and criteria for mastery. But I would bend the opportunity to respond/feedback protocol where understanding, accommodation, and articulation of more complex concepts are required. Even here, I think the instructional design can benefit from intentionality and explicitness, but the mode of instruction moves away from the more direct delivery. I think the personal relationship and interaction between teacher and student, and among students, deserve more attention and affect learning more profoundly than narrow instructional methodology typically allows. Behavioral approaches to student motivation to learn, social and emotional learning, and logical (rational) scrutiny of varying perspectives have a place, but I would expand the definition of the behaviorist approach to include social learning theory and (dare I say it?) consideration of cognitive processes.

In my work in school improvement, I have promoted an instructional model that requires teacher-constructed curriculum, instruction, and formative assessments aligned to standards but drawing from multiple sources of content. I think this is best done by teams of teachers, not only because the resulting instructional plans are more efficiently achieved by a team, but also because of the immense value to the teachers in thinking through the process together and sharing their own insights. As for classroom delivery of instruction, I am impressed by research demonstrating the fundamental efficacy of classroom management that rests solidly on

meticulous planning, consistent procedures, and teacher orchestration of activity in the classroom.

The direct, explicit approach is powerful in introducing new material, and is leavened by the teacher's energetic questioning, cueing, and prompting, and the students' opportunity for individual and collective response. This can be done with the whole class, followed by teacher-directed, homogeneous groups of students at the same level of mastery. Then come the necessary steps for sustainable mastery, deeper understanding, cognitive accommodation, and articulation. Two approaches work here: (a) student-directed, heterogeneous groups (including cooperative learning) with clear instructions and supervision by the teacher; and (b) differentiated (individualized) learning activities through independent work, computer-based work, and homework. As always, frequent formative assessment enables the teacher to reconfigure student groups and alter individual assignments. Technology now makes this process more practical.

I find that student motivation to learn deserves intentional consideration and should inform the teacher's plans. Lively, focused, and appropriately interactive delivery of instruction is certainly an asset in motivating students, but not sufficient. The student's self-efficacy perception is a key, and a teacher can employ intentional metacognitive instruction and guidance to bolster the student's range of learning strategies and enhance his or her perception of ability and control in approaching difficult learning tasks. Also, the teacher's ability to connect learning tasks to each student's personal aspirations increases the student's desire to engage and persist with the work. Student goal setting and tracking of progress are additional means for motivating student engagement.

Jim Knight cited Bloom and the power of stories to engage students, convey complex concepts, and prompt student analysis and evaluation. Teacher-told stories, including those of a personal nature, also strengthen the teacher-student bond, and student-told stories enable the teacher to better understand the student's aspirations and frame of reference. I am sure that storytelling techniques can include basic articulation of the teacher's purpose, the expected outcomes, and even some measure of results. Storytelling and aspirational expression lend themselves to a small group format as well as whole class.

Finally, I cling to the belief that the home environment is an alterable variable with potentially great impact on student learning. I cling to this belief despite much frustration in seeing it realized. Here, I resort to a behavioral analysis: We know from "curriculum of the home" research which kinds of parent-child interactions in the home are most conducive to student learning in school. Schools can focus their parent involvement activities on these home-based behaviors and construct programs with the goal of elevating the presence of these behaviors in each family. Most schools do not approach parent involvement in this manner. Again, new research (see William Jeynes) points to the importance of school learning, of parental grooming of children's aspirations, and of connecting those aspirations to day-to-day schoolwork. Also, parent-child goal setting and tracking of student progress is a means for reinforcing the parent-child behaviors that support school learning.

Post-Colloquium 2013 Commentary

Wicked Problems Need Wicked Solutions

Trina D. Spencer

In search of inspiration for my commentary on the Wing Colloquium, I reviewed my notes. I remembered taking many notes but didn't realize that they were all in the form of catchy quotes. After pondering this for a while, I came to the conclusion that there is a great and wise reason for using short, powerful, and sometimes alliterative quotes. They stick with you and continue to resonate long after you have forgotten the bulk of the lesson. They become the nutshell when the nut has been lost. The purpose of nursery rhymes was to teach a moral in a manner that would be remembered and passed on for generations. Likewise, catchy quotes serve the same purpose.

I have organized these catchy quotes into "wicked solutions" because I do not believe that "wicked problems" like developing effective professional development for teachers deserve solutions that create the least discomfort for people. Teacher training is not just a problem in our country, but a truly wicked one. If we have any hope that improvements in teacher training will impact student outcomes, the solution must be equally wicked. Wicked…not just innovative, impactful, and acceptable, but also shocking, outrageous, and urgent. I'll start with two of my own catchy quotes to point out that I believe risk is okay and probably necessary. The most learning occurs on the edge of controversy. Be willing to be wrong.

Teachers are only as effective as they know how to be. "Duh." Blaming teachers and the profession is wasteful and just plain ignorant. Wicked solutions will emerge from systems of professional development. As I understand the changing landscape of universities, there will be opportunities to overhaul the way teachers are trained. I'd love to see us approach this opportunity differently than we have done traditionally, which has been to find a small place where improvement is needed and work on that. Instead, we should start from scratch, not from a broken system. How would we design teacher training if we had no existing system to start from?

Practices should be identified by function, not form. The proof of the process is in the product. Firm on standard, flexible on how to get there. These catchy quotes lead us to the conclusion that there are many effective methods to achieve the desired outcomes, regardless of the philosophy of their origin. Our ego-infused society encourages contention regarding form (e.g., behaviorist vs. constructivist, phonics vs. whole language), but it also distracts from the remarkable agreement that can be found in the goals (e.g., graduation rates). Talking about what a strategy or procedure does (function) is more efficient and productive than talking about what it looks like (form).

Thinking for others engenders resentment. Data rich and decision poor. Relationships matter. Talk about a wicked problem. How the heck does one teach "thinking," "decision making," and "building relationships"? What impossible constructs! They are just scary enough to keep most people from trying to understand them. People who are seasoned, brilliant, and brave like Jim Knight, Mark Shriver, Dave Forbush, and Tim Slocum will be our wicked solvers of these

problems. Although I have great confidence in these solvers, we need about a hundred times that number of people working on this problem. The solution must include replacing bulletin board construction and similar activities in teacher preparation programs with strategic thinking, data decision making, and working with others. Again, if we could start from scratch to build a professional development system, where would we place these skills and how would we go about teaching them?

A culture of community establishes collateral reinforcers. Money will never solve our problems. Of course, higher pay may impact the number of people entering the field, but it won't retain them. The most powerful reinforcers are in the community. Suzy Fitch presented a community model for schooling that capitalizes on this. Collateral reinforcers for teachers could be extended learning opportunities, specific objective feedback, friendships, recognition, appreciation, and visible and explicit impact on student learning. Evidence that collateral reinforcers exist includes teacher retention, program expansion, and a long list of applicants trying to get in. If collateral reinforcers are available, people can tolerate being underpaid. Teachers who enjoy their jobs most often talk about the culture and climate in their schools. The power of this community should not be underestimated.

Compliance is not enough, you need commitment. You should be famous or fired in 5 years. I heard several Colloquium participants say they hire the most motivated and committed people, even if those individuals have the poorest teaching skills. Some people will turn any job, task, or activity into something meaningful and important, and those people should be teachers. Five years is plenty of time to determine whether teachers will be committed or not. Our children should not have to tolerate anything less than fully committed and fully famous teachers. Teachers who are not can be counseled toward a cubical job where compliance is valued. Committed people are out there. They want to be a part of something great, they want to be remembered, and they want to save the world. A few days after the Colloquium my 10-year-old son sang a solo part in his choir program. He sang the song "If you're out there" by John Legend. It's a million times better when children sing it. Imagine a group of fifth graders singing it. Their plea is powerful.

If You're Out There
John Legend

If you hear this message
Wherever you stand
I'm calling every woman
Calling ever man

We're the generation
We can't afford to wait
The future started yesterday
And we're already late

We've been looking for a song to sing
Searched for a melody
Searched for someone to lead
We've been looking for the world to change
If you feel the same, well go on and say
If you're out there
Sing along with me if you're out there
I'm dying to believe that you're out there
Stand up and say it loud if you're out there
Tomorrow's starting now...now...now

No more broken promises
No more call to war
Unless it's Love and Peace that
We're really fighting for

We can destroy Hunger
We can conquer Hate
Put down the arms and raise your voice
We're joining hands today

I was looking for a song to sing
Searched for a leader
But the leader was me
We were looking for the world to change
We can be heroes
Just go on and say
If you're out there
Sing along with me if you're out there
I'm dying to believe that you're out there
Stand up and say it loud if you're out there
Tomorrow's starting now...now...now

Whoa now...now...now

If you ready we can save the world
Believe again, start to mend
We don't have to wait for destiny
We should be the change that we want to see
If you're out there

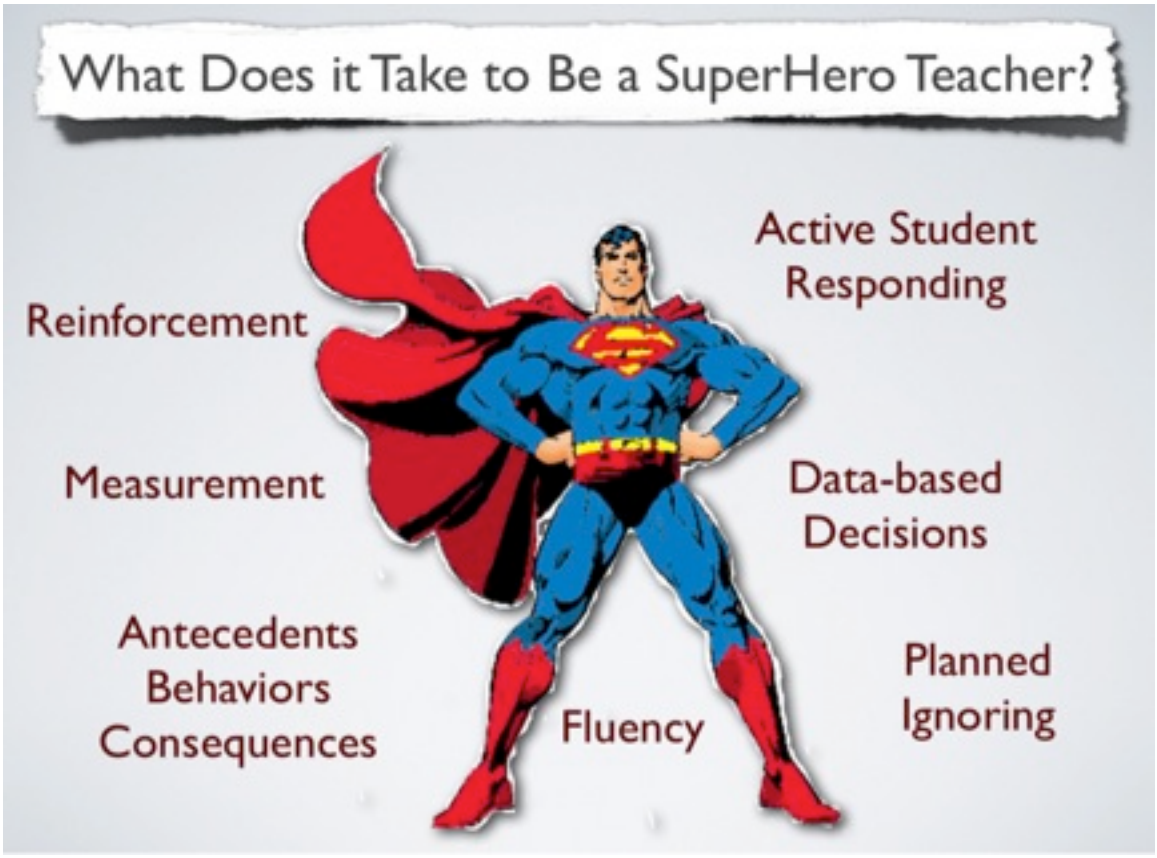
If you're out there
And you're ready now
Sing it loud, scream it out
If you're out there
Sing along with me if you're out there

I'm dying to believe that you're out there
Stand up and say it loud if you're out there
Tomorrow's starting now
If you're out there
If you're out there
If you're out there

If you hear this message
Wherever you stand
I'm calling every woman
Calling ever man

We're the generation
We can't afford to wait
The future started yesterday
And we're already late

7 Habits of Superhero Teachers
Janet S. Twyman



Superheroes… those larger-than-life beings with special powers who beat tremendous odds to make great things happen, saving the world along the way. We love our superheroes and their extraordinary ability to help individuals, all of us, live a better life in a better world.

We seem to need more superheroes. In fact, all around us are many superheroes, in the form of teachers and those who work with kids and schools, making the world a better place. We can call them Superhero Teachers. For some, what's keeping them from being superhero teachers are a handful of special powers and distinct skills and techniques that can overcome the odds and save the day. I believe there are seven superhero powers that any educator can learn and use to reduce mediocrity and school failure. Imagine a world where every child comes to school eager and able to learn, and where teachers are eager and able to teach. That's the kind of world that superhero teachers with special powers can create.

So what are the seven superhero powers?

Superpower #1: High Rates of Real Reinforcement
The single most effective thing a Superhero Teacher can do to increase learning and motivation is to reinforce it. Reinforcement is the most important principle of behavior and a key component of behavior change. It is the process by which behavior is strengthened when followed closely in time by a stimulus or event, such as increased assignment completion when a teacher shows attentiveness and praises completed assignments (in this example, attention and approval are reinforcers).

Praise, smiles, a pat on the back, public acknowledgment, points and tokens, and free time or access to preferred activities are common but not the only forms of reinforcement in most classrooms. Reinforcers differ for different people; Superhero Teachers are always on the lookout for what is currently reinforcing to their students. The most important thing for Superhero Teachers to remember is to reinforce early and often ("catching them being good") by paying attention to the behavior they want to see more often.

What is the evidence base? Numerous studies have shown positive reinforcement to be extremely effective for both academic and social behaviors (Cameron & Pierce, 1994), for students with and without disabilities, and for those at risk for school failure (Barrish, Saunders, & Wolf, 1969). Conroy, Sutherland, Snyder, Al-Hendawi, and Vo (2009) found that teacher use of reinforcement can improve the classroom environment and increase positive interactions with students, especially when made into a game, like the Good Behavior Game (Barrish et al., 1969). Following a review of early studies of social attention as a reinforcer, Risley (2005, p. 280) stated that "social reinforcement…has become the core of most American advice and training for parents and teachers—making this arguably the most influential discovery of modern psychology."

Why are high rates of real reinforcement a superpower? Because it's the quickest, easiest way to get more of what we want and what is needed in teaching and in learning—from more correct answers and critical thinking to more pro-social behavior and citizenship. If you want more of something, reinforce it. It's that simple.

Where can I get more "how to" information?

- Positive reinforcement, http://www.specialconnections.ku.edu/?q=behavior_plans/classroom_and_group_support/teacher_tools/positive_reinforcement
- *Learning Disabilities and Challenging Behaviors: A Guide to Intervention and Classroom Management* (Mather & Goldstein, 2001)

Superpower #2: Effective Planned Ignoring
In real classrooms, not everything always goes as planned. Unexpected events arise, sometimes students do things that teachers, peers, or society wishes they wouldn't. And often, so very often, these things result in attention that keeps the behaviors going, right then or in the future. Effective planned ignoring is the superpower that helps Superhero Teachers combat those instances. Planned ignoring requires knowing which behaviors are done for attention and rearranging the environment (the teacher's own reaction, the reactions of others) so that attention is not forthcoming. Ever.

Attention is very powerful and ever changing, and may be as intense as a standing ovation or as subtle as a glance or change in expression. Even reactions that are often considered negative, such as saying "stop that" is a form of attention, and planned ignoring is being able to control and withhold all the reactions that support the unwanted behavior (while, of course, delivering lots of attention and approval for the desired behaviors).

What is the evidence base? Just like reinforcement, planned ignoring—in combination with positive reinforcement for appropriate behavior—has been shown to be effective with a variety of social and academic behaviors (Alberto & Troutman, 2006). Planned ignoring works best with behaviors that are attention maintained (Vollmer & Northup, 1996), and thus even peers can be taught to participate in this effective reduction of inappropriate behavior (Kerr & Nelson, 2002).

Why is effective planned ignoring a superpower? Because the world revolves around attention, whether anyone likes it or not. And devoting the precious power of attention to desired behaviors and actions, as seen in reinforcement (Superpower #1), gives Superhero Teachers the wonderful ability to create more good, whereas effectively withholding attention diminishes the power of things that disrupt learning. What Superhero Teacher wouldn't want that?

Where can I get more "how to" information?

- Planned ignoring as an intervention strategy for parents and family members, http://cecp.air.org/familybriefs/docs/PlannedIgnoring.pdf
- *How to Use Planned Ignoring (Extinction)* (Hall & Hall, 1998)

Superpower #3: Excellent Antecedent Control

Superheroes garner attention. Superhero Teachers know they need their students' attention before they can teach. They know they have to be clear in both words and deeds so that students know what's expected and what's to be done. Antecedents are the things (statements, environmental conditions, or any stimuli) that occur prior to the behaviors in which the teachers are interested. Antecedents also often set the context for behavior.

Superhero Teachers set both environmental conditions and immediate signals for learning by being extremely clear about which behaviors are expected, what might occasion or control behaviors, and which behaviors will be reinforced. Superhero Teachers set positive classroom rules (expectations that they reinforce frequently), ensure they have student attention before presenting instruction, and often use signals to help control instructional pacing and provide students with "think time" before answering.

What is the evidence base? Excellent antecedent control and clear instructions and signals provide consistency, predictability, and structure—all indispensable for student success (Bursuck & Damer, 2011). Antecedent strategies have been shown to prevent classwide and individual problem behaviors, as well as enhance effective instruction by providing clarity and improving the learning environment (Kern & Clemmens, 2007).

Why is excellent antecedent control a superpower? Excellent antecedent control reduces chaos. It lets students know what is expected of them, in the classroom environment and in the moment.

It ensures Superhero Teachers are communicating clearly, greatly increasing both student understanding and student success. The ABCs of learning—clear *a*ntecedents, student *b*ehavior (active responding), and relevant *c*onsequences (reinforcement or corrective feedback)—are the powerhouse in any Superhero Teacher arsenal.

Where can I get more "how to" information?

- Antecedent strategies to promote appropriate classroom behavior (Kern & Clemens, 2007)
- See the section on "Signals" in *The Components of Direct Instruction* (Watkins & Slocum, 2004, pp. 91–93)

Superpower #4: Frequent Active Student Responding

One of the best ways to learn, if not the best way, is by doing. Thus Superhero Teachers make certain their students have numerous opportunities to interact with and respond to instruction. Superhero Teachers do this by preparing instruction that asks frequent questions or supports active, talk-aloud critical thinking and problem solving (Whimby & Lockhead, 1991), ensuring *all* students have numerous opportunities to speak, write, talk, share, or participate in any other active, observable way.

Active student responses (ASR) are observable, measurable behaviors by students, that often—but not always—follow an instructional antecedent (Superpower #3) or other opportunity to respond. Increasing active student responding has a dramatic beneficial effect on student achievement and social behavior. There are numerous validated strategies to increase ASR, including these three most well-known strategies:

1. *Choral responding*. This occurs when students respond orally in unison to a teacher prompt (best following a clear teacher-delivered signal to respond—Superpower #3). Activities are led by an individual (teacher or peer leader) at a quick pace with brief (one to three words) single correct answer responses. Choral responding allows teachers to both survey student understanding and provide feedback on the majority response (with intermittent checks on individual or smaller groups of students).
2. *Response cards*. Students use response cards simultaneously to indicate their individual responses to a question. Students may use index cards, signs, or even personal mini-whiteboards to write short answers to teacher questions. Pre-printed cards are used across a variety of questions (card examples: True/False; A, B, C, D; Numbers 1–9; etc). Response cards allow Superhero Teachers to provide high rates of practice to all students simultaneously and still see all responses. Modern technologies include electronic response card systems (often called "clickers") that allow for more constructed responses as well as automated data collection, display, and analysis.
3. *Guided notes.* These instructor-prepared materials (most often handouts, but now available in digital format) guide students through a lecture or activity by providing standard cues and specific spaces in which to write key facts, concepts, and relationships, thus improving student note taking and recall of course content.

What is the evidence base? Active engagement has been shown to be the strongest variable in the link between instruction and academic achievement (Barbetta, Heron, & Heward, 1993), with research clearly showing that students learn best when they are actively engaged with relevant instructional material (Rosenshine & Berliner, 1978). The positive effects of ASR include increased time on task (Sutherland, Alder, & Gunter, 2003), attention to relevant information (Gettinger & Walter, 2012), and overall satisfaction (Haydon et al., 2010).

Why is frequent active student responding a superpower? Because we learn by doing. It feels good to participate, to be active, and to get safe practice until success. When praise or corrective feedback is paired with opportunities to respond, Superhero Teachers and their students become unstoppable.

Where can I get more "how to" information?

- Active student response strategies, http://www.cde.state.co.us/facilityschools/fs_educationmeetings_2010-2011
- Three "low-tech" strategies for increasing the frequency of active student response during group instruction (Heward, 1994)

Superpower #5: Meaningful Measurement

No superhero goes into action without a plan. Just as a superhero needs facts and knowledge to formulate that plan, Superhero Teachers need meaningful measures of their students' current state and progress to guide and appraise their work. Measurement provides quantitative, objective labels that help in comprehending learning and teaching. With close, continual contact with relevant outcome data (Bushell & Baer, 1994), Superhero Teachers know, in the moment, where their students are, where they need to go, and whether or not they are getting there. Superhero Teachers use varied methods to obtain evidence of learning (continual indicators of progress), and this information prompts their, or their students', action.

Evidence collection is a systematic process and needs to be planned so that teachers have a constant stream of information tied to indicators of progress. Measurement provides the tools to make informed decisions about instruction (Superpower #6). In the same way that a superhero stops a train before it rolls over the cliff, a Superhero Teacher stops or changes ineffective instruction before it's too late—and does it with the aid of frequent, valid measurement.

What is the evidence base? Measurement helps explicitly describe the interaction between teachers and their students, and can be a predictor of effective teaching (Greer & McDonough, 1999). There is a clear relationship between more frequent, valid assessment using smaller sections of content and an increase in student achievement (Bushell & Baer, 1994). Measurement and the systematic collection of information about student learning allows teachers and all educators to make betters decisions that result in improved student learning (Walvoord, 2010).

Why is meaningful measurement a superpower? Measurement and data collection tell Superhero Teachers where their students are, where they need to go, and whether or not they are getting there. Used meaningfully and often, these are foundational tools that provide markers and, most important, guide Superhero Teachers and their students on the journey they are taking.

Where can I get more "how to" information?

- Determining measurement, http://www.winginstitute.org/Evidence-Based-Education/Determining-Measurement/
- Measuring student learning, http://www.cte.cornell.edu/teaching-ideas/assessing-student-learning/measuring-student-learning.html
- "Approaches to recording direct observational data" in *Behavior and Sequential Analyses: Principles and Practice* (Sharpe & Koperwas, 2003)

Superpower #6: Informed (Data-Based) Decisions

Data-based decision making (DBDM) is fundamental to instruction. Student performance is frequently measured and graphed, and timely instructional decisions (e.g., whether to continue as is or make changes in instruction) are made based on the resulting picture of student learning (Heward, 2003). If the picture indicates that the student is learning, the Superhero Teacher knows to continue as is. If the picture indicates insufficient or no progress, the Superhero Teacher knows to make an immediate change in the learning scenario. The change may be instructional (e.g., establishing more foundational skills) or motivational (e.g., increasing personalized learning), or a combination of both.

The picture painted by the visual display of data can help inform the type of change that might need to be made, and will later show the effects of the change (to indicate continuation or further change). The term "data-based," or "data-driven," in educational decision making is used to describe the collection and analysis of input, process, outcome, achievement, and satisfaction data, to guide a range of decisions to inform accountability and, most important, to help improve the success of students, teachers, and schools (Marsh, Pane, & Hamilton, 2006).

What is the evidence base? Repeated measures graphed on standard displays allow for sophisticated data analysis and decision-making protocols (see Greer, 2002; Horner et al., 2004), and help educators analyze their curricula, resources, and professional development to produce more efficient and effective programs (Kekahio & Baker, 2013). Teachers who learn methods to examine student data (and adjust instruction accordingly) produce higher gains in learning (Wayman & Stringfield, 2006), an effect that holds up in a meta-analysis of 250 studies (Black & William, 1998).

Why is making informed (data-based) decisions a superpower? Shorr (2003) is among those who have used the following maxim to stress the importance of data: "If you're not using data to make decisions, you're flying blind." The ability to see exactly where their students are in their learning and motivation, and what effect their teaching is having, allows Superhero Teachers to rapidly adapt, make decisions, and course-correct whenever needed—not only at the end of a week, unit, semester, or worse, school year—but at any moment in time.

Where can I get more "how to" information?

- Five steps for structuring data-informed conversations and action in education, http://ies.ed.gov/ncee/edlabs/regions/pacific/pdf/REL_2013001.pdf
- Three ways student data can inform your teaching, http://www.edutopia.org/blog/using-student-data-inform-teaching-rebecca-alber

Superpower 7: Fluency in All of the Above

Superheroes don't fumble around. They're not slow to know what to do or to respond. Their superhero powers are at the ready whenever needed, and they know which power to use and when to use it. Superhero Teachers are the same. They are fluent, automatic, and smooth in all their superpowers. They can praise quickly, and seemingly almost automatically ignore inappropriate behavior. They can provide high rates of active student responding across various subject matter and topics as long as needed, and prevent clear antecedents even while distracted. They can measure behavior and analyze data even while doing other things. They can even use their superpowers again after long periods of non-use, although what Superhero Teacher wouldn't always use his or her superpowers?

Being at the ready is a benefit of being fluent. Being fluent at something means it's easy, effortless, and almost automatic. We think of people as experts when they do things automatically. Superhero Teachers are fluent in all their powers. And Superhero Teachers do one more thing: They make sure their students are fluent in all the things they need to do as well. They ensure fluency in basic math operations before moving on to more complex ones; they build fluency in short blocks on writing or public speaking before moving on to essays and speeches; they ensure fluency in asking good questions and logical thinking before advancing to debating and scientific problem-solving.

What is the evidence base? There is strong evidence that fluent performance produces additional learning outcomes, including longer retention and application of skills, greater stability under disruptive conditions, and ease of application of that skill in more complex and even initially unrelated skills (Johnson & Layng, 1992). In addition, accuracy at appropriate speed has been found to be a significant indicator of expertise and thus helps educators differentiate between learners who have or have not mastered a particular skill (Binder, 1990, 1996).

Why is fluency a superpower? Closely related to active student responding (Superpower #4), fluency almost always requires lots of practice and time spent in the skill. With fluency, teachers not only get better at what they do, they get faster, with more resistance to distraction and greater endurance. Once teachers are fluent at something, nothing can stop them. Fluency is a superpower because it helps Superhero Teachers become invincible in the things important to them.

Where can I get more "how to" information?

- *Building fluent motor skill foundations for children with autism through precision teaching: The big 6+6,* http://o4rl.com/WorkSamples/AnalyzingInstrContentSite/Course%20website%20resources/Readings/Big%206+6%20Instruction%20Manual.pdf
- Teaching sight vocabulary and improving reading fluency, http://www.education.ie/en/Education-Staff/Information/NEPS-Literacy-Resource/NEPS-Resource-Precision-Teaching-Approach.pdf

Each of these seven superpowers is achievable by each and every teacher in each and every classroom, in every school and learning environment in the world. *Let every teacher be a Superhero Teacher.*

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