

An Examination of Research to Practice Gaps in Education
Whole Language, Learning Modalities, and Brain Gym

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Abstract

The purpose of this thesis is to examine the documented research to practice gap in education by discussing three recent trends in education that gained momentum with little to no empirical support: (a) whole language reading instruction; (b) modality-based instruction; and (c) Brain Gym. This thesis examines the trend in education toward embracing unsubstantiated strategies by spotlighting these three educational trends and offers recommendations for addressing the research to practice gap in the field of education.

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Introduction

There is a well-documented and persistent research to practice gap in the field of education (Vanderline & van Braak, 2011). The research to practice gap is defined as, “The long standing gap between research and practice in general and special education” (Abbott, Walton, Tabia, & Greenwood, 1999, p. 339). Although educators throughout the United States and across the globe are consistently searching for the best methods to educate students, there is a trend that has persisted over decades for schools to implement strategies that may be intuitively appealing but have been found to have little to no effect on student achievement (Abbott et al.; McLeskey & Billingley, 2008; Vanderline & van Braak). Diane Ravitch (1998) contrasted the field of education to medicine, observing that in education empirical research and evidence is not consistently required, and at times even ignored. When strategies that have not been empirically validated are implemented, students are not being provided the best education possible for them (Mostert & Crocket, 2000). The issue to be addressed is not that there are harmful practices in schools, but rather a promotion of neutral or only marginal methods and low value placed on empirical research findings (Oden et al., 2005). Consequently, there are many research to practice gaps in the field of education.

In the last few decades, several trends that have infiltrated education despite little research demonstrating their efficacy. “Efficacy” is defined as, “the power to produce a desired result or effect” (Merriam Dictionary). A strategy for reading known as whole language was developed on the premise that students learn to read naturally, much like

how they learn to speak (Goodman, 1967). Proponents of this theory began to challenge the phonics method (Goodman, 1986), resulting in the “reading wars” that spanned nearly four decades prior to the publishing of the National Reading Panel (NRP) (2000) report (Kim, 2008). The reading wars pitted phonics versus whole language as the method of choice to be used in schools (NRP, 2000). Currently, the majority of whole language methods have been rejected (NRP). In a similar manner, the idea of learning modalities has been a fashionable trend in the classroom in recent years (Landrum & McDuffie, 2010). The claim is that teaching to modalities enhances learning. Even now, teachers across the country are emphasizing modality-based instruction despite little empirical evidence that modality-based instruction increases achievement (Landrum & McDuffie). A third trend that is gaining momentum is overextending brain-based research. One example is Brain Gym International (BGI) (2011), an educational program claiming that certain movements will enhance the student academically, socially, and emotionally (Brain Gym International). Despite the claims, little empirical evidence has been found to support this international trend (Spaulding, Mostert, & Beam, 2010).

The following is an analysis of the research to practice gap in education through an examination of these three trends: (a) whole language reading instruction; (b) modality-based instruction; and (c) Brain Gym. Examination of these trends is followed by recommendations for averting further trends from being adopted without the research support needed to justify the time and financial investment.

Whole Language

Reading proficiency is a vital skill for students in today’s world; because of this, there have been numerous discussions over the best method for teaching students.

Throughout history, most cultures have developed some form of reading and writing. Throughout the years, the debate continues as to how to best teach students to read. In the last few decades, the debate has generally been between the instructional approaches of phonics and whole language (Kim, 2008). Phonetic instruction is a reading strategy that teaches students to blend phonemes to create words. Phonics is a validated method to effectively teach students to read (NRP, 2000). Whole language is an immersive strategy that teaches students to read similarly to how they learn to speak. Kim defined whole language learning as finding, “context clues and background knowledge to predict, confirm, and guess at the identification of new words” (p. 373).

The Rise and Fall of Whole Language

The theory of whole language instruction emerged in the mid-1900s when linguist Noam Chomsky published his book *Language and Mind* (1968), in which he presented his theory that language is naturally within every human’s mind and that language is slowly developed over time, not learned through systematic methods. Soon thereafter, Goodman (1967) continued to develop and popularize the theory emphasizing that reading was a “psycholinguistic guessing game” (p. 127). Whole language was widely embraced across the United States in the 1980s and 1990s. Its influence spread quickly across the United States after the state of California adopted the philosophy and published its English/Language Arts Framework in 1986 (Kim, 2008).

However, the theory of whole language began to lose its popular appeal when teachers became frustrated with a non-descript method of instruction (Krashen, 2000). The concept sounded appealing in theory but teachers were given few practical ways to implement the theory into the classroom using validated instructional methods (Krashen).

Interestingly, even while support for whole language was growing, the trend was found to be less effective in comparison to phonics when the National Committee on Reading developed a program called *Becoming a Nation of Readers* (1985) which maintained that after significant research, phonics was necessary for the students ability to learn how to read (Anderson, 1985). This research was further supported when the National Reading Panel (NRP) published a comprehensive meta-analysis in 2000 concluding that phonics was the most effective way to teach reading to elementary students (National Reading Panel, 2000).

The NRP was commissioned in 1997 at the request of Congress to find the best way to educate students to read (Ehri, Nunes, Stahl, & Willows, 2001). The NRP conducted a meta-analysis that considered a variety of students and factors. These included the grade level of the student, the socio-economic standing of the student, the phonetic program being used, and numerous others (Ehri et al.). The results of the meta-analysis synthesizing 38 studies on reading strategies with 66 treatment-control comparisons was that phonetic instruction was superior to all other forms of teaching reading, including whole language (Ehri et al.). One of the main questions that Congress presented was if phonics should be recommended for the classroom. The NRP (2000) concluded based on their comprehensive research that for all practical purposes in the classroom, phonetic instruction should be the method to most effectively teach students (Ehri et al.).

The same year the NRP (2000) released their findings, President George W. Bush and Congress reauthorized the Elementary and Secondary Schools Act in the form of No Child Left Behind (NCLB, 2001). This re-authorization placed a new emphasis on

reading and writing and evidence-based practices. An additional factor in NCLB implementation that played an influential role was that districts, administrators, and teachers began to be evaluated on the quality of their instruction based on student standardized test scores. Most of the schools found that in order to be effective, the reading methods needed to be switched from a whole language approach to an approach that integrated phonics. The NRP found that there is now three decades of research that demonstrates phonetic instruction is superior for reading instruction in kindergarten through third grade (Kim, 2008). Vadasky and Sandars (2010) conducted a recent study that focused on teaching reading to both English first language and English –learning kindergarteners. Their research revealed that after two years of phonetic instruction, the reading scores of both sets of students increased. This study, again, established phonetic instruction as an effective reading strategy. NCLB, in combination with the National Reading Panel Report, was a revolution for classroom norm and began to call into question less-effective practices.

More recently, President Barack Obama introduced the new national education standards known as the Common Core State Standards Initiative (CC) (2010). Individual states that adopt CC standards receive education funding for that state. The purpose of the CC is for schools across the nation to have one set of standards to follow. The kindergarten standards from CC state, “Know and apply grade-level phonics and word analysis skills in decoding words” (English Language Arts, 2014). The reading trend appears to come full circle back to basic phonemic awareness and application.

The “Reading Wars” hit a peak during the 1980 and 1990s but began to fade when research failed to validate the whole language reading strategies. After the

California Department of Education endorsed a whole language approach to reading for their students, student reading scores declined over the years (Krashen, 2000). Studies involving phonics, on the other hand, have had very different results (NRP, 2000).

Whole Language Resurgence

Although the NPR (2000) provided conclusive evidence for disregarding whole language as a reading method, there seems to still be a resurgence of the method and learning styles similar to whole language. The popular sociolinguistic method uses the same methods of whole language as the sociolinguist rule of use is using context and similar aspects to determine the correct answer (Geeslin & Long, 2014). The ideas here appear similar to Goodman's (1967) "psycholinguistic guessing game" (p. 127). Both theories encourage finding meaning through guessing of context. Recently, the National Council of Teachers of English is sponsoring around the country seminars with the name "Whole Language Umbrella" (NCTE website, 2014). The NCTE website says that part of the purpose for the conference of 2015 is to, "reflect on whole language as a part of the historic tapestry of progressive education, democratic schools, and critical literacy." It appears the philosophy behind whole language is resurfacing.

Learning Modalities

Modality-based instruction, also referred to as teaching to learning styles, is an approach to teaching students that seems very logical. Modality-based instruction is the belief "that humans must have some discernable way or method of acquiring information or mastering skills that suit them best" (Landrum & McDuffie, 2010, p. 6). Currently, teachers are being told to match their instruction to students' learning styles (Landrum & McDuffie). There are three primary styles: visual, auditory, and kinesthetic.

Theory proponents posit that a *visual learner* will learn most efficiently through seeing things and watching demonstrations (Barbe & Swassing, 1979). In a math setting, the *visual learner* will learn through watching the problem solved. For example, subtraction can be demonstrated by beginning with a group of items, removing a certain number of items, and then having the quotient remaining. The *visual learner* has seen the process take place. The *auditory learner* comprehends and retains information by hearing (Barbe & Swassing). The theory hypothesizes that the *auditory learner* does best in a lecture style environment. They often are not taking notes or watching the problem being solved but rather are simply listening and remembering. The third style of learner is the *kinesthetic learner*. They are considered “hands-on” learners (Willingham, 2005). The *kinesthetic learner*, according to theory, will perform best in something that is active, such as physical education class (Willingham).

History, Development, and Current Use

The concept of modality-based instruction is something that is derived from the psychological world and has been applied to education and learning. “Modality” can be defined as, “One of the main avenues of sensation” (Merriam Dictionary). This sensation is the way that the brain processes information as it comes from the environment. It is the natural way that the brain will process without taking much thought and effort (Barbe & Swassing, 1979).

The history of modality learning began in the 1940s (Tamaoka, 1985) and continues today (Landrum & McDuffie, 2010). A man by the name of Herman Witkin’s conducted an experiment to determine how people cognitively processed information. He accomplished this through a series of tests involving auditory, visual, and tactile tests

(Tamaoka). At the time, his test was not educationally related. It was not until the 1970s, that Kolb adopted what had been known as the *cognitive styles* to *learning styles* (Tamaoka). Learning styles tests were developed that focused more upon the attitude of students toward learning, teaching styles, and methods. They were not necessarily a test of a student's natural response and easiest way to comprehend material. Kolb was the first to match styles of comprehension with education (Tamaoka). Since Kolb, the ideas of modality-based instruction have continued to develop with numerous experts adding and taking away from the theory and practice. One of the most popular methods is known as the Dunn and Dunn Model (1993, 1999). The authors claim that through teaching to a students' modality, the child will make academic gain. The Dunn and Dunn Model in addition to the other learning strategies that promote teaching to a students' learning modality are widely accepted for educators today but conclusively lack empirical evidence (Kavale & Forness, 1987; Kavale & Hirshoren, & Forness, 1998; Kavale & LeFever, 2007; Landrum & McDuffie, 2010).

Research on Modality-Based Instruction

The interesting fact that many educators are unaware of is that there is little to marginal evidence to support this very popular educational concept which has been implemented in numerous classes (Landrum & McDuffie, 2010). Multiple reviews of literature on the subject of modalities reveal this theory and its application in the classroom has little empirical support (Kavale & Forness, 1987; Kavale & Hirshoren, & Forness, 1998; Kavale & LeFever, 2007).

In the 1970s, the discussion of learning styles and the scientific evidence to support them came into question (Landrum & McDuffie, 2010). Tarver and Dawson (1978) concluded the following regarding fifteen studies that were analyzed:

In summary, the evidence indicates conclusively that modality preference and method of teaching reading do not interact significantly when we are concerned with actual methods of teaching reading and measure of reading achievement rather than listening tasks and measures of recall of recognition. (p. 20)

In 1987, Kavale and Forness conducted a meta-analysis synthesizing 39 research studies and concluded, “No appreciable gain was found by differentiating instruction according to modality preference” (p. 358). Landrum and McDuffie’s analysis of the research continues to echo previous research findings: the empirical evidence is simply not there to support this theory into becoming a practice in the classroom.

Regarding the popular Dunn and Dunn Model (1993, 1997), there has still to be found empirically based research to support. Regarding the attempts of validating the Dunn and Dunn model, Kavale and LeFever (2007) stated, “The problems surround interpretation of effect size, narrow focus on a single model, missing information, and, most notably, the nature of the literature base” (p. 97). In regard to the literature base concern, 20 of the studies that were used in the analysis were dissertations from St. John’s University. Interestingly enough, R. Dunn is on staff there. Because of this, there is a concern that bias factored into the research (Kavale & LeFever).

Despite little scientific evidence of its effectiveness, teachers continue to embrace modality-based instruction in their classrooms (Landrum & McDuffie, 2010;

Willingham, 2005). Surveys show high numbers of individuals, educators and others have been lead to believe that modalities are essential to learning (Kavale & LeFever, 2007) Regarding the acceptance of modalities in today's classroom, Willingham observed, "the prevalence of books describing the theory and lesson plans suggesting ways to implement it suggest that it still enjoys widespread acceptance" (p. 35). The practice of implementing learning modalities has remained a popular teaching strategy in the classroom (Kavale & LeFever). Because of the continuing use for more than four decades (Willingham) of this method with marginal empirical evidence (Landrum & McDuffie), the instructional strategy of teaching to a student's modality can be considered a major research to practice gap in education.

Brain Gym

Brain Gym International (BGI) is a popular world-wide education program that claims, "Movement is the door to optimal living and learning" (BGI, 2011). This program, according to the website, has influenced children in 87 countries (BGI). The idea is that by doing the twenty-six movements that BGI offers, both the right and the left sides of the brains will be used and thus students will see results in not just their education but in all areas of their lives (BGI). The website claims to have seen improvements over the last twenty years and has many testimonials of the effects of BGI.

History and Development

Brain Gym was introduced in the 1970s by Paul and Gail Dennison (Watson & Kelso, 2014). Dr. Paul Dennison through his research of kinesiology and brain-development in collaboration with Dr. Gail Dennison, an artist and movement educator, conceptualized the idea of Brain Gym (BGI, 2011) The purpose of BGI is to support the

idea of "brain-based" learning (Spaulding et al., 2010). The website is quoted to say in regards to the development of BGI, "The Dennisons gathered some of their favorite activities for learning and moving, gave them playful names, and organized them according to the three dimensions from the advanced courses" (BGI).

Seemingly, these "favorite activities" (BGI, 2011) with "playful names" (BGI) have developed to become an international trend (BGI). The excitement for Brain Gym stems in the claim that Brain Gym is based in the currently popular "brain-based" learning movement (Spaulding et al., 2010).

Brain Gym and Neuroscience

BGI's claims are based in the foundations of neuroscience (BGI, 2011). Gains in neuroscience research are beneficial to understanding how the brain works. However, this neuroscience research has been found most useful in treatment for physical and psychological disorders, and is only beginning to be applied to education (Spaulding et al., 2010). Spaulding et al. in reference to BGI and their claim to a connection in neuroscience say, "Claims of educational outcomes connected to a neurological function as is the claim made generally by 'brain-based' learning, and BGI specifically, almost always overreach, tending to misrepresent and simplify neuroscience/educational outcome connections" (p.19).

Research on Brain Gym

NCLB (2001) and the Individual with Disabilities Education Act (IDEA, 2004) require schools in the United States to choose academic programs that are evidence-based (Watson & Kelso, 2014). While there are many glowing testimonials, there is very little empirical research supporting BGI's claims (Watson & Kelso). BGI (2011) claims that

their activities are helpful for all students, including those with disabilities. When the articles presented on the official BGI website were scrutinized, only five were found to be empirically based, however, there were methodological concerns with each (Spaulding, Mostert, & Beam, 2010). The support that Brain Gym (2011) offers is found to be mostly qualitative and published in its own journals and magazines. Few of their studies can be found in peer-reviewed journals (Watson & Kelso).

Educators and families across the globe are investing time and resources in a practice that is based on five marginally empirical based researches (Spaulding et al., 2010). Unfortunately, this popular trend has serious research flaws. Like whole language instruction and modality-based instruction, the research on BGI's limited effect does not seem to be reaching the classroom.

Discussion

From whole language, to learning modalities, to Brain Gym, ineffective practices are trending in school systems (Mostert & Crocket, 2000; Spaulding et al., 2010). These ineffective practices are causing large gaps between research and practice in the educational system. The overshadowing question is why when there are known effective practices such as phonics (NRP, 2000) is there implementation of non-empirically based educational strategies? Considering the three strategies discussed, there appears to be reoccurring themes throughout. This theme is that whole language, modalities, and Brain Gym appeal to natural intuition and emotion (Kim, 2008; Landrum & McDuffie, 2010; Spaulding et al.). All of the trending ideas of education that lack empirical evidence sound logical. Because of this, people embrace them without searching for empirical evidence (Mostert, 2010).

In the case of whole language, teachers found the idea appealing. During the debate over whole language acceptance in California, a member of the California State Board of Education is noted to have said, “It’s easier to teach whole-language. We had large class sizes, thirty kids. You’re a teacher, and you’re told, ‘Just read to them, and they’ll get it. ‘What a saving grace!’” (Lemman, 1997, p.128). Whole language was popular because it was intuitively appealing and easy for teachers (Kim, 2008). Instead of systematically and directly teaching sounds and decoding foundations, the idea that simply being around letters, words, and sounds seemed like a less stressful way to teach. However, the idea that students would automatically pick up on reading like they learned to speak, as natural as it sounds, has been found to be inadequate by itself (NRP, 2000).

In the case of modalities, it seems natural that if a student shows a preference for a certain style (e.g., visual, kinesthetic, auditory), the student will learn best using that style. The idea fits very well with the generally accepted assumption that not all students are the same and thus need to be taught differently. Modalities styles seem to give hope to the teacher who is given a classroom full of different students. This is especially popular in the special education field and the emphasis on differentiation for students (Landrum & McDuffie, 2010). The teacher hopes that by finding each student’s preferred modality, the student will be able to make greater gains than if focusing on other modalities (Landrum & McDuffie). Willingham (2005) explained “Although false, the truth of modality theory has become ‘common knowledge’” (p. 35). Because of the acceptance of this false “common knowledge,” many teachers engage in a form of “self-fulfilling prophecy” (Willingham, p. 35). Instructors convince themselves that they see evidence in their students and classrooms of various modalities.

Willingham (2005) used the example of a teacher finding success in “visual” learning after trying to explain a math problem several times by teaching to a student’s auditory senses, but the student not understanding until the problem was drawn out for the student. As discussed earlier, this simplistic analysis does not prove that the student is always going to learn visually. It more accurately shows the student how to do a completed math problem, instead of simply explaining it.

It is important to note that the general concepts of modalities should not be completely excluded from the classroom. A good teacher integrates different types of learning into *all* areas of the classroom (Willingham, 2005). For example, physical education is almost completely a kinesthetic style of learning. Students have to be active and involved in order for them to completely learn the activity. Yet, there will also be some times that the students are listening to the instructor explain the rules, or maybe the student will read a textbook that explains concepts. Again, these are necessary for the student to learn the meaning and understand the game (Willingham).

Willingham (2005) sets out numerous examples of how learning of the material is most important in the classroom and argues that all students have the potential to learn and should be encouraged to learn through *all* of the modalities. In reference to a geography classroom, all of the students are required to be somewhat visual learners. They will need to actually see on a map where the location of a country is (Willingham). Likewise, students who are auditorily inclined may perform better in music. Kinesthetic students may do better in sports events (Willingham). But regardless, as Willingham points out, “Whether information is presented auditorily or visually, the student must extract and store its meaning” (p. 33).

Modalities are necessary in the classroom, but potentially different from what the proponents of modality-based instruction promote. Modalities should be used in order to add variety in teaching and used in conjunction with specific objectives (Willingham, 2005). This is simple best practice. Willingham is an advocate of the teacher finding the modality of the subject, not the modality of the student. Visually, showing pictures or listening to music of famous works will be a fun and interactive way for all students to learn. Modalities can be used in classrooms to make learning more interesting and exciting. In general, all modalities should be addressed by a good teacher who creates a fun and interesting learning environment (Willingham).

BGI sounds wonderful and fun to teachers and students. The website claims remarkable stories of students who have had extreme improvement from BGI movements. Teachers and parents love the idea that by being active children will benefit in all areas of their lives. While there are connections between exercise and academic growth (Watson & Kelso 2014), the claims that BGI provides have yet to be empirically validated. BGI gained popularity through its claims of connections to neuroscience (Spaulding et al., 2010). People like to believe what they hear and sound appealing to them, compared to the facts of the information. Spaulding et al. observed, “despite limited empirical evidence demonstrating direct and straightforward connections between brain research and educational applications, many educators have been quick to believe elaborate promises of improved student performance” (p. 19). The trend needs to change from an acceptance of intuition to a demand for empirical evidence.

The above trends may not inherently be harmful per se to students. However, investing time and resources in strategies that are not validated can potentially keep

students from reaching their ultimate ability. Educational strategies need to be empirically validated before widespread adoption in classrooms (Odon et al., 2005). Ravitch (1998), in an article titled “What if Research Really Mattered?” discussed her thoughts and feeling about the research to practice gap in the education system, in comparison to the medical field, after an experience she had in the hospital:

In our society, we rightly insist upon valid medical research; after all, lives are at risk. Now that I am on the mend, I wonder: Why don't we insist with equal vehemence on well-tested, validated education research? Lives are at risk here, too. (p. 34)

Ravitch (1998) was commenting how in medicine and most other fields, the adoption of non-empirically validated strategies and interventions is unheard of. Professionals in the medical field all have a common vocabulary, procedures, and direction. On the contrary, in education new ideas appear and are embraced by some but disregarded by others. Unfortunately, the education of students is monopolized through this (Ravitch).

Mostert and Crockett (2000) argued that effective practice is extremely necessary in education because, “credibility and integrity are pivotal to what we are about in attaining status with the field and among parents and the general public” (p. 138). Education is not something that can be played with. Students' academic futures are at risk (Ravitch, 1998). Grabbing onto the latest trend that is presented is not practicing excellence for the classroom (Mostert & Crockett). People will begin to lose confidence in the system if sloppiness is practiced by educators (Mostert & Crockett).

The issue is not that educational research has not produced evidence of effective practices. In fact, numerous practices have been investigated through empirical research

and found to be highly effective. These include phonics, mnemonic strategies, behavior modification, and direct instruction, content and language integrated learning, shared reading and close reading (National Reading Panel, 2001; Mostert & Crockett, 2000; Rodgers, 2014; Walters, 2014). Educators are always searching for effective practices (Mostert & Crockett), but the key word is “effective.” There should never be a rush for classroom implementation of a strategy before there is empirical evidence to support it (Mostert & Crockett). This acceptance of marginal practice is inexcusable. Corutade, Jimenez, and Delano (2014) in their book regarding effective practice argue that empirical based practice is a “must” (p. 361) in the classroom. They continue to say, “Future research in these areas should provide teachers with additional evidence-based practice and provide clear guidance for promoting achievement in core content” (p. 361). When this is accomplished the gap between research and practice in the education system is closed.

Recommendations

The above discussion demonstrates a problem in the education field. The cycle of ineffective practices in the school system will continue until people, organizations, and communities find resolutions. Significant changes can be made in the teacher education programs, by administrators, and teachers to stop embracing ineffective or less effective practices and promote more effective strategies for educating students. There needs to be a greater awareness of ineffective practices in the schools and training in practical ways to implement effective practice. Administrators, teachers, and parents need to be intolerant of the gap between research and practice.

Teacher Education Programs

Teachers are instructed in their teacher education programs to be creative, but this creativity could cause the acceptance of creative practices. Often these practices appeal to one's intuition and are accepted because of novelty instead of empirical evidence.

Teachers need to be as hesitant in implementation of a new strategy in the classroom as a doctor would be in a speculative medical procedure (Ravitch, 1998). New strategies are not wrong, but they should not be wholesale embraced until there is empirical evidence supporting the promotion of learning. Teachers need to be taught in the teacher education programs that teaching strategies must come from empirical evidence (Spaulding et al., 2010). Spaulding et al. stated that empirically based strategies are necessary because they “will ensure that limited educational resources are not diverted to practices that lack empirical support and second, to ensure that students are exposed to only educational strategies that are in their best interest” (p. 27). In teacher education programs this plays out in full circle. If the professors are not themselves remaining current and teaching and emphasizing the importance of empirically based strategies, the students in the teacher education programs will implement ineffective practices in their own classrooms.

Discussing effective practices, Marder and Fraser (2012) (from Johns Hopkins

University's School of Education) stated:

Teacher preparation programs need to ensure that future teachers are provided with the tools to accurately evaluate research to identify evidence-based practice; how to implement that practice in their daily teaching strategies; and how to keep current on the emerging research studies that evaluate evidence-based strategies for teaching. (“Taking the Next Steps,” para. 1)

Further, accrediting bodies need to be proactive in requiring programs to teach education majors, both undergraduate and graduate students, empirically based teaching practices. The National Council for Accreditation for Teacher Education (NCATE, 2014) states teachers need to have knowledge of the skills and practices to effectively teach the students. Throughout the article, there was no mention of what kinds of “strategies” are to be brought in the classroom. Although the word “effective” was used, in itself, that carries a broad definition. Empirically based research for teaching methods was not emphasized (NCATE, 2014). Many strategies, such as Brain Gym (BGI, 2001), claim effectiveness; but there is little empirical evidence to support their claims. Accrediting bodies need to hold a higher standard to ensure only empirically based strategies are deemed “effective.” Without peer review, there will continue to be an implementation of unproven or ineffective practices in the school systems.

Administrators

School administrators should be proactive in promoting and training teachers to use effective practices while discouraging ineffective practices from being implemented in classrooms. There is an established history of ineffective practices being implemented in the school systems (Mostert & Crockett, 2010). Administrators need to be intentional to ensure that their teachers do not fall into the rut of welcoming practices that sound intuitive but are not empirically based. Administrators need to continually promote that the foundation of learning strategies needs to be on verifiable data, not simple intuition or a well-meaning hypothesis. Administrators need to realize that at the early years of academia, there must be a verifiable foundation for learning. Administrators set the standard for their schools and need to ensure teachers are using research-based strategies

and interventions. This can be done through providing ongoing professional development and in-service training on evidence-based best practices.

Teachers

Teachers need to be educated and equipped to implement only effective practices into the classroom. When teachers do not use evidence-based practices, the alternative option, which is a use of unsubstantiated or even ineffective practices, will waste time in the classroom..

Further, teachers cannot simply rely on the strategies that they were taught to use while in a teacher education program, because new practices are continually being found and deemed effective. Teachers should continuously further their education in order to be current on effective teaching strategies. It is through continuing education that teachers will be able to know what strategies are found effective and what strategies are not. Many school districts offer teachers financial assistance to pursue higher education. Teachers who are continuing in higher education will be exposed to more current and empirically based research for the education program. While recent budget cuts have constricted funding for professional development, more information than ever before is readily available to the general public via the internet. Teachers can use tools like Google Scholar or download articles from open-access journals to conduct research on strategies and interventions for working with their students. Teachers can also join professional organizations (e.g., the Council for Exceptional Children [CEC] or the National Reading Association [NRA]). These professional organizations, via conferences, webinars, and publications, keep teachers up to date on practices in the classroom. Another resource that is available for teachers is Massive Open Online Courses (MOOCS). These are

courses that are free or of relatively low cost. These websites offer traditional lectures and videos on a subject and often an open online forum for discussion on an issue. A general online search of educational MOOCS will give direction to numerous sites and resources.

Conclusion

I question if there will ever be a time that theories, ideas and practices do not cycle in and out of education. The question is why educators keep practicing many of these that are not found to be beneficial in the classroom. Even worse, in cases of whole language, learning modalities, and Brain Gym, they are welcomed and allowed to stay in the classroom for decades with little to no critical review. Most educators care deeply that their students learn. This desire can make them more susceptible to embracing the newest claim to improve their educational objectives. But, unfortunately, if the strategies are not validated, this results in the widening of the research to practice gap in education.

One issue appears that seems to continue to be part of the problem is potentially that teachers and educators are simply ill-informed about the theories and philosophies that they are putting into practice. I recently had a conversation with an education professor who said that for thirty years she had been completely misguided as to learning modalities. It was not until she was in a presentation in her doctoral orientation that she realized that modality-based instruction is not scientifically research based. Again, this is what appears to happen in the classroom. Teachers are not trying to implement in their classroom styles and methods that are not helpful; they are simply doing what at one time they were instructed to do in their teacher training programs or from their administrators.

A key problem that leads to trends in education is the idea of persuasion (Mostert, 2000). It appears as though educators and administrators buy into whatever theory proponents have done the best in persuading the audience to be the most effective. This seems to be the case with whole language, learning modalities, and Brain Gym. The proponents for these strategies are persuasive in their propagation of their methods without having to provide the evidence that should be required prior to entering the classroom. In an article entitled “A Partial Etiology of Discriminative Disability: Bandwagons and Beliefs,” Mostert (2000), discussed how “bandwagons” have become overly influential in the education sphere. He explained that once a theory is effectively popularized, people follow, then without proper evidence these turn into beliefs that few question.

Currently, few have recognized the insignificant amount of evidence for leaning modalities and Brain Gym in the classroom. The hope is that more people and educators will do their own critical analysis and research to evaluate these trends. The idea of completely stopping trends in education from coming into the classroom is almost impossible. The education world will continue to have trends and research to practice gaps. Sadly, special education is increasingly susceptible to constant trending practices (Mostert, 2010). Conversations of effective practices are very positive but, these discussions should require more than emotional appeal, they require empirical evidence of efficacy. Once the evidence is provided, it should then be compared to the current use in the classroom to deem if the new theory or practice is indeed more effective than the prior.

Accountability acts implemented by the federal government (e.g., NCLB, IDEA) have been found to be helpful in trying to prevent non-research based and less-effective practices from entering the classroom. If accountability acts can cause less effective practices to be dismissed, then teachers can investigate effective practices for their individual classrooms. Events such as workshops and online trainings that are readily available will educate the teachers on how to be most effective for a particular child. In summary, administrators, teachers, and parents need to remain current and aware of what is going into the classroom and the ideas and research behind them. By doing this, the gap between research and practice will begin to close.

References

- Abbott, M., Walton, C., Tapia, Y., & Greenwood, C. (1999). Research to practice: A blueprint for closing the gap in local schools. *Exceptional Children*, 65(3), 339-352.
- Act, N. C. L. B. (36). of 2001. *Public Law*, (107-110), 115.
- Anderson, R. C. (1985). *Becoming a nation of readers: A report on the commission of reading*. Retrieved from ed.gov: <http://files.eric.ed.gov/fulltext/ED253865.pdf>
- Arter, J. A. & Jenkins, J. A. (1979). Differential diagnosis-prescriptive teaching: A critical appraisal. *Review of Educational Research*, 49, 517-555.
- Atkinson, R., & Jackson, G. (1992). *Research and education reform: Roles for the Office of Educational Research and Improvement*. Washington DC: National Academy of Sciences.
- Barbe, W, & Swassing, R. (1979). *Teaching through modality strengths: Concepts and practices*. Columbus: Zaner-Bloser, Inc.
- Brain Gym International Website (2011). Retrieved from Brain Gym:
<http://www.braingym.org/index>
- Carnine, D. (1997). Bridging the research-to-practice gap. *Issues in educating students with disabilities*, 363-373.
- Chromsky, N. (1968). *Language and mind*. New York: Harcourt.
- Courtade, G., Jimenez, B., & Delano, M. (2014). Providing Effective Instruction in Core Content Areas (Literacy, Mathematics, Science, and Social Studies) in Inclusive Schools. *Handbook of Effective Inclusive Schools: Research and Practice*, 352.

- Dunn, R.S. & Dunn, K.J. (1993). *Teaching secondary students through their individual learning styles: Practical approaches for grades 7-12*. Boston: Allyn & Bacon.
- Dunn, R.S. & Dunn, K.J. (1999). *The complete guide to the learning styles in-service system*. Boston: Allyn & Bacon.
- “Efficacy.” *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 7 Nov. 2014.
- <<http://www.merriam-webster.com/dictionary/efficacy>>
- Ehri, L. C., Nunes, S. R., Stahl, S. A., & Willows, D. M. (2001). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel’s meta-analysis. *Review of educational research*, 71(3), 393-447.
- Goodman, K. S. (1967). Reading: A psycholinguistic guessing game. *Literacy Research and Instruction*, 6(4), 126-135.
- Goodman, K. S. (1986). *What’s whole in whole language? A parent/teacher guide to children’s learning*. Portsmouth: Heinemann Educational Books.
- Geeslin, K. L., & Long, A. Y. (2014). *Sociolinguistics and second language acquisition: Learning to use language in context*. New York: Routledge.
- Individuals with Disabilities Education Improvement Act (IDEA), Public Law 108—446, 118 Stat. 2647 (2004).
- Kim, J. S. (2008). Research and the reading wars. *Phi Delta Kappan*, 89(5), 372-375.
- Krashen, S. (2000). Has whole language failed? Centre for Multilingual Multicultural Education, University of Southern California.
- Kavale, K., & Forness, S. (1987). Substance over style: Assessing the efficacy of modality testing and teaching. *Exceptional Children*, 54, 228-239

- Kavale, K. A., Hirshoren, A., & Forness, S. R. (1998). Meta-analytic validation of the Dunn and Dunn model of learning-style preferences: A critique of what was Dunn. *Learning Disabilities Research and Practice, 13*, 75-80.
- Kavale, K. A., & LeFever, G. B. (2007). The Dunn and Dunn Model of Learning-Style Preferences: Critique of Lovelace meta-analysis. *The Journal of Educational Research, 101*, 94-97
- Landrum, T. J., & McDuffie, K. A., Learning styles in the age of differentiated instruction. *Exceptionality, 18*(1), 7-17.
- Lemman, N. (1997, November). *theatlantic.com, 280*(5), 128. Retrieved from The Reading Wars: <http://www.theatlantic.com/magazine/archive/1997/11/the-reading-wars/376990/>
- Marder, D. & Fraser, T. (2012). Evidence based practice for special educators teaching students with autism.
- McLeskey, J., & Billingsley, B. S. (2008). How does the quality and stability of the teaching force influence the research-to-practice gap? A perspective on the teacher shortage in special education. *Remedial and Special Education, 29*(5), 293-305.
- Mostert, M. P. (2010). Asserting the fanciful over the empirical: Introduction to the special issue. *Exceptionality 18*(1), 1-5.
- Mostert, M. P. (2000). A partial etiology of discriminative disability: Bandwagons and beliefs. *Exceptionality, 8*, 117-132.
- Mostert, M. P., & Crockett, J.B. (2000). Reclaiming the history of special education for more effective practice. *Exceptionality, 8*(2), 133-143.

“Modality” [def 3]. (n.d.). Merriam-Webster Online. In Merriam Webster. Retrieved from <http://www.merriam-webster.com/dictionary/modality>

National Council for Accreditation of Teacher Education. “What Makes a Teacher Effective.” NCATE.org. 2014.

National Council of Teachers of English. WLU Literacies for All Summer Institute. 2014. <http://www.ncte.org/wlu/institute>.

National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Common Core State Standards*. Washington, DC: Authors.

National Reading Panel (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Reports to the subgroups (NIH Publication No. 00-4754). Washington, D.C: U.S. Department of Health and Human Services.

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R., Thompson, B., Harris, K.R. (2005). Research in special education: scientific methods and evidence-based practices. *Exceptional Children*, 71(2), 137-148.

Ravitch, D. (1998). What if research really mattered?. *Education Week*, 18(6), 33-34. http://www.edweek.org/ew/articles/1998/12/16/16ravitc.h18.html?qs=Diane+Ravitch+What_If_Research_Really_Mattered

Rodgers, T. S. (2014). *Approaches and methods in language teaching*. Cambridge University Press.

Spaulding, L.S., Mostert, M.P., Beam, A.P. (2010). Is Brain Gym® an effective educational intervention? *Exceptionality*, 18(1) 18-30.

- Tamaoka, K. (1985). Historical development of learning style inventories from dichotomous cognitive concepts of field dependence and field independence to multi-dimensional assessment.
- Tarver, S. G., & Dawson, M. M. (1978). Modality preference and the teaching of reading: A review. *Journal of Learning Disabilities, 11*(1), 17-29.
- Vadasy, P. F., & Sanders, E. A. (2012). Two-year follow-up of a kindergarten phonics intervention for English learners and native English speakers: Contextualizing treatment impacts by classroom literacy instruction. *Journal of Educational Psychology, 104*(4), 987-1005.
- Vanderlinde, R., & van Braak, J. (2010). The gap between educational research and practice: views of teachers, school leaders, intermediaries and researchers. *British Educational Research Journal, 36*(2), 299-316.
- Watson, A., & Kelso, G. (2014). The effect of brain gym on academic engagement for children with developmental disabilities. *EDI, 29*(2), 75.
- Willingham, D. (2005). Do visual, auditory, and kinesthetic learners need visual, auditory, and kinesthetic instruction. *American Educator, 29*(2), 31-35.