



*Research and Best Practices That Advance the Profession of Education Administration*

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## Editorial

**Christopher H. Tienken, Editor**  
*AASA Journal of Scholarship and Practice*  
 Seton Hall University

### A Moment of Crisis: We Have Been Here Before

Slashed school budgets, accusations of inefficiency, calls of ineffectiveness, war, a weakening of our democracy, unabated immigration, economic crisis, and rising unemployment ... sounds pretty familiar lately.

While these conditions may be unique to today's school leaders, they are not unique to public education's history. School administrators have been here before.

The conditions that administrators endure today are remarkably similar to those experienced by our predecessors between the years 1910 – 1940's. This time period saw the height of the efficiency movement, characterized by school district consolidation, standardized curriculum and testing, larger class sizes, and monitorial instruction. These facets were all part of the zeitgeist to make education more like industry – a time where *trimming the fat* was touted as the ultimate objective of the school administrator.

Luckily, a group of intrepid educators including Wilford Aikin, Alice Keliher, V.T. Thayer, and Eugene Smith (Kridel & Bullough, 2007) chose to chart a different, more progressive course. Instead of consenting to an ever-narrowing and standardized education process, they and other progressive educators chose to experiment.

That group of pioneers left us *The Eight-Year Study* (Akin, 1942), a landmark project and practical blueprint for our way out

of crisis. The results of the *Study*, along with earlier studies (e.g., The New York City Experiment and the Wrightstone study) confirmed that standardization was not prerequisite to high levels of academic achievement. In fact, these practitioners and researchers demonstrated that the opposite was true.

The students who attended high schools involved in the *Eight-Year Study* that experimented the most with curriculum and instruction, those schools that used problem-based curriculum and alternative assessments, performed better on standardized tests, had higher GPA's in high school and college, and participated more in civic activities than students from traditional high schools that used a standardized curriculum and relied on standardized testing systems (Aikin, 1942; Kridel & Bullough, 2007).

Furthermore, students from the highly experimental schools demonstrated greater task persistence, motivation, critical thinking, and strategizing skills (Akin, 1942) as compared to their peers who followed a traditional, highly standardized and rigid model – akin to the No Child Left Behind paradigm.

Lastly, students from the experimental high schools exhibited a greater level of social consciousness, collaborated better with peers on problems and projects, and they demonstrated an overall affinity toward problem solving. The period of intense experimentation with education practices lasted

approximately 20 years until it was obfuscated by the political aftermath of World War II and the ensuing sense of American inferiority that followed the rising tide of communism. Ever since, we have been needlessly engaged in the folly of standardization.

Bureaucrats and legislators did not facilitate the experimentation during that crucial period in our education history; school administrators lit that spark and collaborated with university faculty and teachers to make their ideas a reality. They employed both the most current research and their leadership skills to transform a group of high schools into learning organizations focused on the social, emotional, and academic needs of all students.

They said “no” to standardization, offered a superior model of education, and then demonstrated empirically its effectiveness. The success of these leaders from our past begs the question: What would a focus on experimentation look like today?

First and foremost, a priority on experimentation would derive from evidence-based education practices. Such evidence would serve to support the public in holding policy makers and educators accountable for implementing practices that have a demonstrated track record based on empirical and practical results instead of those that wallow in conventional wisdom (Galbraith, 1958), political expediency, or gut feelings.

For example, the No Child Left Behind Act (No Child Left Behind [NCLB PL 107-110], 2002) as originally enacted would never have passed the empirical and practical tests because NCLB’s major premise of driving education improvement through the use of high-stakes assessments is not supported by evidence.

In fact, this type of initiative is antithetical to those suggested by past practices. Likewise, none of the statewide testing programs, as currently implemented, would suffice. The tests used in all 50 states to satisfy NCLB and state accountability requirements have inherent technical flaws that should preclude educators and policy makers from using the results to make high-stakes decisions about individual students, teachers, programs, and schools (Koretz, 2008; Tienken, 2008).

Similarly, there is no empirical evidence to support the practices of raising state-test cut-scores to arbitrary levels or mandating that all high school students take a specific sequence of courses to graduate (mental discipline revisited; Thorndike, 1924). Those types of action do not provide quality education to our children.

If we are willing to return to our experimental spirit as school administrators, a good start would be to look at curriculum, instruction, and accountability through a more creative and quality-driven lens.

For example, middle- and secondary-school programs might include the following new achievement targets:

- (a) number of courses in the high school macro-curriculum that prepare students for post-secondary education (not just college);
- (b) percentage of students who take and pass in the aforementioned courses;
- (c) number of opportunities for students to gain internship, apprenticeship, or other career exposure and the percentage of students who participate in the opportunities;
- (d) percentage of students who take post-secondary or college level courses while still in high school;
- (e) percentage of students who read for pleasure at least once a week;

(f) measures of student persistence and motivation;

(g) student satisfaction with their education;

(h) percentage of students employed full-time or enrolled in a post-secondary education opportunity one year after high school;

(i) percentage of 18 year-old students who vote;

(j) measures of student social consciousness;

(k) measures of ethical behavior;

(l) percentage of students who participate in voluntary community service;

(m) yearly course failure rates;

(n) student behavioral referral rates;

and

(o) student attitudes toward learning – for starters.

Now, having illustrated such a creative vision, consider the type of divergent, problem-based and socially conscious curricular program we would need to offer in order to achieve objectives a through o. Such an

initiative would likely call for assessment to be qualitative, quantitative, and truly formative in nature; with instruction both targeted and tailored – but not standardized.

Standardization has not worked in the past. How then can we hold hope for its success in the future? We cannot, and furthermore, do not need to accept standardization. Pretending that every child enters school on a level playing field with his or her peers is naïve and irresponsible.

We must expect more from ourselves, to be bold and, most importantly, to draw inspiration from the historical champions. Education's rich history of experimentation served our children well in the past, whereas education policy and practice based on only ideology has failed children and our profession miserably.

Perhaps we need only reacquaint ourselves with the past to set an evidence-based course for public education's future.

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## Research Article

# Teacher Perspectives of School Mistreatment: Implications for District Level Administrators

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For well over a decade, research on workplace mistreatment-abuse has proliferated in the United States and elsewhere in the world, (i.e., Europe and Australia). Moreover, significant legislation and organizational policies have been produced to address the workplace mistreatment-abuse problem (Blase & Blase, 2003; Einarsen, Hoel, Zapf, & Cooper, 2003; Keashly, 1998; Rayner, Hoel, & Cooper, 2002). Relatedly, in education, a noteworthy number of studies and intervention strategies have been published focusing on peer bullying (i.e., among school children and adolescents) in these same countries (e.g., Boulten & Smith, 1994; Olweus, 1991; O'Moore, 1999; Orpinas & Horne, 2006; Slee & Rigby, 1994).

Unfortunately, only one study of school administrator mistreatment-abuse of teachers has been published in education (Blase &

Blase, 2003). The dearth of research in this emerging area of inquiry is striking in light of large-scale national and international cross-occupational studies that identify teaching as one of the highest risk occupations for abuse (Hoel & Cooper, 2000; Irish Taskforce on the Prevention of Workplace Bullying, 2001; Matthiesen, Raknes, & Rokkum, 1989).

Furthermore, websites throughout the world have reported that teachers have been among the largest group of abused workers (i.e., [www.bullybusters.org](http://www.bullybusters.org)) and another has indicated that teachers were among their largest groups of enquirers (i.e., [www.bullyingonline.org](http://www.bullyingonline.org)).

The study discussed in this article focuses on the problem of school principal mistreatment of teachers from the perspectives

of teachers themselves. To date, only one other study of this problem has been published; therefore, we used exploratory-descriptive research protocols designed specifically to solicit participation of teachers who had been mistreated by school principals. The study examines teachers' views on several aspects of the principal mistreatment problem including: (a) abusive principals' behaviors, (b) the effects of these behaviors, (c) teachers' coping responses, (d) and contextual factors that contribute to mistreatment. Lastly, implications of our findings are discussed.

Burgeoning concepts have emerged in scholarly literature to denote the workplace mistreatment-abuse problem including: (a) mobbing (Leymann, 1990); (b) bullying (Einarsen & Skogstad, 1996), and (c) emotional abuse (Keashly, 1998). In particular, several well-grounded concepts of administrator (i.e., superior, boss) mistreatment-abuse have been discussed recently (e.g., Ashforth, 1994; Tepper, 2000).

Blase, Blase, and Du's (2008) empirically grounded, inclusive working definition of administrative mistreatment focuses explicitly on school principal abuse of teachers.

This concept emphasizes a pattern of verbal, nonverbal, and/or physical behavior (excluding physical violence) that typically occurs over an extended period of time, within an unequal power relationship and results in psychological-emotional, physical-physiological and professional-life and personal-life harm.

Not surprisingly, many large-scale national and international studies have identified administrators as primary workplace abusers in 50% to 90% of all such incidents (e.g., ACTU, 2000; Björkvist, Österman, &

Hjelt-Bäck, 1994; Hoel & Cooper, 2000; Hornstein, 1996; Namie & Namie, 2000; NNLI, 1993; Zapf, 1999).

In fact, research in the United States indicates that administrator mistreatment or abuse of subordinates may exceed rates in many countries; Keashly (2002) suggests this may relate to the significant power disparities and the degree to which administrative power is viewed as absolute and administrative cultures permit or reward abuse (Ashforth, 1994; Blase & Blase, 2003; Leymann, 1990). Arguably, public education may be fertile ground for the emergence of such administrative cultures.

### **Research on Workplace Mistreatment**

Empirical studies of workplace mistreatment have emphasized the effects of abusive behaviors on their targets. These studies have identified a range of behaviors, including: (a) verbal (e.g., threats, angry outbursts, public humiliation, unfounded criticism, spreading false rumors, lying, favoritism, unfair evaluations, reassignments, terminations, sexual harassment, unwarranted reprimands), (b) nonverbal (e.g., dirty looks, snubbing, staring, finger pointing), and (c) physical (e.g., isolation, withholding resources, destruction of property).

Such behaviors have been noted to result in such harmful effects as: (a) psychological-emotional (e.g., feelings of desperation, inadequacy, shame, guilt, self-doubt; distrust, anxiety disorder, depression, posttraumatic stress disorder [PTSD]), (b) physical/physiological (e.g., neck/back pain, significant weight changes, high blood pressure, chronic fatigue, arrhythmia), and (c) effects on work performance-relationships with co-workers (e.g., decreases in initiative and motivation, tardiness, absenteeism, job mistakes, social withdrawal, withdrawal from

extra-role involvements, impaired decision-making).

This line of research has also linked mistreatment to family and personal-life harm (e.g., increases in family conflict, deterioration of relationships, loss of friendships) (ACTU, 2000; Björkvist et al., 1994; Blase & Blase, 2003; Glomb, 2002; Irish Taskforce on the Prevention of Workplace Bullying, 2001; Keashly & Jagatic, 2000; Leymann, 1990; Price-Spratlen, 1995; Queensland Government Workplace Bullying Taskforce, 2002; WBTI, 2003; Westhues, 2004).

Only a handful of studies have investigated the intensity of harm associated with abusive behaviors (Keashly, 2002; Glomb, 2002), coping strategies used by victims of abuse (e.g., External Advisory Committee on the Defence Forces, 2002; Hoel & Cooper, 2000; Leymann, 1990; Namie & Namie, 2000), or contributors to mistreatment in the work setting (e.g., Björkvist et al., 1994; Lewis, 1999; Queensland Government Workplace Bullying Taskforce, 2002; Vartia, 1996; WBTI, 2003; Zapf, 1999).

Thus, in contrast to an initial qualitative study of abusive school principal behavior and its effects on victimized teachers (Blase & Blase, 2003), the study discussed in this article quantitatively addresses abusive principal behaviors and effects as well as intensity of harm of individual abusive behavior, teachers' coping responses, and factors that contribute to mistreatment.

The following research questions were addressed in this study:

- (a) what levels of harm from principal mistreatment do teachers perceive;
- (b) how do teachers cope with principal mistreatment;

- (c) what are the perceived effects of principal mistreatment;

- (d) do teachers of various demographic backgrounds report different effects from principal mistreatment;

- (e) what are the frequencies and intensities of harm of specific principal mistreatment behaviors for the participants;

- (f) do teachers of various demographic backgrounds perceive different levels of frequency and intensity of harm from specific principal mistreatment behaviors;

- (g) what are the most harmful principal mistreatment behaviors for teachers of various demographic variables; and

- (h) what are teachers' perceptions of factors that contribute to principal mistreatment?

## Method

For this descriptive-exploratory study of mistreated teachers' perspectives, an original, pilot-tested, questionnaire, The Principal Mistreatment/Abuse Inventory (PMAI), was posted at the website of the National Association for the Prevention of Teacher Abuse (<http://endteacherabuse.org>).

## Participants

Respondents included 172 US elementary, middle, and high school teachers who indicated they had experienced mistreatment by a principal.

These participants were guaranteed anonymity by the use of an intermediary and completed the PMAI's five sections: (a) frequency, intensity, and duration of 38 mistreatment behaviors; (b) 72 physical, psychological, emotional, behavioral effects; (c) coping strategies; (d) factors contributing to mistreatment; and (e) demographic data.

## Analysis

The researchers derived mistreatment and effects items for the PMAI from mistreatment behaviors and effects generally described in the empirical studies of work mistreatment/abuse conducted in profit and non-profit organizations (Cleveland & Kerst, 1993; Fitzgerald & Shullman, 1993; Hornstein, 1996; Namie & Namie, 2000; Neuman & Keashly, 2002; NNLI, 1993).

Data were treated and analyzed through the use of SPSS. A reliability analyses performed revealed a high degree of reliability or stability (For a full description of the research method, see Blase, Blase, & Du, 2008).

## Results

### *Profile of Research Participants*

The sample included 172 teachers from around the nation. The majority of the teachers were female (70%) with 30% male teachers. Participant ages were as follows: 2% were under age 25, 16% were age 25-29, 31% were age 30-39, 29% were age 40-49, 20% were age 50-59, and 2% were age 60 and over.

Racial/ethnic backgrounds were as follows: 88% were White, 6% were African American, and 7% were other or unknown. With regard to education, approximately 37% of the teachers had bachelor degrees, 49% had master degrees, 10% had specialists degrees, and 2% had doctorates.

In terms of experience, about 15% of the participants had 1-3 years of teaching experience, 36% had 4-9 years of experience, 33% had 10-19 years of experience, and 13% had 20 or more years of experience. Teachers' school levels were elementary (35%), middle/junior high (29%), and senior high (34%, including vocational and alternative schools).

Finally, 50% worked with union contracts and 50% worked with non-union contracts. Thus, teachers participating in the survey were predominately female, white, equally likely to have union or non-union contracts, aged 30-50, held a master's degree, had 9-20 years of teaching experience and were equally likely to work at the elementary, middle/junior high, or high school level.

### *Duration of Harm and Levels of Harm*

For 15.7% of the mistreated teachers, mistreatment lasted 1-5 months, while 16.9% indicated duration of 6-12 months, 40.1% reported 1-3 years, and 25.6% indicated over 3 years of mistreatment by school principals. In effect, duration was sufficient to be defined as workplace mistreatment (Blase & Blase, 2003; Björkvist et al., 1994; Keashly, 1998; Leymann, 1990; Namie & Namie, 2000; Price-Spratlen, 1995).

Half of the study's teachers indicated that mistreatment-abuse resulted in serious or extensive harm to their work and themselves and about one-third reported serious or extensive harm to family life. Half of the teachers rated combined self, work and family as serious or extensive.

Moreover, half of the participants attributed half of their total life harm to principal mistreatment and slightly over 50% reported that mistreatment was so harmful that they could not effectively cope. Consistent with research on workplace in general, and teacher mistreatment in particular (Blase & Blase, 2003), these findings demonstrate the far-reaching effects that principal mistreatment-abuse has on a teacher's total quality of life.

### *Leaving the Job*

Due to principal mistreatment-abuse, Over 76% of the researched teachers indicated that they

would leave their job for another teaching position and 49.4% of teachers wanted to leave the field of teaching. Support for this trend has been evidenced by other researchers (External Advisory Committee on the Defence Forces, 2002; Irish Taskforce on the Prevention of Workplace Bullying, 2001; Zapf & Gross, 2001) who have found that requesting job transfers and quitting one's job are common responses to workplace mistreatment - but not to the extent reported above.

The extraordinarily high percentage of teachers willing to relinquish their careers further underscores the incredibly damaging effects of mistreatment by a school administrator.

### *Coping Strategies*

In rank order from first to tenth, the most frequently-used teacher coping strategies were:

- (a) avoiding the principal (79.7% of the teachers);
- (b) talking with others (77.3%);
- (c) enduring the principal's mistreatment (61%);
- (d) rationalizing the principal's behavior (47.10%);
- (e) reading, listening to music, watching TV (45.9%);
- (f) detaching (44.8%); (g) asserting oneself with the principal (44.8%);
- (h) looking for good in the principal (44.2%);
- (i) complaining to a union or association (43.6%); and
- (j) thinking positively or defining mistreatment as part of the job (42.4%).

In addition, medical assistance and/or psychological treatment were sought by 51.2% and 31.4% of participants respectively for mistreatment-related illnesses.

Consistent with findings from general workplace mistreatment studies, teachers typically did not use problem-focused coping strategies; rather, they employed passive strategies intended to reduce the effects of mistreatment (e.g., Cohen, 1987; Hornstein, 1996; Keashly, 2001; Zapf & Gross, 2001).

In addition, the workplace mistreatment literature is replete with studies that found that retaliation is a common response to complaints against a superior (e.g., Hoel & Cooper, 2000; Hornstein, 1996; Rayner, 1998). This may explain, at least in part, teachers' reluctance to deal directly with abusive principals.

### *Principal Mistreatment Behaviors*

In rank order from first to fifth, the most-frequently occurring mistreatment behaviors reported were:

- (a) failing to recognize or praise for work-related achievements (69.7%),
- (b) favoritism toward select teachers (62.7%),
- (c) intimidation (58.8%),
- (d) non-support with difficult parents or students and/or parents (57%), and
- (e) ignoring or snubbing (55.2%).

Mistreatment behaviors identified by 40% or more of teachers, in rank order from sixth to 17<sup>th</sup>, were:

- (6) micromanaging or nitpicking about time,
- (7) insensitivity to personal matters,
- (8) unreasonable demands,
- (9) stonewalling,
- (10) criticism based on a snitch's comments,
- (11) overloading,
- (12) lying,
- (13) isolation from other teachers,
- (14) spying,

- (15) negative labeling,
- (16) gossiping,
- (17) unjustly criticism.

Female teachers experienced 28 of the 38 mistreatment behaviors rated more frequently than male teachers.

It appears that teachers in our study experienced the same diverse range of mistreatment behaviors described in the extant workplace mistreatment literature. In addition, school principals relied heavily on active and direct (rather than passive and indirect) abusive behaviors. As well, behaviors such as failing to recognize or praise, ignoring or snubbing, micromanaging or nitpicking about time have also appeared in the top ten behaviors in several other mistreatment studies (e.g., Glomb, 2002; Harlos & Axelrod, 2005; Salin, 2001).

Teachers in our study ranked favoritism second with regard to frequency; however, this did not appear in the top ten mistreatment behaviors in any other published mistreatment study. In contrast to other professional workers, perhaps teachers respond more strongly to administrative violations of “fairness” norms (Blase, 1988; Lortie, 1975).

#### *Intensity of Harm from Mistreatment*

Mistreatment behaviors that teachers reported caused them the most intense harm were, in rank order:

- (a) intimidation (66.3%),
- (b) failing to recognize or praise for work achievements,
- (c) nonsupport with difficult parents or students (63.9%),
- (d) unwarranted reprimands (62.3%),
- (e) unreasonable demands (62.2%),
- (f) favoritism towards select teachers (62.2%),
- (g) lying (58.2%),

- (h) micromanaging or nitpicking about time (58.1%),
- (i) negative labeling (57.6%), and
- (j) unjust criticism (57.6%).

Over 40% of participants rated 21 additional principal behaviors as at least moderately harmful. Over 68% of participants reported that moderately intense, seriously intense, or severely intense harm was associated with principal mistreatment. Female teachers tended to experience a higher total intensity of harm. Although some studies have reported that females and males did not differ with respect to intensity of harm experienced, a larger number of studies have reported that females experience mistreatment as more harmful (e.g., Niedl, 1996; Leymann, 1992; Einarsen & Raknes, 1991).

#### *Effects of Mistreatment*

The top ten most-frequently reported harmful effects of mistreatment were, in rank order:

- (a) stress (90.7%),
- (b) resentment (80.8%),
- (c) anger (75%),
- (d) insecurity (70.3%),
- (e) a sense of injustice and moral outrage (70.3%),
- (f) self-doubt (68%),
- (g) anxiety (65.7%),
- (h) sense of powerlessness (64.5%),
- (i) maintenance of silence, and
- (j) bitterness (64%).

In addition, over 50% of participants experienced effects such as fear and dread, sleep disruptions, lowered self-confidence, humiliation, depression, and obsessive and intrusive thoughts about the principal.

Furthermore, over 77% of participants indicated that principal mistreatment undermined classroom teaching. One-third of the research participants reported negative

effects on motivation, creativity, innovation, risk-taking, and increases in stress, paranoia, insecurity, fear, dread, and self-doubt specifically with regard to teaching.

Participants reported that they were less caring, patient, tolerant, and humorous toward students, and that they were forced to use rigid, dated, authoritarian, ineffective teaching methods with students. Female teachers, as compared to male teachers, reported that they more frequently experienced many harmful effects, including, for example, stress, self-doubt, damaged reputation, fear and dread, decreased self-esteem and confidence, and lowered motivation to teach. Similar effects have been reported in other research focused on teachers' responses to authoritarian, control-oriented, and closed school principals (Blase, 1988, 1990, 1991).

Clearly, teacher participants experienced the same range of harmful effects discussed in the general workplace mistreatment literature as well as in an earlier study of mistreated teachers (e.g., Blase & Blase, 2003; Keashly & Jagatic, 2000; WBTI, 2003; Queensland Government Workplace Bullying Taskforce, 2002).

#### *Factors Contributing to Mistreatment*

Factors which teachers identified as contributing to their mistreatment were:

- (a) school-level politics (61%),
- (b) teacher's age (34.9%),
- (c) teacher's gender (24.4%),
- (d) teacher's race (14%),
- (e) teacher's religion (12.8%),
- (f) teacher's affiliation with a union or association (12.8%),
- (g) teacher's political beliefs (11.6%),
- (h) teacher's health, illness, or disability (11%),
- (i) teacher's ethnicity (9.9%), and
- (j) teacher's sexual orientation (2.9%).

In particular, teachers attributed several meanings to school-level politics, including (a) personal characteristics (e.g., superior knowledge/skill), (b) being well-liked and respected, being creative and innovative, (c) being a "threat" to the principal, (d) disagreement with the principal, and advocating for students).

In general, teachers' perceptions of factors that contribute to their mistreatment are similar to what Blase and Blase (2003) found in their earlier study as well as what has been reported by others (Björkvist et al, 1994; Queensland Government Workplace Bullying Taskforce, 2002; WBTI, 2003; Lewis, 1999; Vartia, 1996; Zapf, 1999).

### **Implications**

#### *What District Level Administrators Can Do*

Unfortunately, findings from our earlier study (Blase & Blase, 2003) as well as the study reported in this article are consistent with the findings of others studying the general area of workplace mistreatment; that is, the responses of subordinates in general and public school teachers' in particular to powerful administrators are very limited and ineffective in overcoming long-term, repeated, and severe abuse.

In part, this appears to be related to the ineffective ways in which higher-level administrators frequently respond to complaints, which include (a) not responding, (b) denying allegations, (c) siding with the abuser, and (d) further harassing the complainant.

In addition, administrator mistreatment of teachers is frequently a function of an abusive organizational culture and conditions (e.g., unreasonable district office mandates, resource scarcity, performance evaluations) that directly or indirectly reinforces such abuse

(e.g., Blase & Blase, 2003; Hornstein, 1996; Keashley, 1998; Namie & Namie, 2000; Pearson, 2000; Rayner et al., 2002).

At this point:

- We strongly recommend that district-level administrators and boards of education develop an understanding of the mistreatment problem and its devastating effects on teachers, teaching, and student learning.
- We believe that some principals engage in harmful behavior toward teachers because of personality issues (e.g., anger disorder, authoritarian personality); inability to handle stress; gender issues; faulty assumptions about power, lack of awareness about best ways to use power, and lack of awareness of the effects of administrative behavior.

Surely, such issues should be taken seriously and addressed in administrators professional learning programs with the assistance of specialists and colleagues.

- Our study has implications for hiring and on-going professional development of school principals. People who are emotionally intelligent, capable of working with diverse individuals and teams, interpersonally skillful and skillful in addressing conflict or others'

professional shortcomings should be recruited.

- Anti-abuse policies should be developed and implemented in school districts; such policies should be clear, well-publicized, and fully-resourced, and a zero-tolerance approach must be taken.
- We strongly recommend that state-level chapters of the American Association of School Administrators (AASA) work with administrator preparation programs to ensure that they prepare prospective administrators to address personal foibles (as noted above) that could lead to mistreatment of teachers.

Similarly, at the national level, the AASA should work with administrator preparatory program personnel through such organizations as the University Council for Educational Administration (UCEA) and the National Council of Professors of Educational Administration (NCPEA) to address the mistreatment problem.

Likewise, collaboration with administrators' professional organizations including the National Association of Secondary School Principals (NASSP) and the National Association of Elementary School Principals (NAESP) would be valuable.

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## What to do with ELLs? Creating Sustainable Structures for Serving English Language Learners in Schools

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**D**ecision-making about English as a Second Language (ESL) programs is especially challenging in educational contexts where a rapid influx of an English language learner (ELL) population has immigrated into a community that is not accustomed to ethnic and linguistic diversity or; where the ELL population constitutes a sizable (between 15 and 25 %) portion of the overall student population.

Likewise, decisions about programming can become especially complex in contexts where multiple language groups are represented within the ELL population. In such conditions, administrators of successful ESL programs must adopt a continuous and thoughtful approach to ESL program review and adjustment (Lopez & Dubetz, 1999).

However, most districts rarely have adequate resources to effectively evaluate existing programs (Patton, 1997; Worthen, Sanders and Fitzpatrick, 2004). Often programs for ELLs remain in place for years without periodic, intentional reexamination of

stakeholder needs. Many program reviews are conducted only in response to serious problems or complaints, such as those which precipitate or necessitate a review by the Office of Civil Rights (OCR). We argue for a proactive program review before major concerns arise.

While different ESL program models have been found to yield varied levels of success (e.g., Genesee, 1999; Thomas & Collier, 1997; 2002), making initial decisions about which ESL program model to adopt, or how to improve an existing program is a complex undertaking.

Some challenges contributing to this difficulty include lack of consistency in ESL program models and specific local factors that hinder the adoption of a certain program model. These local factors may include (a) past practice, (b) lack of administrative support, (c) lack of specialized teacher training, or inadequate facilities, and (d) lack of funding for implementing a complete ESL program review that would allow for systematic changes to be made.

Anecdotally, in our work both as former ESL teachers and in our current capacity assisting school districts with ESL program development, administration, and review, we have observed that concrete knowledge of varying program models and options does not automatically translate into improved practice.

Thus, what distinguishes successful ESL programs from those less successful are differences in the process of decision-making. Most critical in this process is the careful selection of individuals within a district to be involved in making decisions about ELLs and the ESL program. The course of programmatic evolution needs to be proactive and intentional and should emerge from a collaborative approach that includes the viewpoints of all stakeholders (Shulha & Cousins, 1997).

### **Creating Strong Evaluation Team: Access, Communication and Shared Expertise**

Although ESP programs can be reviewed by outside evaluators, we have found that a more effective way is to assemble a team of both “outsiders” and “insiders” to evaluate the program. The intrinsic value of these roles lies in the ability for outsiders to be objective and ask confidential questions while insiders can assist with access to information and contribute to understanding the current and historical context of the program (Schreier, 1994).

The success of the program review is directly dependent on the degree to which this team is able to work well together (e.g., establish open communication, trust, clear role responsibilities, and clear expectations). What we know from past research (Kaztenbach and Smith, 1993; MacGregor, 2006) is that effective teams demonstrate the following qualities: (a) a comfortable, relaxed atmosphere; (b) an equal status discussion, in

which everyone participates; (c) freedom to express differing opinions and ideas; (d) no one person dominates the group, and (e) a commitment by each individual towards task completion - with individual strengths contributing to the accomplishment of the work.

Once a team is established, there should be an investment in building interpersonal team dynamics. Although the amount of confidence team members have in one another is a facet often overlooked, research (Covey, 2006) suggests that the initial time spent in building trust and establishing clear expectations will, in the long run, be time-effective.

Unfortunately we have seen incidents where individuals in charge of a program evaluation undermine trust building and attempt to immediately examine the substantive components of a program or hand off the responsibility of the total program review to outside experts. Decision-making in these contexts usually results in failure.

### **Review Team**

We begin with a discussion of the review team’s most integral member, namely, the administrator/s. Thus, ensuring the active and motivated participation of the administrator/s is a necessity for a successful program review.

As an active but equal status member of the team, the administrator sends a message that the ESL program is a high priority. Along these lines, the administrator helps to insure that all voices will be heard, that recommendations from the program review will be taken seriously, and that resources will be allocated for its implementation. Given this stance, other staff (i.e., teachers) who witness the administrator’s participation in the review are more likely to engage in, and commit to, the

decisions and recommendations resulting from the work.

Furthermore, the administrator's position has additional benefits. Specifically, they can provide information about funding, professional development training schedules, and other district-wide initiatives. These data can help ensure that recommendations made by the review team are in line with other district goals and are realistic, feasible and easily implemented.

The second important member of the team is an experienced ESL staff member; one with past experience and training the common to ELLs; including associated issues and specific concerns. The ESL professional is invaluable to the team's functioning as they serve as a link between the school, parents and community in gathering feedback and disseminating information about the program. These professionals are typically (a) an ESL teacher, (b) district coordinator, (c) cultural liaison, or (d) bilingual paraprofessional.

The review team should also include a general education teacher. It behooves the team for this teacher to be someone who is highly respected by colleagues and someone who genuinely cares about the success of ELLs.

By including a general education teacher, the review team gains access to the knowledge, views and experiences of classroom teachers who are working with ELLs. This teacher can also serve as a spokesperson and make recommendations that apply to the general education classrooms (e.g.,

clustering ELLs into certain classrooms, push-in programs or team-teaching).

Gaining trust and respect can be difficult for outsiders, and therefore the inclusion of a general education teacher capitalizes on trust that already exists. This is especially helpful when colleagues must be persuaded to make significant changes in teaching practices or curriculum.

Finally, it is ideal to have one team member with expertise in program review and best practices of ESL instruction. Typically, this would be an outside evaluator who might be from higher education. This member can both (a) gather sensitive data particularly when there is disagreement about some components of the ESL program (b) provide objective information about research-based ESL program models, principles of second language acquisition and current ESL best practices, and (c) provide information about models of instruction being used by other districts with similar demographics and resources which can be useful when deciding on various program alternatives.

### **Inclusion of Stakeholders to Ensure High Levels of Implementation**

The second important component of a successful ESL program review involves soliciting input from key stakeholders involved in the operation of the ESL program. While not all stakeholders can be part of the review team, it is essential that multiple stakeholder groups are somehow represented and consulted.

Figure 1 summarizes potential key stakeholders.

Figure 1. Examples of possible key stakeholders to be included in a program review.

Administration	Paraprofessionals
School Board	Secretaries
ELLs	Title I Teachers
ELL Parents	Special Education Staff
ESL Teachers	Counselors, Psychologists, and Social Workers
Classroom Teachers	Community Members and Employers
Regular Education Students	Other Agencies (e.g., Mental Health)
Community Center program staff	

As a rule, any program review should include stakeholders (a) that have a high level of involvement in the outcomes of an ESL program, or (b) who have decision-making power in general.

Regardless of how clearly or thoroughly a program review is designed, the goals will not be accomplished without the establishment of a personal investment by the stakeholders. The valued input of all stakeholders requires equal status participation, open communication, and time and effort invested to build trust.

A common mistake witnessed in some districts is the failure to directly elicit feedback from families and community members and instead rely on assumptions held by the school personnel about parental involvement and communication.

Methods used to elicit feedback can include (a) interviews, (b) focus groups, (c) parent-teacher conferences, (d) more informal conversations, or (e) consultations. These should all occur before any final program recommendations are made.

### **Identification of Priorities Based on Local Needs**

Successful program reviews are iterative; the line between process and product fades and the process becomes the product.

In our experience, we have found that if a program review includes a continuous feedback loop, the likelihood that recommendations will be implemented increases greatly. While program evaluators will want to begin the review with a general list

of components (e.g., curriculum, assessment, and professional development) it is critical that the review team consistently gauge the importance of each specific component for the local context and clearly identify priorities for their own school setting.

Frequently the most important issues are only uncovered after the review has begun. Refining objectives can and should take place during the program review to ensure that all salient issues and priorities are addressed. These priorities emerge from various occurrences during the program review, such as (a) conversations between evaluators and between school personnel, (b) analysis of data collected from stakeholders, or (c) through review of team correspondence.

### Summary

Successful program review consists of a continuous dialogue between all stakeholders and it is based on clearly defined and commonly shared goals. A comprehensive review process utilizes the strengths of each team member, under the direction of a skillful leader who both demonstrates genuine commitment to the team, and has access to resources for its cause.

The recommendations for program evolution need to be memorialized in school improvement plans, district strategic plans, or part of a cyclical program review process in order to increase the chances that they will be operationalized and used to make the programs stronger for children.

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## Article on Best Practice

# Systemic Data-Based Decision Making: A Systems Approach for Using Data in Schools

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## Introduction

No Child Left Behind has increased data collection and reporting, the development of data systems, and interest in using data for decision-making in schools and classrooms (Marsh, Pane, & Hamilton, 2006; Thorn, 2002; U.S. Department of Education, 2007). Ends-driven decision making has become common educational practice, where the ends justify the means at all costs, and short-term results trump longer-term outcomes and the bigger educational picture.

From narrowing the curriculum (Jerald, 2006), to the “bubble kids” phenomenon of teachers focusing on students who are near the cut-off for passing state achievement tests (Brunner et al., 2005; Marsh et al., 2006), to students getting paid for passing scores (Ash, 2008), ends-driven decision making has become part of schooling and exemplifies a current form of data-based decision making.

However, if we chose to apply a systems approach to data-based decision making in schools, an approach that can help leaders view schools as complex living systems, we can increase the positive potential

of data-based decision making to help educators make reasonable decisions about *means*.

The purpose of this article is to describe, using Toyota Motor Corporation as an example, how applying a systems approach to data-based decision making in schools can support school leaders and educators in making decisions about means—the internal operations of the school or classroom—and promote student and school success.

## Complex living systems and Toyota Motor Corporation

Complex living systems, like the human body, focus on means (i.e., internal operations) as opposed to ends (i.e., results) for fitness and survival. Interestingly, Toyota Motor Corporation executives also focus on means for fitness and survival. By incorporating principles of complex living systems in their work, including defying the common business practice of “managing by results” in favor of “managing by means,” this company has both survived and thrived.

As an organization, Toyota does not use overall cost or productivity targets to manage day-to-day operations, contrary to the practices of most other businesses. Instead of managing by results such as quantitative targets, incentives, internal metrics, and system results from external “information factories,” Toyota management organizes work from a systems perspective, or systemically.

This approach focuses on organizing work to implement standards, with the belief that, if you nurture the means, results will follow. Internal data from the work itself provides continual feedback for how to make decisions, manage day-to-day operations, refocus standards and nourish fitness.

Of course, Toyota management has external information systems; but these systems are used for advance planning and monitoring results over time, rather than to drive day-to-day operational decisions (Johnson & Broms, 2000). An examination into the workings of this organization from a systems perspective, affords us the opportunity to glean three lessons from systems science and Toyota about data-based decision making.

### **Use external information systems for planning and monitoring results over time**

Educators, like Toyota executives (Johnson & Broms, 2000), should use external information systems (i.e., data warehouses often available at the district or school levels) for planning in advance of operations and for monitoring results over time.

Many educators already do this, as evidenced by the U.S. Department of Education’s (2007) finding that during the 2004-2005 school year, more than half of the school districts (65%) and teachers (65%) who had access to student data systems used them to

track accountability measures. Teachers also reported using student data systems to identify individual students’ skill gaps, inform changes to the curriculum, make decisions about pacing, place students, and identify promising classroom practices.

Systemic data-based decision making practices, such as planning and monitoring, utilize external feedback to inform and nurture means as well as to refocus attention on operational standards of effective schooling. Operational standards refer to the ways in which we organize our work to nurture means (Johnson & Broms, 2000) and includes the organization of work to implement academic achievement standards, as well as the development of best practices for instruction and management.

Thus, with systemic data-based decision making, external data are not used to manage ends but are instead focused on planning and monitoring, and standards of good schooling.

### **Let the work be your data**

Complex living systems use feedback to assess and improve their fitness. As suggested by Morrison (2002), fitness is the ongoing results of a system’s ability to adapt, or to improve its condition in relation to its environment.

System feedback is actually system output that is fed back into the system. Interestingly, the root of the word feedback is food, or nourishment. Conceptualizing feedback in this way is characteristic of systemic data-based decision making.

For example, the data used as feedback for decision making about day-to-day operations at Toyota are the work itself, the output: “No ‘expert’ with after-the-fact information is needed to explain that something is, or is not, right . . . [A]s in a natural living

system, the information is implicit in the work, because the work is itself the information (Johnson & Brom, 2000, pp. 104-105).”

Educators understand the value of authentic work and assessment. Teachers and principals have said that they rely on data from classroom tests, assignments, and homework for continuous feedback about student performance. In fact, in studies conducted by RAND (Marsh et al., 2006), more than 60% of teachers indicated that classroom assessments, or assessments for learning, are more useful than district or state tests. Many principals and teachers also reported that reviewing student work, such as writing samples, was useful for guiding instruction.

Systemic data-based decision making, which uses the work as data, requires authentic work products and assessment. Traditional tests or other abstractions of work are not sufficient. In addition, methods to observe and assess the other work of schooling, including teacher work and administrative processes, are important for systemic data-based decision making.

### **More to schooling than student test data**

Complex living systems are characterized as holistic, non-linear, and changing. They are composed of many unique parts, and the relationships between said parts. For example, parts of a typical school include: (a) students, (b) teachers, and (c) curricula. However, the system is also involves other (a) inputs (b) processes, (c) outcomes, and (d) the many relationships among the components. Inputs include student, teacher, and community characteristics; as well as resources and educational policy.

Common processes include teaching and learning practices, and school and district procedures. Outcomes include student academic, behavior and engagement, citizenship, and economic sufficiency and job potential outcomes, along with teacher and administrator outcomes. Thus, students and test data do not exist in isolation, and parts alone do not create results; relationships among parts create results (Johnson & Strom, 2000). Without a systemic perspective, understanding and interpreting student test data is limited, as decisions made based on student test data alone may have unintended impacts on other parts of the system or the system as a whole.

That said, when referring to data-based decision making, people often think of student test scores only (Petrides, 2006). In addition, the data warehoused by districts and schools are generally collected for compliance and accountability purposes, and do not capture the “whole” of schooling or what may be meaningful to educators making decisions about day-to-day operations. In the RAND studies mentioned earlier (Marsh et al., 2006), researchers found that outcome data, particularly student outcome data, were collected and used frequently by educators, but little input and process data were collected and used.

In addition, data from the 2004-2005 school year (U.S. Department of Education, 2007) indicate that, teachers with access to student data systems reported only being able to access information on class attendance and course grades. Furthermore, among school districts with student data systems, only 37% of those districts included process data about student participation in particular educational programs, while only 6% of teachers who had

access to student data systems reported that they were able to access information about student participation in supplementary education programs such as tutoring.

Data has become somewhat synonymous with the term measurable, which can result in educators leaving out meaningful parts of their system (e.g., school, classroom), because of the assumption that those parts cannot be measured accurately. However, it is important to remember that “[a]ll quantitative data is based upon qualitative judgments, and all qualitative data can be summarized and manipulated numerically (Trochim, 2005, p. 10).”

To support educators in data-based decision making, Holcomb (1999) suggested using the term observable instead of measurable. This differentiation helps to stress the point that data can take many forms (e.g. a numerical summary from an observation checklist, a qualitative description). In one study conducted by RAND (Marsh et al., 2006), district and school staff conducted “Learning Walks” to observe and assess the quality of instruction. Data were collected by

questioning students, examining student work, observing instruction, and observing materials on classroom and school walls.

Similarly, Barnes and Miller (2001) described the use of interview teams made up of parents, teachers, and administrators, including the superintendent and assistant superintendent, for data-based decision making. Each team spent the day at one school interviewing students. At the end of the day, they shared a summary of student comments with the principal and teachers and left their notes for further analysis and use by the school.

### **Conclusion**

With the impending reauthorization of No Child Left Behind (NCLB), educators have the opportunity to move away from the ends-driven decision making practices influenced by federal, state, and district accountability pressures. The time is right to shift to means-driven decision making and more systemic data-based decision making practices—practices that support the fitness of schools as complex living systems and the long-term success of our students.

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## Article on Best Practice

### Meeting the Needs: A Best Practice *Grow Your Own* School Leader Program

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#### Introduction

Interest in the preparation of principals and vice principals continues to be in the forefront of discussion about reformation of America's public schools. The current discussion is particularly important because of evolving and definitive insights derived from recent research on effective leadership practices (Elmore, 2000; Leithwood, et.al., 2004; Spillane, 2003), as well as criticisms of and recommendations for revisions of university school administration preparation programs (Achilles, 2004; Fry, O'Neill, & Bottoms, 2006; Hale, & Moorman, 2003; Levine, 2005;).

This article describes a partnership between one university and a large, urban public school district designed to help create a pipeline of future administrators for the school district located in New Jersey (NJ).

The program for the preparation of school administrators addressed some universal criticisms of principal preparation programs and it provided a necessary focus on research-based leadership practices. This article presents an overview of a model, where school administrators from one urban district worked

with university faculty, designed to build internal district leadership capacity through a job-embedded program that met the needs of the Newark, NJ public school system (as articulated by the superintendent of schools).

### **Review of the Literature**

During the last 25 years, there have been claims that effective principals are an important variable in school improvement (e.g., Beck & Murphy, 1996). In spite of that assertion, relatively recently has attention been paid to the preparation process and how schools of education administration have designed their preparation programs (Barnett, Basom, Yerkes, & Norris, 2000; Hess & Kelly, 2005; Murphy, 1992; Preis, Grogan, Sherman, & Beaty, 2007).

The focus has been directed on four aspects of that process; licensure, certification and accreditation, principal preparation, and professional development (Hale & Moorman, 2003). For this review, only principal preparation is relevant. The “general consensus is that principal preparation programs are too theoretical and unrelated to the daily demands on contemporary principals (Hale & Moorman, 2003,p1).” The evidence-based best practice described in this article addressed that concern by designing a program that was Newark-specific in terms of curriculum, leadership, management, and resource allocation issues.

University and public school partnerships have a long and diversified history. It is difficult to categorize the structures and context of the relationships but in recent times, 1990 to the present, some generalizations emerge.

One type of partnership is a formal, codified relationship that usually has a primary purpose and involves a formal agreement. Partnerships that establish professional

development schools and those that involve the actual operation of a school by the university are examples of the formal, codified approaches.

A second approach is more limited in nature, generally excludes a formal agreement, and serves a limited scope and/or purpose. The program that is presented follows the pattern of the first, more formal approach.

One university/public school partnership that examined the criticism of the preparation of school leaders through a collaborative process (Preis, Grogan, Sherman & Beaty, 2007), as well as applied the current education leadership research, is Newark Public Schools Grow Your Own (GYO) program. The program structure represents an attempt to “change the box” and to respond to some of the critique of how school leaders are prepared.

### **Program Formation**

In 2003, the Newark superintendent of schools and the chairperson of the Department of Educational Leadership, Management and Policy (ELMP) at a nearby university began a dialogue focusing on the needs of school leadership in an urban district.

The initial discussions produced a letter of agreement to establish a school leadership-training program for outstanding staff members, primarily experienced teachers of the Newark Schools. The parties agreed that the education leadership department, with input from Newark personnel, would offer a GYO program that would culminate in at least a master’s degree and completion of state certification requirements for school administration. The GYO program would be an accelerated two year blend of weekend on-site and extended on-line courses, and a 600-hour internship.

A planning committee was formed consisting of representatives of the Newark superintendent of school's office, the Newark Teachers Union, the Newark Principals and Supervisors Association, and university faculty.

The superintendent expressed concerns regarding the preparation of incoming principals and vice principals. Many of the newly hired administrators required extensive support by the central office and appeared overwhelmed by the problems they encountered.

The concern was exacerbated by the potential retirement in the next two years of over 20 existing school administrators. Through the collaborative efforts of this committee, a shared vision and a number of goals emerged. The critical research on preparation programs and data from the Newark schools helped to assess needs and establish criteria for program planning and implementation.

The committee also worked to recalibrate the university courses to reflect best practices and authentic Newark problems. The Newark superintendent identified several district issues that the program curriculum included such as raising levels of parental involvement and implementation issues related to assisting chronically underperforming schools. The result was a principal preparation curriculum based on the best available research and one that embedded the needs and content of the Newark district's curriculum and structure within the program.

### **Recruitment and Selection**

Traditional recruiting practices for principal preparation programs typically produce candidates who do not mirror the existing demographic composition of the local district and community. Consequently, great care was

taken to insure diversity within the selected cohort.

The district and the university developed methods to recruit prospective school leaders who had records of accomplishment with students, leadership skills, a passion to improve student achievement, and the ability to communicate effectively with teachers, students, parents and the community.

Applicants were permitted to self-select or were part of a "tapping" process to identify high-performers for development as school leaders. The tapping process consisted of a formal nomination by colleagues and peers in individual schools.

The final selection of participants consisted of 14 of the 25 selected candidates originating from the tapping process. The overall results of these efforts produced 100 total applications that then were narrowed to 50 for one-on-one interviews with faculty and district personnel, as well as a written assessment.

### **School-based Work Experiences**

At the end of the first year of study, the 27 selected candidates participated in a 600-hour school leadership internship that transferred theory into practice under the guidance of a university mentor.

The internship helped students link directly to day-to-day work in a Newark school and to focus on administration actions to enhance student learning. At the school site, they experienced specialized work in data analysis, budgeting, public relations, disciplinary tasks, decision-making tasks, committee meetings, scheduling and researching.

They were also required to analyze issues and/or problems that were relevant to their schools, and issues that were similar to those identified by the superintendent. Then, the candidates had to develop action plans to address the specific problem(s).

With their principals' input and the university mentors' guidance, the action plans were implemented and the resulting outcomes were shared with the superintendent as possible improvement models for the district to consider.

In the area of parental involvement, one result of the research that was done in the program was the use one candidate's model of parental involvement. It was identified as a promising research-based approach to increasing and redefining parental involvement and it became a district focus.

### **External Evaluation**

At the completion of the program, an external evaluator commissioned two surveys and engaged in one focus group interview session. The first survey assessed the program's content components in terms of the knowledge (the what), the skills (the how) and the attitudes (the why) of the program.

All participants (N=27) completed a 10 item questionnaire using a 5-point Likert-type response set (1-), where 1 indicated little degree and 5 strong degree. Items 1-7 were coded to match domains of knowledge (K), skills (S) and attitudes (A).

The second survey included two parts. Part A assessed degree of program satisfaction reflected in responses to five items assessing delivery systems including teaching, mentoring and mentoring/supervision activities. Part B included five open-ended questions, eliciting participants' responses to program effects. In

terms of the focus group, the participants were randomly assigned to a seven-person focus group with conventional content analysis techniques used to examine the findings.

The results of the external review complemented and expanded the programs internal review.

The results from the first survey revealed a grand mean of 4.93 for attitude (the highest), 4.44 for knowledge and 4.32 for skill. Results from the focus groups in these areas indicated a preponderance of participants' comments focused on the high quality of the knowledge, attitude and skill delivery. In combination, the results demonstrated a strong and positive response to the recalibrated program content. The results from the second survey, Part A, in combination with the focus group feedback indicated strong satisfaction with the intern mentoring (4.48), the co-teaching delivery system of on campus instruction (4.14) and only moderate satisfaction to the hybrid aspects of online course delivery (3.88).

The results from the second survey, Part B, open-ended questions, complemented and supported survey results by highlighting high levels of program satisfaction with content, delivery and personal support. In one area of note, 100% of program participants indicated in response to survey and focus group questions that they would recommend the program to their peers and colleagues.

### **Summary**

Results of external evaluations of the Grow Your Own program indicated a favorable consensus regarding the program. The evaluations indicated respondents' strong program satisfaction with their preparation, a sense of program coherence, an appreciation for a rigorous and supportive internship, and a

direct connection to the practice and realities of their school system.

Sixteen of the 25 graduates were selected as school administrators at either the principal or vice principal level in the Newark public school system at the conclusion of the program. Feedback from the assistant superintendents responsible for the supervision of these school administrators as well as from the superintendent indicated that they were well prepared and required minimal support on the job.

It appears that the Grow Your Own university/public school partnership represents an approach that seriously attempts to provide a leadership preparation program aligned to current research and address several of the recent and historical criticisms of the preparation process in general. The concept of embedding the issues involving the Newark

district, as outlined by the superintendent, also enhanced the program delivery.

Without debating the merits of the criticism of principal preparation programs, there is relevance in examining approaches that attempt to modify and customize curriculum and delivery processes that reflect changes in the field, the emerging knowledge base, best practices, and theory applied to practice along with direct input from the superintendent of the school district where the graduates will be hired. Although it is premature to draw too much significance from this program, given its infancy and lack of a comprehensive evaluation, it does represent an example of how an urban school administration can work with a university to fill a leadership void, build internal district leadership capacity, and improve a preparation program for future school leaders.

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## Commentary

### Elementary School Mathematics Priorities

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#### Introduction

The February, 2006, U.S. Department of Education study, *The Toolbox Revisited*, tells us that 80% of the 1992 U.S. high school graduating class went on to college. Only about half of those students graduated with a bachelor's degree. The others dropped out.

Inadequate preparation for college mathematics was a major contributor to the dropout rate. The foundation for K-12 mathematics is laid in the early years of elementary school. To succeed in college, this foundation must be solid.

A guiding principle of No Child Left Behind is equal opportunity for all children. Every child should learn the fundamental building blocks of mathematics. No child should be denied the preparation for high school and college mathematics that opens up the growing number of career opportunities that require mathematics.

We first describe some of the basic skills and knowledge that a solid elementary school mathematics foundation requires. We next elaborate on several points germane to these practices. We follow these main points

with a discussion and conclude with final comments and suggestions for future research.

Provided below is a minimal list of core concepts that must be mastered. They are the building blocks for all higher mathematics. This is not a curriculum or set of standards and it is certainly not all that students should learn in elementary school. It is also not just a list of skills to acquire. Although skills are essential in the list, understanding the concepts is also essential.

This is an attempt to set priorities for emphasis in an unambiguous fashion. The amount of high school and college level mathematics that today's workers require varies dramatically, but more and more careers are dependent on some college level mathematics.

Early elementary school mathematics is the same for all students because these students should have all career options open to them. The system must not fail to offer opportunity to all students. Basics are for everyone.

It is perhaps very difficult for many fourth grade teachers to see the connection between what they need to teach and why it is

necessary for the future engineer, doctor or architect. Those who regularly teach college mathematics to these students understand well what is needed from their students coming into college if they hope to fulfill the necessary mathematics requirements.

A strong elementary school mathematics foundation cannot be overemphasized. In light of this, the work of our elementary school teachers is extraordinarily important.

There are five basic building blocks of elementary mathematics. Keep in mind, throughout, that mathematics is precise. There are no ambiguous statements or hidden assumptions. Definitions must be precise and are essential. Logical reasoning holds everything together and problem solving is what mathematics allows us to do. These essential building blocks are not just the foundation that algebra rests on, but, done properly, prepare the student for algebra and the mathematics beyond algebra.

Precision, lack of ambiguity and hidden assumptions, and mathematical reasoning are the fundamental defining principles of mathematics and it is difficult to adequately emphasize their importance. If a problem is not well-defined with a unique set of solutions, it is not a mathematics problem. There can be no hidden assumptions in a real mathematics problem. Terms, operations, and symbols must be defined precisely. Otherwise ambiguity creeps in and we are no longer dealing with mathematics.

Although it is easy enough to say that mathematics is logical, it is more difficult to describe mathematical reasoning. Mathematical reasoning is what builds the structure of mathematics.

So, in order to understand a mathematical concept, a student must absorb the mathematical reasoning that develops that concept. Dividing fractions (invert and multiply) is an important skill in mathematics but it is mathematical reasoning that explains why invert and multiply is the correct way to divide fractions.

It is important that mathematical reasoning of this sort be taught and that new skills be understood through mathematical reasoning. This understanding is important and assumed throughout this discussion. Skills without understanding have little value, likewise for understanding with no skill. Each is essential.

Ultimately, solving problems is what mathematics is all about. The content of mathematics is all designed and built to solve specific types of problems. Our basic mathematics is fundamental to this enterprise because almost all other mathematics is built on it. Each new piece of mathematics allows a student to solve a new kind of problem.

To be sure, at the elementary school level, some of these problems could be solved without the new mathematics being introduced, but that mathematics becomes more and more necessary as problems get more and more sophisticated. It is best to practice new mathematics on the easy problems first.

It sometimes appears that learning the new mathematics in order to solve a problem is harder than just solving the problem directly, but once the newly learned mathematics feels natural it usually becomes clear that it solves the problems much more efficiently, and, importantly, can be used later to solve even harder problems that cannot be solved without the new techniques.

## Five Building Blocks

### *Numbers*

Numbers are the foundation of mathematics and students must learn counting and acquire instant recall of the single digit number facts for addition and multiplication (and the related facts for subtraction and division). Instant recall allows the student to concentrate on new concepts and problem solving. It is of fundamental importance in later mathematics.

This heading covers a lot of material in the earliest grades. Students must acquire some number sense. First, of course, they must learn the numbers, both to speak them and to write them. This comes along with counting and a working familiarity with and understanding of commutativity, associativity, and distributivity.

Students will learn how to add (and then multiply) single digit numbers before they learn instant recall of these facts. They must have an understanding of addition, subtraction, multiplication and division that underlies the ability to instantly recall these elementary number facts.

Mathematics is built level by level. Multi-digit addition and multiplication are built up from single digit operations using the place value system and the basic properties of numbers such as distributivity. The general operations reduce to the single digit number facts. Whatever their level of understanding, students without instant recall of these foundational single digit number facts are severely handicapped as they attempt to pursue the next levels of mathematics.

In later courses, the student who has to quickly do the single digit computations, even if in their head, rather than just recall the answers, will find they are unable to focus completely on learning and understanding the new mathematics in their course.

### *Place value system*

The place value system is a highly sophisticated method for writing whole numbers efficiently. It is the organizing and unifying principle for our five essential building blocks.

Although its importance is often overlooked, it is the foundation of our numbering system, and, as such, deserves much more attention than it usually gets. It is much more than just hundreds, tens and ones.

Arithmetic and algebra are the foundation for college level mathematics. A solid understanding of the place value system, and how it is used, is the foundation for both arithmetic and algebra. Arithmetic algorithms can only be understood in the context of the place value system. Since understanding is crucial, it begins with the place value system.

Elementary school mathematics must prepare students for algebra. Working with polynomials in algebra is just a slight generalization of the place value system. The place value system is essential algebra preparation.

The place value system is the foundation of our numbering system. The efficiency of the arithmetic algorithms is based on it. A real understanding of the basic four algorithms rests on a firm grasp of the place value system. Multiplication, for example, is little more than the combination of the place value system, distributivity, and single digit math facts for multiplication. This combination is the mathematical reasoning that makes the multiplication algorithm work.

The algebra of polynomials is just a generalization of the place value system. The place value system is based on 1, 10, 10 squared, 10 cubed, etc., and polynomials are

based on 1,  $x$ ,  $x$  squared,  $x$  cubed, etc. A solid understanding of the place value system naturally prepares students for the algebra of polynomials.

Without an understanding of the place value system and how it can be used there can be no real understanding of the rest of elementary school mathematics and all of the higher mathematics that rests on this. The place value system is learned in the early grades precisely because everything else depends on it so it must be taught first. Just because it is taught in the early grades does not mean that it is either simple or unimportant. On the contrary, it is a deep concept and understanding it makes all the difference. This puts a heavy burden on the teachers in these early grades and it is important that they be aware of this.

#### *Whole number operations*

Addition, subtraction, multiplication and division of whole numbers represent the basic operations of mathematics. Much of mathematics is a generalization of these operations and rests on an understanding of these procedures. They must be learned with fluency using standard algorithms. The standard algorithms are among the few deep mathematical theorems that can be taught to elementary school students. They give students power over numbers and, by learning them, give students and teachers a common language.

The case for the importance of the standard algorithms for whole number operations cannot be overstated. They are amazingly powerful. They take the *ad hoc* out of arithmetic. They give the operations structure. The theorems that are the standard algorithms solve the age-old problem of how to do basic calculations without having to use different strategies for different numbers. They completely demystify whole number

arithmetic. As an elegant, stand alone solution to an ancient problem they justify themselves.

There is more to the standard algorithms than just a very satisfying solution to a major problem. As students progress in their study of mathematics they will be confronted with more and more algorithms. They must start somewhere to learn about algorithms and these are the easy basic algorithms that prepare students for learning more difficult, complicated algorithms later on.

In high school and college mathematics these very same algorithms get slightly modified and generalized and used in different settings with new mathematics. This happens many times over and a mastery of the original algorithms makes this process an incremental one. The standard algorithms put all students and teachers on the same page when they make these transitions.

The standard algorithms are useful in other ways as well. The long division algorithm is probably the most important in this sense. With it, for example, it is quite easy to see that all rational numbers give rise to repeating decimals (any repeating decimal is also a rational number). It, by its very nature, also teaches estimation and begins to prepare students to understand convergence, a basic step towards calculus.

More operations than just these four come into mathematics, these are just the first four. These operations teach about operations. New operations fit into a pattern first developed with these basic four. They form a firm foundation for the conceptual development of future mathematics for the student such as the extension of these operations to rational numbers and complex numbers as well as the extension to polynomials and rational functions in algebra.

### *Fractions and decimals*

The skills and understanding for the four basic arithmetic operations with whole numbers must be extended to fractions and decimals, and fractions and decimals must be seen as an extension of whole numbers. Students must become proficient with these operations for fractions and decimals if they are to pursue additional mathematics. Again, understanding fractions is a critical ingredient for algebra preparation. A solid grounding in fractions is a necessary prerequisite for understanding ratios, which show up everywhere including business.

Whole numbers are just not enough. Our number system must be extended to include fractions (and decimals, which are really just fractions too) in order to solve a wide variety of problems.

Fractions are everywhere in mathematics and in day to day life so the ability to manipulate them with fluency is essential. They are seriously intertwined with algebra as well. First, you need them to solve simple equations like  $2x=1$ , and, second, in algebra, students must learn how to manipulate fractions involving polynomials, i.e. rational functions.

This is, again, an incremental transition if students can operate with numerical fractions with fluency and understand and work with their definitions.

### *Problem solving*

Single step, two step, and multi-step problems (i.e. problems that require this many steps to solve), especially word or story problems, should be taught throughout a student's mathematical education. Each new concept and skill learned can, and should be, incorporated into a series of problems of more and more complexity.

The translation of words into mathematics and the skill of solving multi-step problems are crucial, elementary, forms of critical thinking. Developing critical thinking is an essential goal of mathematics education. Mathematics is an activity. It is not enough to believe you understand something in mathematics. You must be able to do something with it. For example, multiplication is not understood if you cannot do it. Problem solving is what you do with mathematics.

Problem solving at the elementary school level is a well-understood process that can be taught. Going from one step to two steps to multi-step problems gradually increases the level of critical thinking.

By solving problems using new mathematics skills a student can confirm their understanding of this mathematics by doing. New skills allow students to solve problems that old skills did not suffice for. This reinforces the value of the new skills.

The difficult process of extracting a mathematics problem from a word problem requires a high level of critical thinking. However, such problems can start with great simplicity and gradually work up to immense complexity. Mathematical problem solving is a great place to hone logical critical thinking skills.

In normal daily life people are constantly being called upon to solve very complex problems that are usually not very well posed. The logical thinking and mathematical reasoning used to solve multi-step mathematics problems develops the critical thinking necessary to face life's more complex situations.

## Discussion

Students must learn the precise use of the terms, operations, and symbols of mathematics. The ability to be precise is one of the great strengths (and requirements) of mathematics and the proper use of the language of mathematics is essential in this learning process. Mathematics is precise. The meanings of terms, operations, and symbols must be completely unambiguous or communication is lost and mathematics slips away. Students who are unsure of what they are talking about cannot hope to solve problems with such ambiguous underpinnings. For students and teachers to communicate about mathematics they must all have precise meanings for symbols and terms in common. This is easy to overlook, and often overlooked, in situations where the content seems elementary, but this is exactly when that precision should start.

In order for terms and symbols to be precise they must all have definitions. As much as arithmetic and algebra begin the content basis of mathematics, the fundamental principles of mathematics revolve around explicit definitions of terms and symbols.

There are two distinct aspects to the precision of mathematics. Precision is necessary in the doing of mathematics and in the communication of mathematics.

Abstraction is part of the underlying power of mathematics and it should be taught from the earliest grades. For example, physical manipulatives are teaching aids that can help lead students to understandings in mathematics. They are not, in and of themselves, mathematics, but are teaching tools to help get to the heart of mathematics.

One of the most important attributes of mathematics, and one that gives it much of its power, is its abstract nature. One piece of

problem solving is the skill of turning complex word or story problems into concrete mathematics, in other words, to abstract the mathematics from the problem. This allows the core mathematics to be understood separately from the application, i.e. in the abstract. The benefits are manifold.

The same piece of abstract mathematics can be used over and over again to solve a myriad of seemingly very different problems. Thus, an understanding of the abstract mathematics, together with the critical thinking skills necessary to extract a mathematics problem from a word problem, allows a student to solve many problems with a small skill set. Without this abstraction each new problem is exactly that: a new problem requiring special mathematics just for it.

For example, it is generally possible to figure out how to multiply any two given numbers even without the standard algorithm, but the problem is different for every two given numbers. By abstracting the process to the standard algorithm for multiplication we solve the problem of multiplication for all cases once and for all.

Another example is college calculus. The departments, such as physics, economics and the various engineering departments, that require calculus for their majors have different applications in mind. The standard way to teach calculus for such diverse student needs is to abstract the material and teach the core principles that apply to all situations. The place value system, fractions and the standard algorithms all contribute greatly to algebra readiness. In addition, students can learn to use variables and solve pre-algebra problems. They must also learn about graphs and graphing as functions.

Elementary school mathematics leads up to algebra and, as such, it should prepare students for algebra. The content of our five building blocks is all necessary prerequisite for algebra, but, more than that, it prepares students for algebra because there is a natural incremental transition from arithmetic to algebra.

As already mentioned, the place value system and skill (and understanding) with manipulating the algorithms and fractions is invaluable preparation. More can be done. Using abstract variables whenever possible and using commutativity, associativity, and distributivity with the variables is great preparation.

Reading and drawing graphs are an important component of elementary school mathematics. Using grade appropriate, but precise, definitions for functions, students should learn to think of functions as rules, not just the formulas that give the rules. This can prepare a student for algebra by avoiding confusion when functions are more carefully defined in algebra. It can also get students used to working with formulas and equations.

Textbooks can be a tremendous help to students. With a textbook, students have the opportunity to relearn and rethink what they have seen in class. Parents can also have the opportunity to use texts to help a student at home.

Textbooks allow students to look up concepts they are unclear on, learn from reading (a skill frequently not attained by many college students) and rereading (for most, an essential ingredient while learning mathematics). The opportunity for self-paced repetition comes with a text. Likewise, parents, friends, older students, and tutors can all help with the education process if the content is

made explicit in a textbook. Not having a good text available is an unnecessary and severe handicap placed on students.

Some students will not acquire all of the skills and understanding necessary to begin a formal study of algebra when the time comes. If they do not succeed at learning a fundamental third grade concept in the third grade they will struggle, and often fail, to learn more advanced concepts necessary in later grades.

Such students are often completely unprepared for algebra. These students need not be lost to the subject. They are older and more mature and should be given the chance to fill in their knowledge gaps through some review or remediation process.

For students to proceed on to algebra without the necessary background mathematics is probably pointless. If they are given appropriate attention in the class, the prepared students will suffer. If not, the unprepared students will suffer. Intervention and remediation are the appropriate responses.

Given the opportunity to take the time to memorize the single digit number facts, nail down the place value system, learn to add, subtract, multiply and divide, such students have the potential to go on to learn algebra.

Certainly in high school there are two kinds of students, those who are still in the pipeline for a college mathematics course and those who are not. Pipeline (college preparation) algebra should not try to accommodate students without the prerequisites.

A placement test is probably appropriate for pipeline algebra to be sure students meet these prerequisites. This is very much for their good. If they are allowed to take

algebra and then go to college without the necessary arithmetic background, they will take a placement test in college and find themselves in remedial mathematics. (The majority of students who take a placement test in college fail it.)

When such students find they are missing their mathematical foundation they tend not to be happy. They also seldom recover mathematically well enough to proceed with a college level mathematics course. Students who cannot place into pipeline algebra should have the option of proceeding with non-pipeline high school mathematics courses or getting the remediation that allows them to proceed with algebra. Every opportunity should be made to allow students to rejoin the pipeline. The vast majority of high school graduates go on to college and the best new jobs require some mathematics.

## Conclusion

Mathematics is not a collection of unrelated topics. Mathematics is hierarchical. All of the topics discussed fit into an interconnected dependency pattern. These dependencies form a structure: the structure of mathematics. This structure is really part of the content of mathematics and was built by mathematical reasoning and it takes mathematical reasoning to make sense of the structure. The very structure of mathematics dictates that certain topics must be taught before others, and, in most cases, must be mastered before any understanding of the next topic can even be hoped for.

The core content for students who are in the pipeline for college mathematics is not in doubt. College mathematics teachers who teach students who need these courses know what is necessary.

The key here is that ALL students in elementary school must be considered to be in the pipeline. Some college (or a college degree) has become a prerequisite for many of the new jobs being created in the United States. This core content for elementary school is actually quite small.

For example, the top performing country internationally is Singapore. Their sixth grade textbook has a total of less than 40 pages of instruction and examples. The rest are problems. Core elementary school mathematics content is straightforward and focused. The catch is that it must be learned well to progress.

## Suggestions for Future Research

In the reading debate, questions were asked like: Is it better to teach reading with phonics or without phonics? Research could answer that question. On the surface, it looks like a similar question for mathematics is: Is it better to teach mathematics with the place value system or without the place value system? However, this question is irrelevant and nonsensical. The place value system is, indeed, mathematics! You cannot teach mathematics without the place value system, standard algorithms and our other building blocks.

The appropriate research questions are:

- (a) How is the place value system best taught?
- (b) What constitutes an adequate understanding of the place value system?
- (c) What is the least painful way to acquire instant recall of the single digit number facts without compromising understanding?
- (d) What is the most effective way to teach the long division algorithm? and
- (e) As fractions are notoriously difficult for students, what approach, or collection of

approaches, to fractions is most likely to succeed with almost all students?

New concepts in mathematics are presented to students each year of K-12

mathematics education. How to best teach these concepts should be thoroughly researched. Again, this differs significantly from reading where getting started is what matters most.

### Author Biography

W. Stephen Wilson is a professor in the mathematics department at Johns Hopkins University. He holds a PhD from M.I.T and has recently taken an interest in K-12 mathematics education. That interest led Wilson to a position as senior advisor for mathematics in the U.S. Department of Education Office of Elementary and Secondary Education from January to August 2006. E-mail: [wsw@math.jhu.edu](mailto:wsw@math.jhu.edu)

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## Commentary

### Precision in the Teaching, Learning, and Communication of Elementary School Mathematics: A Reply to Wilson’s “Elementary School Mathematics Priorities”

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#### Goals of elementary school mathematics

In “Elementary School Mathematics Priorities,” Wilson (2009 [this issue]) presents a list of five core concepts that students should master in elementary school so that they can succeed in algebra. As researchers in mathematics education, we enthusiastically endorse Wilson’s recommendations.

Learning algebra is key to further study of mathematics. If students are unable to pass an algebra course, they will likely not graduate from college, perhaps not even high school. This can limit students’ access to high-paying jobs. Hence, students’ success in algebra can strongly impact their economic well-being.

For these reasons, preparing all students to succeed in algebra must be a primary goal of mathematics classes; in fact, we suggest that early algebra learning begin in the elementary

grades. Students are unlikely to make progress in understanding the ideas of algebra if they have not mastered the skills of basic arithmetic, including: (a) understanding our base ten number system, (b) instantly recalling facts about single digit arithmetic, and (c) performing the basic arithmetic operations on whole numbers, fractions, and decimals.

Wilson emphasizes that these concepts, facts, and algorithms should be learned with understanding and through mathematical reasoning. On all of these points, we strongly concur.

As mathematics educators, we argue that there are other important mathematical competences that students should also develop in addition to the skills that Wilson (2009) lists. Elementary school students should have experience representing mathematical concepts in different ways, justifying why their mathematical solutions are correct, and

communicating their ideas to others. Wilson states that his list of skills that must be mastered in elementary school is not exhaustive, and we concur.

That said, the following points are intended for clarification, rather than contention.

### **Learning elementary mathematics**

We turn our attention to issues about the role that precision should play in elementary mathematics learning. Wilson (2009) argues that precision is fundamental for doing mathematics, stating that “precision, lack of ambiguity and hidden assumptions, and mathematical reasoning are the fundamental defining principles of mathematics and it is difficult to adequately emphasize their importance.” He returns to the matter of precision numerous times in his article, at one point claiming that, “students must use the precise terms, operations, and symbols of mathematics.”

We agree with these sentiments insofar as they pertain to standard outcomes of elementary mathematics education; as students move through elementary school, they should make progress in the correct use of precise terms, operations, and symbols of arithmetic.

We question whether insistence on precision is necessary, or even desirable; when students are first being introduced new mathematical concepts as well as when they explore and invent their own personal notations during process of mathematical learning and problem solving.

Wilson (2009), on the other hand, believes this point and claims, “the proper use of language is essential to the learning process.” He goes on to warn that, “the meaning of terms, operations, and symbols

must be completely unambiguous or communication is lost and meaning slips away.”

If students are using terms, operations, or symbols that have a meaning in standard mathematics, we expect them to be using those terms correctly. Certainly, the incorrect use of mathematical terminology can develop or

reinforce misconceptions about mathematical ideas and stymie future learning.

However, to this point, we offer research that depicts the process by which students build meaning as often messy and imprecise. When children are first introduced to a new mathematical idea, they often invent personal operations and notations to use in their mathematical work.

The process of exploring mathematical activities is a first step for students to develop personal meaning that can be represented a variety of ways. Our work has shown that this is a prerequisite for students building deep conceptual understanding of the mathematics that they are doing. Hence, this process is integral, in that it enables the students to give meaning to the standard mathematical terms, operations, and symbols that they will utilize in the future.

By encouraging students to invent operations and notations and to share these ideas with their classmates, we contend that the terms, operations, and symbols that students use will not be completely unambiguous. Wilson (2009) fears that this potential ambiguity will cause communication to be lost and meaning to slip away.

We disagree with this assertion. In our work, we anecdotally have found that students are capable of effectively communicating

informal mathematical ideas to each other using novel representations.

Furthermore, the process of resolving natural differences in such representations, can provide a rich learning opportunities for students. Asking students to explain the meanings behind their mathematical terms and procedures affords them the opportunity to think more deeply about the underlying mathematical concepts, clarify what their symbols represent and defend why their actions make sense.

To avoid misinterpretation, we acknowledge that the use of standard mathematical terms, operations, and symbols is a necessary strategy for learning and doing mathematics as it makes communication about complex ideas possible, thereby facilitating understanding. Yet, we contend that insisting students use these terms, operations, and symbols before they are meaningful to them will actually be an impediment to understanding and communication of ideas. That is, asking students to apply terms that they do not yet understand requires them to make assertions that do not make sense to them.

To further our position on precision vis-à-vis that of Wilson (2009), we also find discomfort with the demand for precision in the posing of problems to children. At several points in his article, Wilson mandates that there be no hidden assumptions in a mathematics problem. He asserts, “if a problem is not well-defined with a unique set of solutions, it is not a mathematics problem. There can be no hidden assumptions in a real mathematics problem.”

Is this claim plausible? There are numerous conventional problems in school mathematics that clearly rely on hidden assumptions. When children are asked the sum of the degrees in a triangle, it is assumed that

they are working within the Euclidean geometry. When students are asked why a squared number cannot be negative, it is assumed that they are working with the real number system.

Specifying when it would be appropriate to use a particular estimation strategy does not have a unique set of solutions, but this would be a productive conversation to have in an elementary mathematics classroom. Many word problems rely on an implicit shared understanding of how the world works.

Posing problems with hidden assumptions is not only unavoidable, but also advantageous in some situations. One of the most robust findings in mathematics education research is that students enter classrooms with mathematics assumptions that are incorrect. Further, giving students mathematical definitions and requiring them to be precise does not prevent their incorrect assumptions from influencing their reasoning (e.g., Tall & Vinner, 1981).

Effective teaching requires making students’ meanings public thereby having the opportunity to address their misconceptions directly. If students obtain different answers to the same mathematical problem, they naturally will be motivated to revisit and explore the assumptions that led to this apparent contradiction. Discussions of this type have been shown to create powerful learning opportunities (Maher & Martino 1996; Weber, Maher, Powell, & Lee, 2008).

### **Support for our views**

Reform-oriented mathematics curricula ask students to invent operations and notations to solve problems that may rely on hidden assumptions. Several large studies have compared the learning outcomes of those who learned using reform-oriented and traditional

curricula (e.g., Senk & Thompson, 2003, 2006).

In general, the students taught using the reform-oriented curricula developed a greater conceptual understanding of algebra without loss of procedural skill. We are not claiming that all reform-oriented curricula are without fault or cannot be improved, but these studies do demonstrate that some of these curricula are useful in helping students succeed in algebra.

Our beliefs are largely shaped by our own experience with creating informal mathematical learning environments. In these environments, we ask students to collaboratively work on challenging and open-ended mathematical tasks. When doing so, students spontaneously generate a wide array of

notations and operations to solve our problems, justify their solutions, and communicate with each other.

The results of our study show that young students were able to solve very difficult problems (e.g., Maher & Martino, 1996). Further, although their initial explanations were expressed using their own terminology, which was sometimes imprecise, they often were able to later express their ideas using standard mathematical notation appropriately (Maher, 2005; Uptegrove & Maher, 2004). Students who participated in our program showed improvements in their standardized test scores (Maher, 1991) and the mathematical dispositions that they developed led them to not only succeed in algebra, but graduate from respected universities (Francisco, 2005).

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## Commentary

### Ten Practical Reflections for Educational Leaders

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EDITOR'S NOTE: This is the final article submitted and reviewed under now-retired editor Frederick Dembowski.

Sometimes, you don't know what you don't know! No matter how much training and preparation you have, the job facing most school administrators today is a very difficult one. You probably spent at least two years in graduate school studying decision making, curriculum development, and instructional leadership, along with school law, personnel practices, and budgeting. Then you graduated and began applying for your first administrative position. Eventually you landed your first job and began your career as a school administrator, believing that your hard work and perseverance, coupled with your graduate study, had sufficiently prepared you. For the most part, you were right.

But there are many, many pressures placed upon today's educators in leadership

positions. Which course was it that prepared you to deal with a young teacher who is losing her job, not because of her performance, but

because you are compelled to reduce the size of the teaching force due to inadequate funding? Which experience in your background prepared you to face the irate parent who is shouting at you that his child didn't do it even though you have three witnesses, including a teacher? Which internship task helped you explain to your spouse that you need to put in long hours most days, attend a multitude of evening events, and go to board meetings?

These types of issues arise each and every day in the life of a school administrator. No matter how much experience you have and no matter how many courses you have taken, the school administrator's life just keeps

changing...and sometimes you just don't know what you don't know.

And you can't know it all.

Environments change, new regulations are promulgated, and society's expectations grow, increasing what we don't know. But most of what you need to know can be boiled down to ten common sense practices. These can serve as reminders for veteran administrators and guidance for developing leaders so that you will know what to do when the time comes.

### **Know Yourself and Where You are Going**

Your supervisor, the superintendent, and the board of education hired YOU. They had choices but selected you from a field of applicants for a variety of reasons. Have the confidence to let your personality come through in your new duties. As you learn the tasks associated with your new position, temper your responses with good judgment, but be yourself.

Commit the necessary time to develop a clear vision for your unit (school) and the direction in which you wish to lead it. Talk with your immediate supervisor and valued colleagues in developing your vision to ensure that it does not clash with established community values and expectations. Knowing yourself and where you are headed will also provide you with a clear focus each and every day.

### **You Cannot Be Overly Prepared**

The number one mistake an administrator (or anyone for that matter) can make is not being prepared for what may happen. There may be some things that will happen during your career that you just won't see coming. But most issues that will appear on your radar are predictable. "Be prepared" is not just a slogan

in the Boy Scouts; it's an axiom that will serve you well in educational leadership.

If you know you must report annually on student discipline or periodically on building maintenance, then do your homework! Read, network, read, attend conferences, read, get involved in professional organizations, and read. It is and will continue to be extremely important to stay current in your field. Reading in professional journals, being organized, and gathering data are strategies that will serve you well, not only in your first administrative post, but in earning future promotions.

### **Link With Others**

No one has to go it alone. Invest the necessary time to develop a strong network of colleagues who can assist you when you need or want information or help in thinking through an issue before responding. When facing a new or difficult situation, it can be very helpful to talk with informed and caring peers who stand ready and willing to offer assistance. Be a mentor for others as well. Nurture these relationships...they may very well carry you through some difficult times yet to come!

### **Measure Your Words**

When you do need to speak to a controversial issue or in an uncomfortable situation (and you can be sure there will be many opportunities during your administrative career), be cautious. Have you gathered sufficient information? Are you the person who should handle this issue or will you be stepping into someone else's area of responsibility? You know how to make decisions. As a school administrator, however, what you say is closely observed by others. It's not you any more...it's the position...it's the assistant principal...it's the principal...speaking. Your words will be repeated. When you have to speak out, therefore, be careful...and be sure to say only what you mean to say.

### **Take Responsibility**

This can be a tough issue for new administrators, but it leads to a great deal of respect from your colleagues and staff. You will be called upon to render many decisions during your career. Hopefully, if you do your homework and think through issues carefully, you will make the correct decision. It is extremely important, however, to take personal responsibility for your decisions. Don't pass the buck! If you've made the right decision, stand behind it. When you start to say things like "This really isn't my decision..." or "I wouldn't have done it this way but..." you weaken yourself and your position. Faculty may very well think of you as someone with little authority. Why should they deal with you if you aren't the decision maker? It leads them to look elsewhere to discover the real decision maker. Once you've made a decision stand behind it. In the long run, you will earn respect.

### **Keep Others Informed**

Developing and maintaining strong communication skills cannot be over-emphasized. Throughout your career, you will be asked to speak and write to students, parents, faculty and staff, and your community about a variety of educational issues. Most people, school administrators included, do not like unpleasant surprises.

When troublesome issues arise in your area of responsibility, keep your supervisor informed. The trick here is in determining which issue could explode out of control or which situation is of minor concern. Wisdom would dictate that when in doubt, have a conversation with your supervisor. Similarly, when the time is right, and that is something you should discuss with your supervisor, you should keep your faculty and staff informed of emerging issues or difficulties. Parenthetically, it is also advisable to maintain good notes to

yourself about the details of any incidents that may later become litigious.

### **Maintain Perspective**

It is reasonable to assume that if you have been hired as a new school administrator you are a balanced and pleasant person. Continue to work to develop these important traits. There will be times during your career when you will need to pause and take a minute to gain some perspective. That's when having a strong sense of self and the ability to see through the fog of the moment will prevent you from over-reacting. The phrase "don't sweat the small stuff" may very well become a mantra for you as you come to deal with misbehaving students (or faculty/staff), irate and unreasonable parents, and thoroughly unexpected issues. Having the ability to pause and reflect, coupled with the ability to take things as they come...and being able to find humor in things at times... will serve you well throughout your career.

### **Have the Courage to Make the Right Decision**

You have undoubtedly made many decisions throughout your professional life. All contributed to the person you are now and are precursors to the kinds of decisions you will make in the future. Making decisions and making the right decisions are not always the same thing. As a school administrator, your decisions will affect hundreds of students, faculty, and staff members. Some will be small decisions, and some will have a much greater impact. In every instance, however, you will be called upon to identify the issue, review several alternatives, and then choose a path. What will you do if the decision affects a friend or colleague? What if the issue forces you to choose between friendship and the students you serve? It is at these times that the courage to make the right decision will be tested...and you will be tested! In spite of the personal

difficulty that it may cause, have the courage to choose what is best.

### **All You Really Have Is Your Integrity**

Stop for a minute and think about it: When it comes right down to it, your reputation as a school administrator ... and as a human being ... depends upon whether others can believe what you say and can trust you. All of the reflections in this brief article are important, but without personal integrity, none of them will help you. If you cannot be trusted, nothing else matters.

### **Enjoy Yourself**

As school administrators, we have one of the best jobs anywhere. If we are to serve our

communities and students well, we need to be sure we bring balance to our professional and personal lives. Take time for yourself. Develop outside interests and friendships. Spend time with your spouse and family. Work hard when you are at work...always be as prepared as you can...but take time for outside enjoyment and relaxation for yourself and your family. Everyone needs time to refresh.

The above ten reflections certainly do not represent a compendium of knowledge about school leadership. But they do provide a practical guideline for survival. Follow them and you'll experience success both inside and outside the workplace.

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## Mission and Scope, Upcoming Themes, Author Guidelines & Publication Timeline

The *AASA Journal of Scholarship and Practice* is a refereed, blind-reviewed, quarterly journal with a focus on research and best practices that advance the profession of education administration.

### Mission and Scope

The **mission** of the *AASA Journal of Scholarship and Practice* is to provide peer-reviewed, user-friendly, and methodologically sound research that practicing school and district administrators can use to take action and that higher education faculty can use to prepare future school and district administrators. The Journal publishes accepted manuscripts in the following categories: (1) Evidence-based Best Practice, (2) Original Research, (3) Research-informed Commentary, and (4) Book Reviews.

The **scope** for submissions focuses on the intersection of five factors of school and district administration: (a) administrators, (b) teachers, (c) students, (d) subject matter, and (e) settings. The Journal encourages submissions that focus on the intersection of factors a-e. The Journal discourages submissions that focus only on personal reflections and opinions.

### Upcoming Themes

Below are the themes for the next three issues:

- Navigating Fiscal Crisis with a Focus on Student Achievement
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### Submissions

**Length of manuscripts** should be as follows: Research and best-practice articles between 1,200 and 1,800 words; commentaries, book and media reviews between 400 and 600 words. Articles, commentaries, book and media reviews, citations and references are to follow the *Publication Manual of the American Psychological Association*, latest edition. Permission to use previously copyrighted materials is the responsibility of the author, not the *AASA Journal of Scholarship and Practice*.

Potential contributors should include a cover sheet that contains (a) the title of the article, (b) contributor's name, (c) academic rank, (d) terminal degree, (e) department and affiliation (for inclusion on the title page and in the author note), (f) address, (g) telephone and fax numbers, and (h) e-mail address. Also please provide on the cover page a 40-word biographical sketch. The contributor must indicate whether the submission is to be considered original research, evidence-based best-practice article, commentary, or book or media review. The type of submission must be indicated on the cover

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The **publication schedule** follows:

Issue	Deadline to submit articles	Notification to authors of editorial review board decisions	To AASA for formatting, editing	Available on AASA website
Spring	October 1	January 1	February 15	April 1
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Seattle Summit: Leadership for the Future: July 16-19, Seattle, WA

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