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Exploring Below the Surface: School Climate Assessment and Improvement as the Key to Bridging the Achievement Gap

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Abstract: This paper reports the findings of a study by the Alliance for the Study of School Climate (ASSC) that explores the causes and remedies for the student achievement gap. ASSC School Climate Assessment Instrument (SCAI) and achievement test score data were collected from 20 urban public schools – 7 Elementary School, 7 Middle School, and 6 High School. Results of the data analysis found a +0.7 correlation coefficient between achievement and school climate/performance. Higher performing schools were shown to have climates that were characterized by organizational intentionality, higher levels of community, greater teacher collaboration, and high degrees of what is termed "psychology of success" promoting practice and low levels of "psychology of failure" promoting practice. These practices are further identified and explained in the paper. Implications of the findings are offered for the field as well as for practitioners.

"The achievement gap in this country is our greatest civil rights issue."
~Roland Fryer, Harvard University

The Problem
It would be difficult to refute the statement above from Roland Fryer that the achievement gap between advantaged and disadvantaged students in schools is the greatest civil rights issue of the early 21st century for the US. However, despite a great deal of research and reform aimed at reduce the achievement gap, it persists (Harris & Herrington, 2006; Ladson-Billings, 2006; National Assessment of Educational Progress (NAEP), 2008). As a result, each year another group of students graduates from High School not having met their potential.

Figure A depicts National Math test score means for 13 year olds of different ethnic groups. These findings are representative of student achievement as a whole at this level. The figure reflects an achievement gap between groups. The figure also depicts the recent trend. After initial reduction, the

size of the gap has leveled off. The achievement gap was largest in the 1970 when the National Assessment of Educational Progress (NAEP) began to collect data. By the 1990's the gap had been reduced. However, since then, while scores for all groups have improved slightly, little has changed in terms of the size of the gap.

Figure A: National 13 Year Old NAEP Math Test Scores

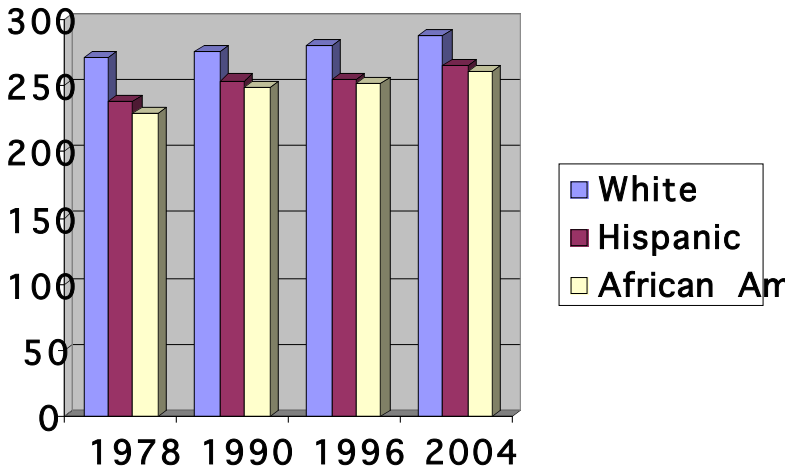
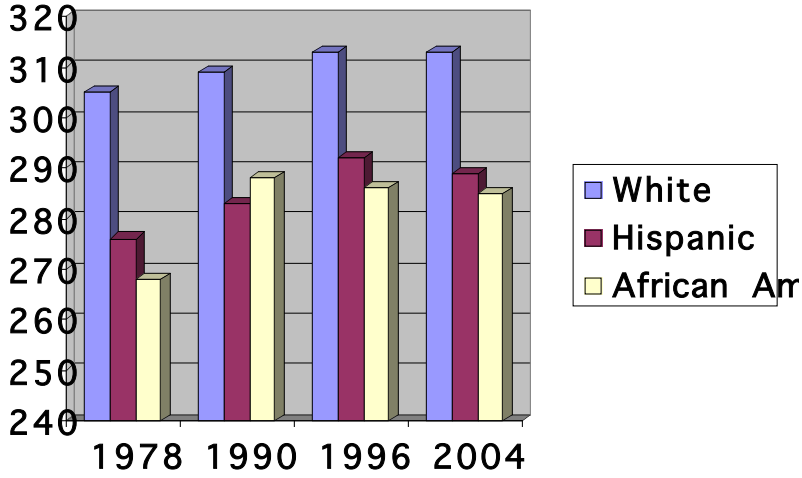


Figure B depicts the NAEP test score means for 17 year olds during the same time period (as represented in Figure A). While, the achievement test score pattern of both 13 and 17 year olds is similar, the gap between white and non-white students can be seen to have grown. This trend is consistent with what is found in the NAEP reading score data as well. State level data from Washington and California reflect a similar pattern over the past decade (Education Trust, 2007; Shannon & Bylsma, 2002; NAEP, 2008).

Figure B: National 17 year Old NAEP Math Scores



Purpose
The purpose of this study was to explore the relationship between school climate factors and student academic achievement, with particular emphasis on the "achievement gap." The study endeavored to discover new insights into the nature of the achievement gap, and offer implications for educational theory and practice.

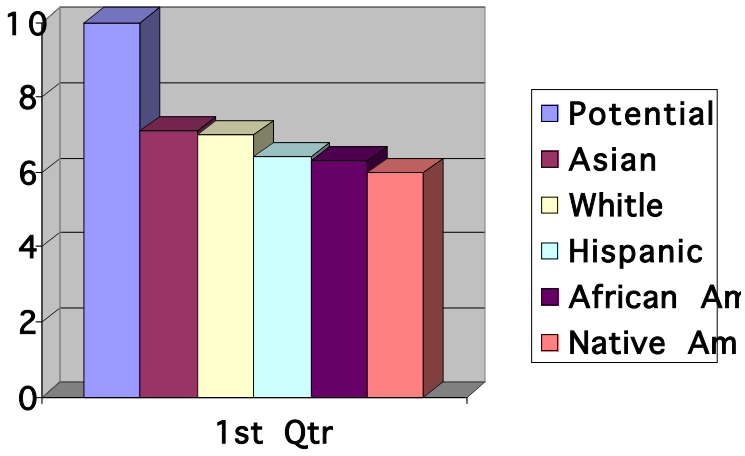
Gaining Perspective
Over the past few decades since the achievement gap between groups of students has gained wider recognition, a great deal has been learned about it. The good news seems to be that more is known about what is and is not causing the disparity in test scores (Harris & Herrington, 2006; Johnson, 2002; Ladson-Billings, 2006; Kober, 2001; Singham, 2003). The bad news is that in most cases the intervention strategies being applied currently are showing little effect toward reducing it.

> *The assumption of rightness, as related to the achievement gap, often leads teachers to assume that the problem of school failure lies in the students and their families and not in the structure or function of schooling.* (Howard, 2006 p.119)

As Howard (2006) suggests, it is tempting for educators to place the blame on the students. However, it is both mistaken and inaccurate to blame the problem entirely on what students bring into school from the outside. Most research points to both home and school factors as being responsible for some share of the existence of the achievement gap (Kober, 2001; Lee & Bowen, 2006).

Moreover, there is a tendency to approach the idea of an achievement gap as an indictment of certain groups and cultures – i.e., the "achieving groups" and the "non achieving groups." However, the reality is that *all* students have an achievement gap. No student meets their full potential. Performance standards can obscure the reality that every student and every school has room for improvement. Some groups of students simply demonstrate a greater level of performance on average relative to their potential. Therefore it is more accurate to represent the achievement gap as it is depicted in Figure C, in which all groups reflect a gap between their actual achievement and a hypothetical potential level.

Figure C: Achievement Levels of Various Ethnic Groups Relative to their Hypothetical Potential



School-Related Factors that Contribute to the Achievement Gap
Over the past few decades more has been learned about the school-related factors that contribute to the achievement gap. For example, studies have shown that the quality of teachers makes a difference in the achievement level of the students they teach (Haycock, 2001; Kober, 2001). Such variables as class size and material resources have been shown contribute to achievement disparity (Johnson, 2002; Ladson-Billings, 2006). Testing bias has been shown to exist as well. Yet, the most recent studies suggest that, currently, this factor does not appear to be a proportionally significant contributor to the problem (Kober, 2001).

Teacher attitudes and perceptions of their students have been shown to significantly affect the performance of their students (Elhoweris, et al., 2005; Howard, 2006; Rosenthal & Jacobson, 1968). Perceptions of race and racial bias are difficult to measure, yet there appears to be ample evidence to suggest that they play a part in contributing to differential levels of achievement, however, mostly when it takes the form of differential expectations for students of different ethnic groups and socio-economic levels (Elhoweris, Mutua, Alsheikh, & Hollaway, 2005; Kober, 2001; Shann, 1999). Very often the curriculum that is taught reflects a differential level of expectation related to the socio-economic levels of students as well (Anyon, 1980). Students in working class schools were found to receive a more rote and conformity driven curriculum when compared to their wealthier peers whose curriculums tend to reflect a higher level of critical thinking and student responsibility. The choice to differentiate curriculum by class is often rationalized as being in the best interest of the students. This assumption is based on the premise that students of different socio-economic classes need different kinds of treatment. In addition, while a common recommendation for reducing the achievement gap is to improve instructional quality (Kober, 2001), disagreement still exists as to what that "improved instruction" should look like (Jones et al, 2003).

There are a growing number of accounts of teachers and administrators who are reducing the achievement gaps for the students at their schools (Lee, 2002). Yet, these cases still tend to be the exceptions. Too often schools attempt to implement disconnected, add-on, piecemeal programs to target low performing students, only to find that their efforts do not ultimately lead to fundamental change in function or performance (Banks, 1994; Fullan, 2003; Shindler et al, 2004). Treating the symptoms of the problem can produce a limited positive impact, yet, most often it leaves a school far short of fully bridging the gap in performance.

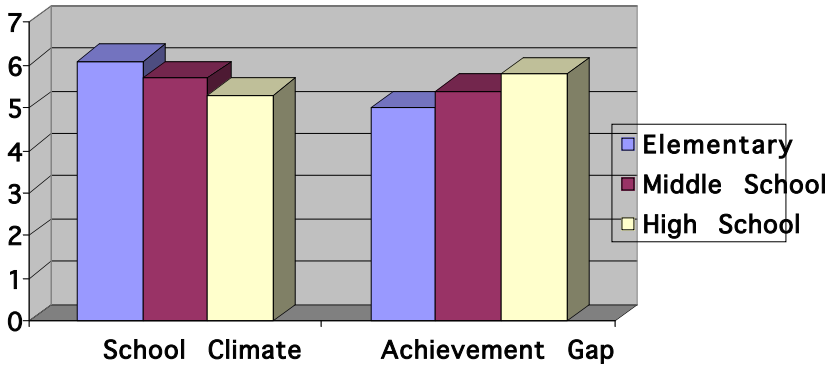
Exploring the Causes of the Gap that Exist Largely Below the Surface
There is little evidence to suggest that the problem is the result of a lack of effort, sincerity or good intentions on the part of educators. Most schools have a strategy for addressing underperforming students, and teachers seem to be working harder than ever. Yet, the solution may best be found not in a greater level of intensity applied to old solutions, but in a fresh set of insights and strategies. These new ideas may need to come from looking below the surface realities to more fundamental and systemic factors within the school.

There is a growing awareness that these more systemic and implicit factors such as school climate hold the key to higher degrees of progress in promoting student success (Kobler 2001). Many states are beginning to include an examination of school climate in their recommendations for improving student achievement. For example, the California Superintendent's P-16 Council Report (January, 2008) entitled "*Closing the Achievement Gap"* identified formally assessing and addressing school climate as an essential component in any schools' effort toward successful reform and making a difference for underprivileged student groups. The Council pointed to the work of the Alliance for the Study of School Climate (ASSC) as a leader in illuminating the nexus between achievement and school climate.

While more direct methods of intervention with the goal of improving student achievement make sense, if its basic structure is dysfunctional, the capacity of a school to promote its desired goals is limited. Jones et al, (2003) found that each of the facets of any school's performance is related. They reported that schools had a uniform level of function when it came to the various areas of the schools performance such as the underlying culture, instructional quality, leadership approach, types of teacher interactions and the quality of student relations. Schools tended to be high, average or low across the board. This may explain why efforts to improve in a single area so often fail, as the potential for success is dependent on every aspect of the institution as an organic whole.

When we examine school climate quality in relation to the size of the achievement gap, we find that there is an inverse relationship, as illustrated in Figure D. The tendency in most schools is for the achievement gap to progressively grow, while at the same time the quality of the climate declines (Becker, & Luthar, 2002: Jones et al. 2003; Kobler, 2001; Shindler, et al, 2004). Is there a causal relationship between the two outcomes? This study endeavored to explore this question.

Figure D: Achievement and School Climate Trends over Time



Research Methods

The study examined school climate and achievement at 20 urban public schools. The sample of schools was drawn from a large geographical area and reflected schools from diverse ethnic and socio-economic communities. Each school assessment team administered the Alliance for the Study of School Climate (ASSC) School Climate Assessment Instrument (SCAI). The team at each school incorporated a standard protocol and surveyed a minimum number of participants (N= 30 students, 10 teachers as well as 10 staff and parents, with most sample sizes being larger). Focus group data were also collected. California State Academic Performance Index (API) and Similar School Rating (SIM) scores (published by the state), were used to measure student achievement at each school.

The SCAI was designed to achieve an in-depth examination of the health, function and performance of each school. While the term "school climate" was judged the best description for the intent of the instrument, it examines the construct of climate broadly, and includes 8 distinct dimensions. Those dimensions are:

1. Appearance *and* Physical Plant
2. Faculty Relations
3. Student Interactions
4. Leadership/Decision Making
5. Discipline Environment
6. Learning Environment
7. Attitude *and* Culture
8. School-Community Relations

Items within the SCAI are structured to reflect 3 levels – high, medium, and low functioning. There is descriptive language for each level of each item. Participants are asked to rate their experience of their school on each item. Example items from the SCAI can be seen in Figure E.

Figure E: A Sample of Three Items from Scale 5 (Discipline Environment) of the ASSC School Climate Assessment Instrument (SCAI)

5. Discipline Environment		
Level – 3	***Level - 2***	***Level – 1***
High high-middle middle middle-low low		
5.c----------O---------- O ---------- O ---------- O ---------- O ----------		
Most teachers use effective discipline strategies that are defined by logical consequences and refrain from punishments or shaming.	Most teachers use some form of positive or assertive discipline but accept the notion that punishment and shaming are necessary with some students.	Most teachers accept the notion that the only thing the students in the school understand is punishment and/or personal challenges.
5.e----------O---------- O ---------- O ---------- O ---------- O ----------		
Maximum use of student-generated ideas and input.	Occasional use of student-generated ideas.	Teachers make the rules and students should follow them.
5.i----------O---------- O ---------- O ---------- O ---------- O ----------		
Management strategies consistently promote increased student self-direction over time.	Management strategies promote acceptable levels of classroom control over time, but are mostly teacher-centered.	Management strategies result in mixed results: some classes seem to improve over time, while others seem to decline.

High, medium and low level items in the SCAI correspond to overall levels of school function and performance. Figure F depicts the characteristics of these 3 levels. At the core of what defines a high functioning school includes a high degree of organizational intentionality, collaborative effort, reflective practice and a pervasive orientation toward achievement that could be classified as a "psychology of success (POS)." The presence of a POS has been shown to be predictive of academic achievement (Auer, 1992; Dweck, 2000; Benham, 1993; Klein, & Keller, 1990; Shindler, 2009) and personal and social health (Ayling, 2009). Figure G depicts the 3 factors that constitute achievement psychology – internal vs. external locus of control, acceptance and belonging vs. isolation and worthlessness, and mastery vs. helpless orientation (Dweck, 2000). Social contexts such as schools tend to promote either more "psychology of success" (POS) or more "psychology of failure" (POF). These practices are explained in more detail in Appendix 1.

Figure F: Theoretical Construct for Each of the Three Levels of the ASSC School Climate Assessment Instrument (SCAI).

	Level 3	Level 2	Level 1
System	**Intentional**	**Semi-Intentional**	**Accidental**
Ethos	Sound vision translated into effective practice	Good intentions translated into practices that "work."	Practices defined by the relative self-interest of faculty and staff
Effect on Students	**Liberating** Experience changes students for the better	**Perpetuating** Experience has a mixed effect on students	**Domesticating** Experience has a net negative effect on students
Staff relations	**Collaborative**	**Collegial**	**Competitive**
Psychology of Achievement	**Promotes a Psychology of Success (POS)**	**Promotes a Mixed Psychology**	**Promotes a Psychology of Failure (POF)**

Figure G: Sub-factors for the Theoretical Construct of Achievement Psychology

Psychology of Success (POS)	Psychology of Failure (POF)
Internal Locus of Control	Eternal Locus of Control
Belonging & Acceptance	Alienation and Worthlessness
Mastery Orientation	Helpless Orientation

Findings

The results of the study confirmed a strong relationship between the quality of school climate and academic achievement levels. Overall, at least eight study conclusions appear to be supported by the data. First, consistent with previous research the data showed that the quality of school climate decreased as students moved from the Elementary to Secondary School level (Elementary Mean = 6.4, Secondary Mean = 5.8). Second, achievement was shown to be highly correlated to overall mean school climate (r=+0.7). Third, achievement was also shown to correlate with all 8 SCAI climate and function indicators, including a very substantive correlation coefficient for classroom discipline practices (r=+0.7). Fourth, all 8 of the climate factors at each of the 20 schools tended to be highly inter-related. This suggests that factors are highly inter-dependent. Fifth, the data reflected an inverse relationship between climate and the size of the achievement gap. Those schools that exhibited better climates had smaller gaps in achievement between advantaged and disadvantaged student groups. Sixth, SCAI was positively correlated to Similar School rating (SIM, r=+0.3). This suggests that schools that have better climates do better with the students that they have. Seventh, similarly, when socio-economic status was adjusted for, the correlation between the SCAI scores and the achievement scores grew more prominent (r=+0.8). Eighth, intra-school data showed similar variation. The experience of climate for students within each school also varied relative to academic track of the student group. Students in lower performing tracks identified different practices being the norm than their higher track peers.

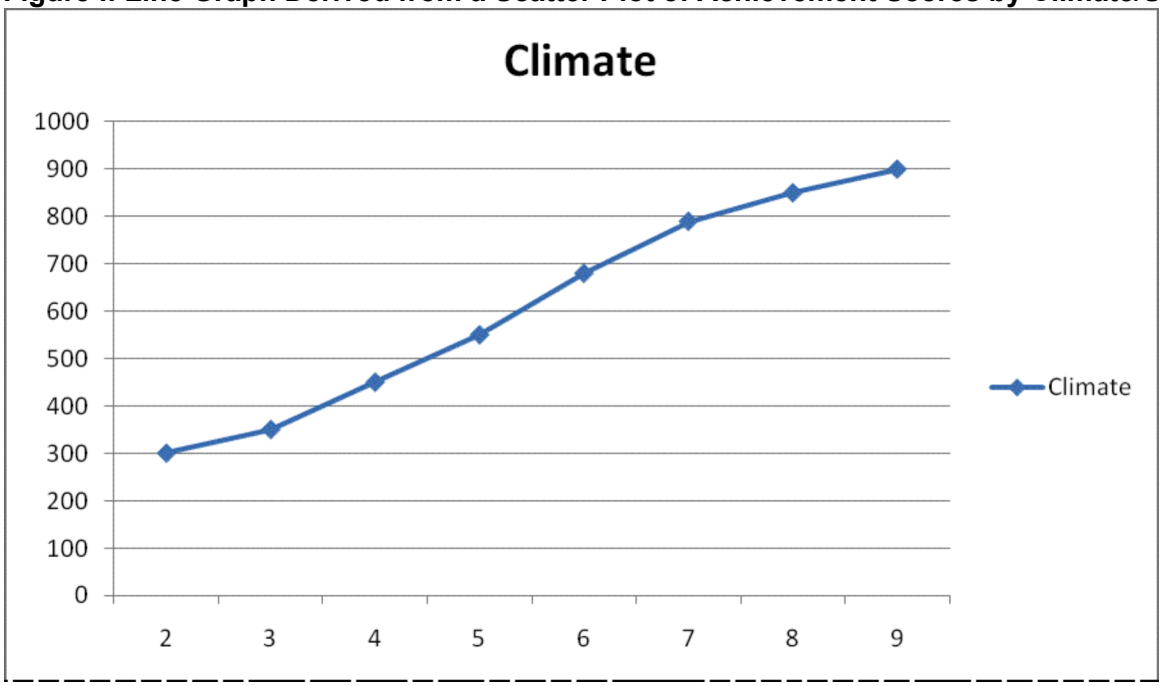
In general the high correlation coefficients (See Figure H) between school climate and achievement suggest that they are strongly related. While the direction of the causality is not entirely indicated by the data, the substantial relationship between climate and SIM rating suggest that a conclusion can be drawn that to a good degree better climates lead to achievement, and were not simply a byproduct.

Figure H: Correlation Table Achievement by Climate Factors

	SCAI - School Climate	API 2007	Similar School	Scale 4 Leadrshp	Scale 5 Discipline	Scale 6 Instruction	Scale 7 Att/Cult
SCAI - School Climate	---	+0.7	+0.3	+0.7	+0.9	+0.7	+0.9
API 2007	**+0.7**	----	+0.1	+0.5	**+0.7**	+0.6	+0.7
Adjusted Achievement Rating	**+0.8**	----	----	+0.6	**+0.8**	+0.7	+0.7
Similar School	**+0.3**	+0.1	----	**+0.3**	+0.1	+0.1	+0.1
Scale 5 Discipline	+0.9	+0.7	+0.1	+0.8	----	+0.8	+0.8
Scale 6 Instruction	+0.7	+0.6	+0.1	+0.8	+0.8	----	+0.8
Scale 7 Att/Cult	+0.9	+0.7	+0.1	+0.8	+0.8	+0.8	-----

A scatter plot distribution of each school's SCAI by API (200 - 1000 scale) scores shows a distinct pattern, as depicted in Figure I. Higher levels of climate corresponded to higher levels of academic achievement.

Figure I: Line Graph Derived from a Scatter Plot of Achievement Scores by Climate/SCAI



Limitations
Limitations of the findings of the study are recognized. The size of the sample, potential participant bias, and state's imprecise system for calculating SIM score all contribute to the potential for bias data. However, the findings are not intended to reflect statistical significance or generalizability. Nonetheless, the data do suggest substantive effect sizes and reflect similar findings to previous research.

Study Implications
The results of the study have both theoretical and practical implications. First, they offer a better theoretical understanding of the nature and causes of the achievement gap and the role that school climate plays. Second they imply practical considerations for teachers and administrators attempting to increase student achievement and reduce the achievement gap at their schools.

Theoretical Implications
The findings of the study suggest a series of general and theoretical implication for the field of education including the following:

1. It appears higher quality climates lead to higher levels of student achievement.
2. Low quality climates were found where the achievement gap was most evident, suggesting the achievement gap is to some extent *manufactured* within schools.
3. In the absence of a new approach it can be assumed that both the quality of school climate and the gap in academic performance will continue to get worse on average from grade to grade.
4. Surface indicators of achievement may not offer enough information to judge progress toward school improvement.
5. It is questionable to assume that implementing isolated, de-contextualized, add-on programs within a school where the climate is of fundamentally poor quality will achieve the desired effect.
6. It appears that the use of practices that promote a "psychology of success" lead to greater achievement and higher quality climate, and those that promote a "psychology of failure" lead to underperformance.
7. Intentionally using practices that promote climate function and POS may reduce the achievement gap for all groups of students.

Practical Implications
The implications for educational practitioners include the following:

1. Consider the consequences of acquiescence to the status quo. Consistent with previous research, the results of this study suggest that the default approach to teaching and school organization has in great measure created the achievement gap. If we do not make fundamental changes to what are doing, why would we assume that we will get substantially different results from what we have to date?
2. Assess your school's climate. It appears that starting with a clear sense of the health and function level of the school is necessary to accurately diagnose what is and is not working. We need to know where we are before we can know where we want to go.
3. Identify desirable and undesirable practices. As part of the school self-assessment, it makes sense to evaluate the practices at your school to determine which are promoting either a healthy or unhealthy school climate. Consistent with previous research, the findings of the study suggest that all areas of school performance are inter-dependent therefore every neglected or dysfunctional area of school performance is dragging down the larger effort to promote school achievement.
4. Classify practices as either POS and POF promoting. As a collective set of stakeholders identify which common practices at the school would best be characterized as POS promoting and which are POF promoting. The book *Transformative Classroom Management* (Shindler, 2009) will be a helpful starting point. However, the more this construct is developed as a personally

meaningful concept to each member of the school community the more effectively it will be implemented. Figure J outlines a few common practices that promote either a POS or POF.

Figure J: A List of Some Practices that Can be Inferred to Create Either a Psychology of Success or Psychology of Failure

Examples of some practices that promote a psychology of success

1. Cause-and-effect and clarity
2. Process focus (especially with assessment)
3. Student collective identity and sense of belonging
4. Meaningful work
5. Student responsible, choice and voice
6. Emotional safety

Examples of some practices that promote a psychology of failure

1. Comparison and excessive competition
2. Public shaming
3. Assessment as a form of "gotcha"
4. Punishments as consequences
5. Meaningless work
6. Emphasis on end products
7. Colored cards and other gimmicks
8. Bribes, praise, and other extrinsic rewards

When most educators examine the POS promoting list, few of the items surprise them. Most schools are attempting to promote at least some level of each of these outcomes. The differences between schools in this regard is usually relate to the level of commitment and degree of deliberateness with which they attempt to actualize these outcomes at their site. However, when educators examine the POF promoting list, they recognize many of the items to be common practices used at their schools. In fact, often they find that these POF practices are classified within the taxonomy of what is considered "desirable practice." For example, few teachers are aware that their colored card or names on the board behavior modification systems or their use of personal praise and disappointment are actually promoting a POF, undermining the prospects of each student's long-term achievement and promoting the expansion of the achievement gap. The greatest reduction of the achievement gap will likely come from the practices that schools cease doing rather than what they add to what they are already doing.

5. Reflect on limiting personal assumptions. When we or other members of the school use phrases such as "this is what these students need," we need to reflect on what is being implied. It often implies that we assume that low performing students need to be taught with school level 1/POF promoting methodologies. The use of these practices can seem necessary as these students may respond to that form of treatment in a way that makes everyone most comfortable. Yet, the results of this study supports earlier research that suggests that teaching *any* students in a level 1 (i.e., high conformity, lower level thinking, shame-based) context actually promotes lower levels of achievement and an expansion of the achievement gap over time. Unfortunately many well intentioned teachers are working hard at promoting the achievement gap under the assumption that what they are doing is best for the students with whom they work. When we use POS promoting practice, they have the most significant impact on those that lack a POS. And when we use POF promoting practices we reinforce POF in those that are least resilient and most susceptible to their ill effects. The data from this study suggests that the practices that define the level 3 category in the ASSC SCAI will lead to the highest level of achievement and greatest level of POS for all students.

Conclusion

We have all heard someone make the statement that in so many words “teaching is not rocket science.” Yet, it seems that solving the achievement gap may be on that order. It may require solutions that require thinking that goes far beyond where common sense has led us up to this point. It may require a broader and deeper perspective on the problem and a rethinking of some basic design thinking in the system. An understanding of the role school climate plays in the development of student achievement appears to be a critical piece of that effort.

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Appendix 1: Teaching Practices that Promote either a Mastery-Orientation or Helpless Orientation in Students

Promoting a Mastery-Oriented Pattern	Promoting a Helpless Pattern
• Give learning goals (i.e., goals related to how much one is going to learn).	• Give performance goals (i.e., goals related to measuring the ability of the participant).
• Focus on means/processes.	• Focus on ends/products.
• Focus on effort/application.	• Focus on ability/intelligence.
• Challenge stereotypical beliefs about various groups' typical ability/intelligence.	• Reinforce stereotypical beliefs about various groups' typical ability/intelligence.
• Give operational feedback and positive recognitions (see Chapter 6) related to process aspects of the task.	• Give personal praise (see Chapter 6) and feedback related to how good at the task or intelligent one is.
• *Assess what is most important*. What you assess on a daily basis defines your classroom concept of "success." Complete the following sentence, "If I could only assess _____, I would have a better class." Consider a way to assess the idea that you put in the blank (see Chapters 11 & 20)	• Assess only what you can count. Rely on worksheets and tests, and make sure students understand that the points are what is important.
• Encourage students to make mistakes and take risks. Project trust while challenging students to stretch beyond their comfort zones.	• Encourage students to avoid mistakes. Model mistakes as deserving of self-criticism. Project a lack of trust in their resources.
• Have high expectations for all your students and catch them being good. Do not accept low self-estimations, especially in the areas of effort and process. All students are capable of total effort, and total effort in the process leads to good outcomes.	• Use language in your feedback that implies that some students are just more talented than others. Speak in terms of students being good at this or that. Encourage students to stick to what they currently believe they are good at and avoid that at which they are weak.
• Help the students stay in the moment as they work. Don't encourage them to interpret their past as failure but only as opportunities to learn and grow, and help them not to define themselves by past failures or successes. Help them focus on what they are doing and enjoy the process and allow the outcomes to work out, reducing stress and promoting creativity.	• Remind students constantly about what and how they have failed in the past and how they need to worry about the future. Speak only about the end result of the work as being important.

From *Transformative Classroom Management* (Shindler, 2009).