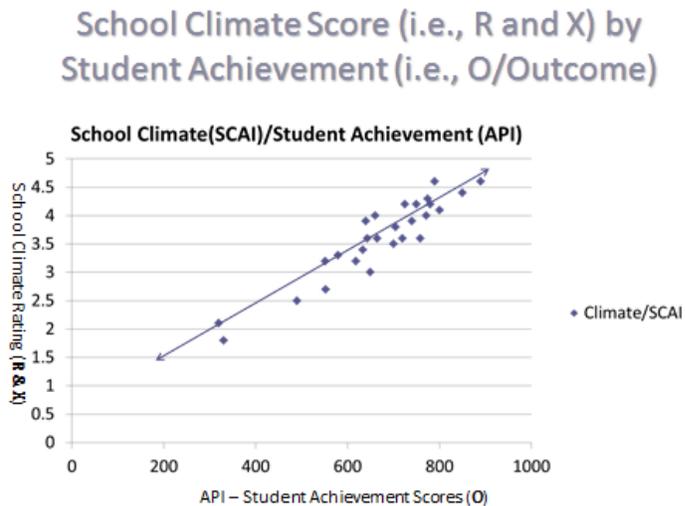


Chapter 2: Research and Correlation and the R-X-O Inter-relationship

When we as the Alliance for the Study of School Climate (ASSC) began studying school climate, our goal was to create instruments and procedures that would support schools undertaking the process of self-reflection and improvement. We were not thinking specifically about creating instruments that were able to predict achievement outcomes as much as healthy and functional places to teach and learn. However what we found was that when we measured what people valued and did in practice (reflected in items on the ASSC school climate assessment instrument (SCAI) See Figure 4.3)), we could predict the level of student achievement, as well as several other desired outcomes, very accurately.

This data-driven realization encouraged us to reflect on the nature of the relationships among values, practices and results at a school. What we found as we collected data from subsequent schools was that this pattern between what leaders and teachers did in a school and the results they obtained was shockingly consistent. This relationship can be seen in the initial data set shown here as a scatter plot correlation in Figure 2.1 below.



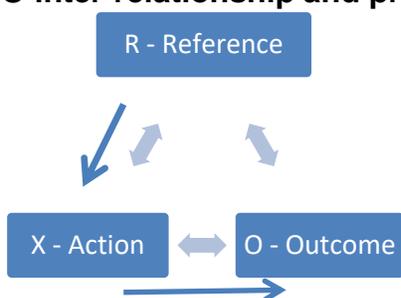
Over time, this relationship between climate rating and student achievement would become central to our efforts to make sense of the underlying principles that govern school function and performance, and the eventual construction of the “school improvement roadmap and pathway” that emerged from a decade of research, and that we will build here in the next four chapters of this book. As this roadmap emerged, we found that after collecting data and spending time in subsequent schools, most all schools fit an explainable pattern. One of the results was that we began to feel confident in the assertion that we could make the following prediction; if we knew one of the following variables at a school - a) the SCAI climate ratings, b) the student achievement scores, or c) the kinds of practices that were predominantly used - we could with great certainty predict the other two (After reading this book you will likely be able to predict each of those variables with similar accuracy).

One reason that our emerging roadmap became so predictive is that we found that there were three variables that seem to be interdependent and thus would therefore inherently exist at the same location and/or move together on the theoretical roadmap. The first of the variables is

related to the kinds of mental processes, knowledge and values that are held by the staff (and to a secondary extent by students as well) as individuals and as a collective. We will call that variable References or R's for short, and it comes from the term in Perceptual Control Theory (PCT) that characterizes what any organism uses to inform its decisions to act (See Appendix X). The second variable we will call X's and it stands for all the various forms of actions such as practices, pedagogy, interactions and applied policies at the school. The third variable could be called the O's or the outcomes at the school. These are all the results and effects that occur – large and small.

These three interdependent variables are depicted in figure 2.2 below in a triangular relationship. However as you will notice arrows emanate from the R as it is the primary origin of cause - the R's intend the X's and the X's result in the O's.

Figure 2.2 R-X-O inter-relationship and primary direction of influence



As we explored what we were finding in the schools in which we were working and researching was that the quantitative data supported the observational data as well as what wise thinkers have been saying for centuries. That is what we ultimately get in the end starts with our values, vision and intention be way of how we put those R's into action with our X's. As Gandhi put it "the end is inherent in the means." In other words, depending on the X's we use, we will inevitably get different O's. In our research, what became clear was that, in most cases, schools at different locations on the roadmap were not only doing different things, they were intending to do different things and the R's, X's and O's at each school tended to match up really well. Each school not only had different O's, but they used different X's, and you looked more closely, you could hear, read and infer very different R's.

Figure 2.3: Table of Definitions of the three Inter-related variables – R/References, X/Actions, and O/Outcomes

	R or Reference	X or Action/Practice	O or Outcome
In a phrase			
	We teach (or lead) who we R	X = What we Do	O's are our Results
Contents	<ul style="list-style-type: none"> • Values • Conditioning • Perceptions • Intuition • Skills and Knowledge • Beliefs and attitudes • Personal narratives • Identities • School Culture • And everything contained in the unconscious 	<ul style="list-style-type: none"> • School staff Behaviors in general • Pedagogical practices • Applied Policy • Interactions • Routines and patterns of behavior • Communication • And all the unconscious modeling and messages that we send 	<ul style="list-style-type: none"> • Student Achievement (using whatever measure) • Student behavior • Learning levels and forms by students and staff • Motivation levels and forms for students and staff • Disposition and emotional states of students and staff • Incidence of phenomena – i.e., tardiness, absences, violence,

			substance use, winning teams, • School climate (as experienced)
Definition	We will use the term reference (or R) to refer to everything that is in the minds and nervous systems of the individual or collective organism. The organism can be of any size – individual, classroom, school, or district.	We will use the term X to describe what the educators (or the members of any organization) do. Again, we need a larger term for all the active things that are done intentionally or unintentionally during a school day.	We will use the term O to represent all the countless specific outcomes and results of actions that we care about and that are meaningful to us in schools.
Rationale	So why the term reference? First, we need a term that is inclusive of all the kinds of mental processing listed above – the thinking and feeling that ultimately guides our actions. To deal with each of these mental processes separately, while potentially useful, would be create complexity that would not serve our purposes here.	While we typically spend a great deal of time thinking about this very area, most educators underestimate its influence. We will demonstrate in the next few chapters why X's predict almost everything else especially the O or Outcomes. The primary task of school improvement will be to encourage more high quality X's and fewer low quality X's.	The outcomes that result at the school or organization will tell us a lot. If we want to know what we are doing, we need to look at what we are getting. If our R's are defined by a desire for quality, those R's will guide X's, and the result will likely present as quality O's.

Since that initial study we have collected SCAI data from hundreds more schools across several states. And we have yet to see an outlier. Moreover, most schools fall directly on the intersecting line. For example, if we know a school in California (state formulas vary, but the correlation is always consistently evident) has an API of 600, we will know the SCAI climate score will be around 3.0, and if the achievement is around 80percentile we will know that the SCAI will be about 4.0. In other words the O follows the X, and the X follows the R, in a near perfect relationship.

Axioms for School Improvement (revised from Ch.1)

1. Everything is connected, everything is consequential
 2. We cannot solve problems at the same level of consciousness with which they were created. Form follows consciousness
 3. The only person that we can control is ourselves.
 4. If we (individually or collectively) do not believe it in our hearts, we do not believe it.
 5. We lead who are/R and we teach who we are/R.
 6. X's/Actions predict O's/Outcomes
 7. References predict X's/Actions, so References predict O's/outcomes
 8. School performance will be a direct reflection of the average X's being used on any given day at the school.
 9. School improvement is only possible when both vision and trust are present.
-

(quote)

So what?

The implications of this inter-relationship between R, X and O will make more sense as we continue to build the growth pathway/roadmap in the next few chapters. But what we can demonstrate is that both what people typically do (i.e., their X's), and what they are generally trying to do (i.e., their R's) in the school whose members self-evaluated their overall climate and function on the SCAI at a 2.0/5 climate level and what people typically do (i.e., X), and what they are generally trying to do (intended by their R's) in a school that self-evaluated at a 4.0/5 SCAI level is very different. And yes, there are often many external factors that contribute to the difference between the 40percentile/2.0SCAI versus the 80percentile/4.0SCAI school. Yet regardless of circumstances, these data suggest that where there are certain kinds of R's and X's, there will be corresponding O's. Moreover, most likely all schools that practice 2.0/5 SCAI level X's will look a lot like one another, regardless of location, and a lot more alike than they do when compared to a 4.0/5SCAI school in their own area. As we progress in the development of the school function roadmap, you will see that different locations on the roadmap are not just about more or less, but are in many ways about kind. More 2.0/5SCAI quality X's will not lead to growth. No amount of 2.0/5 X's will lead to 4.0/5 O's. To make progress up the roadmap R's and X's need to change in kind.

Revised list of Axioms for school change.

Yet, be clear, among the assumptions informing this book and supported by our experience is that most educators in most schools work very hard and care about their students. Therefore, the implication is not that the school that currently scores a 2.0/5 does not in all likelihood face substantial challenges that may not exist to the same degree in the school with a current 4.0/5 SCAI rating. And just because the principles for understanding the nature of school performance are explainable, it does not imply that school improvement is simple. If it were we could stop here at chapter two and assume that readers who were interested in school improvement would simply adopt R's and X's from schools with high function (not that that is not a sound idea). Rather the take away we would hope the reader to glean at this point in the book is that to change outcomes, practices need to change, and for practices to change the references that are consistent with those improved practices need to exist in the consciousness of the organization. The following chapters offer a roadmap for supporting growth and improvement, and ultimately instructions for moving up that roadmap.

Below in Figure 2.4, we provide a more detailed explanation of the SCAI item structure and the original study used to inform the ongoing revision process. In the following chapter we will begin to build the theoretical roadmap of school function and effectiveness beginning with an examination of its vertical axis related to function and intention.

Figure 2.4 Expanding on the ASSC survey design and research findings

In the original study we examined 30 schools with diverse populations purposively sampled across one county. We included 10 Elementary schools, 10 Middle Schools, and 10 High Schools. What we found was a 0.7 correlation between the SCAI and the standardized test scores for each school (API in California). While standardized test scores are not an absolute measure of learning or what we would call our ultimately desirable O's/Outcomes, they do provide information related to the performance level at the school. If we had an outcome measure of absolute learning and growth that was quantifiable, I would bet that the correlation would be even higher.

Structure of the ASSC School Climate Assessment Instruments (SCAI)

The ASSC SCAI has many unique design features. First, it is focused mostly on what is done at the school or the X, whereas most climate surveys ask mostly what is your experience (i.e., what we could call outcomes). The SCAI also tries to get at the R's that pervade the school. So it is very successful at measuring both the R and the X. Second, it uses the theoretical lens of a psychology of success (POS). POS is a composite concept made up of three sub-ideas.

- Internal vs. External Locus of Control
- Sense of Acceptance and Belonging
- Growth vs. Fixed-Ability Orientation

Third, the SCAI uses an analytic trait structure rather than a Lickert scale. The item below represents a common survey item from one of the many school climate surveys, note that it is asking perceptions of outcomes on an open scale.

Lickert Scale Survey Item Example:

Teachers at my school help us children with our school problems

Strongly Agree Agree Not Sure Disagree Strongly Disagree

Now compare that to an item from the ASSC SCAI. The respondents' choices are between descriptions of common practices or X's, and levels/ratings 1-5 are defined by concrete indicators of either X and/or R, in this case it is more of an X.

Analytic Trait Instrument Item Example from the ASSC SCAI vS-G-7.4.0

Teacher-student interactions could be typically described as supportive and respectful.

Teacher-student interactions could be typically described as fair but teacher-dominated.

Teacher-student interactions are mostly teacher-dominated and reactive.



Add reflections

Add Exercises

Add References

Add case examples