

A Review of Teacher and Principal Self-Efficacy Studies

By Jeffrey J. Smith, Ed.D., Roger Freeman, Ed.D. and Theresa Cole, M.Ed.

This issue of THE LETTER is a review of two recent dissertations conducted to measure the effectiveness of 21 Keys for High Performance Teaching and Learning™. Jeffrey J. Smith, Ed.D., and Roger Freeman, Ed.D., designed and administered two revealing studies measuring the change in perceived self-efficacy of teachers and principals who attended the training.

In the first study, we explored the beliefs teachers hold about the self-efficacy of low performing students and high performing students, as well as their own self-efficacy beliefs. A sample group of 142 teachers from four schools from a large urban school district located in Phoenix, Arizona participated in this study. The teachers that were included ranged in grade levels from Kindergarten through 8th grade.

The second study recognized the varied success of schools in improving performance and asserted that the efficacy of the school leader, and the collective-efficacy of their colleagues, were factors in these variations. The study used a

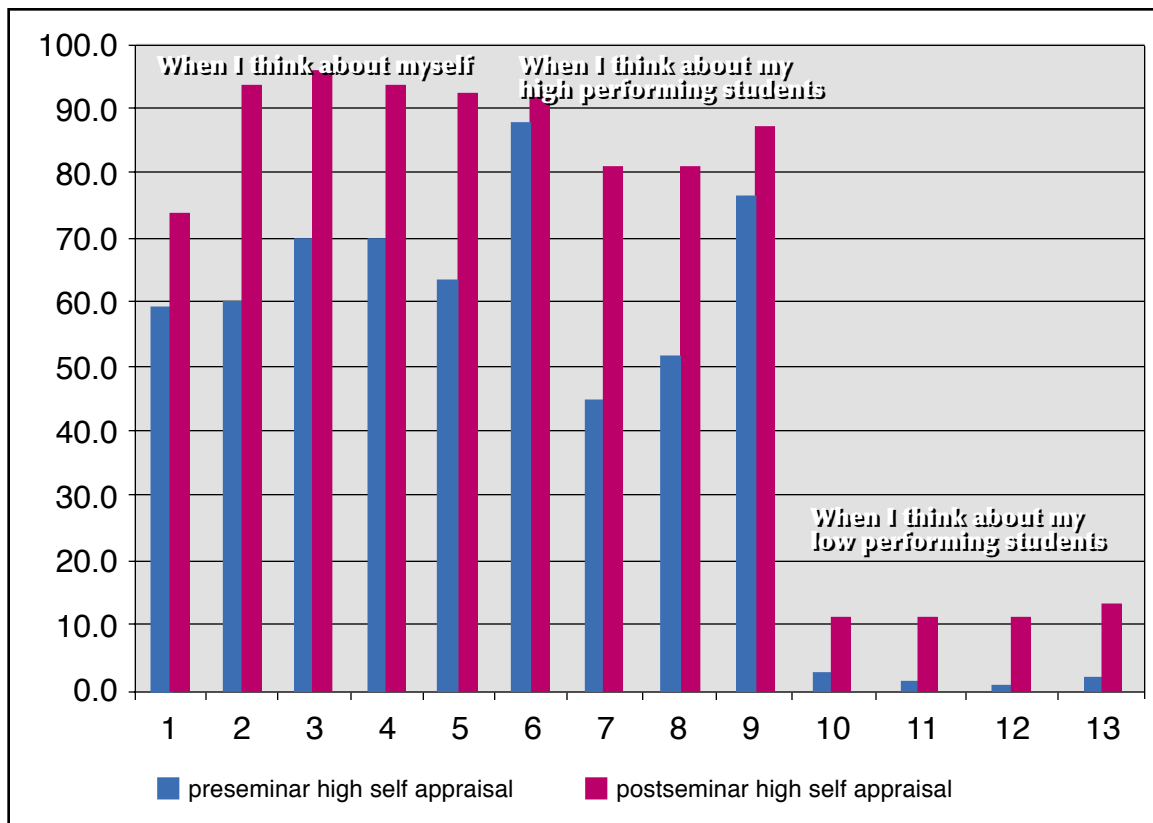
convenience sample of 68 principals and assistant principals from all grade levels with varied experience and school accountability profiles. Participants were from various regions of Arizona from workshops held between the spring of the 2003 and the fall of the 2004.

In each of these studies, identical survey items were administered before and after the seminar format treatment, creating repeated measures with an intervention design. Prior to participating in the 21 Keys for High Performance Teaching and Learning™, participants were asked to respond to a questionnaire focused on their own personal perceptions of self-efficacy and those of the group with which they worked: students in the case of teachers, and teachers in the case of school leaders. Eleven survey items were used to assess the research questions for the teacher study. Eight survey items were used to assess the two research questions, which were focused on measuring changes in school leaders' beliefs.

Because a significant portion of these sur-



Figure 1: Changes in teachers' self-appraisal over thirteen matched pairs



veys included group-referent items, collective-efficacy concepts were examined. The belief of the group that it can execute an action or outcome – in this case, the faculty of a school has the same four influences as self-efficacy: mastery experience, vicarious experience, verbal persuasion, and affective change. The group members share mutual inference, which is greater than the sum of each person's beliefs. Individuals with strong group affiliation are higher in collective-efficacy and those on the periphery have higher personal self-efficacy. Other researchers have found that high collective-efficacy is a stronger predictor of school performance than other aspects of the school

context (race or socioeconomic status).

After treatment, teachers and school leaders were surveyed with the same questionnaires. Changes in these teachers' and school leaders' perceptions of themselves and their students or colleagues were analyzed by comparing the pre- and post-survey results. (For a full description of the *21 Keys* program, see Figures 2 and 3.) Each pair of questions illustrated a significant change from pre-test to post-test. While numerous tables were reported in these two studies, summaries of the results are reported in Figure 1, and Tables 1 and 2. Using a combined scale of the first five questions in the questionnaire,

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the teachers perception of their self-efficacy was significantly different following a two-day focused in-service on self-efficacy.

Considerable support for the strong influence of the *21 Keys* on judgments of self-efficacy was reinforced. The results of this study indicate that the *21 Keys*, video based, facilitated program was a highly effective approach to increasing the self-efficacy of teachers. This study also indicates that the perceptions teachers hold about their students can be positively influenced. The presence of a general treatment effect, across all research questions, proved that an increase in the self-efficacy of teachers was obtained through the *21 Keys* experience. Figure 1 shows the change in mean percentage of teachers indicating excellent or above average ratings for the thirteen items surveyed.

Teachers participating in the study also expressed growth on a personal level. End of seminar surveys reflect a high level of satisfaction in teachers. Examples of participant comments regarding the *21 Keys* experience include: "insightful, thought provoking and life changing," "I am a better parent knowing what I have learned in the past two days," "It gave me a new improved outlook," "The *21 Keys* is life changing!" "Thanks for the opportunity to look into myself," "I am looking forward to my 30th year of teaching and not retirement." From both quantitative and qualitative data, it is clear that the *21 Keys* video assimilation program with Lou Tice overwhelmingly affects people in the most positive ways.

For school leaders the survey items were combined into two referent groupings: self and collective referent. Research question one addressed the Personal Efficacy Construct or self-referent items, and question two addressed Collective-Efficacy Construct or colleague referent items. The mean ratings for school leaders' pre- and post-intervention judgments (5 representing *Excellent* and 1 being *Poor*) and paired sample t-test results are displayed in Tables 1 and 2.

The Personal Efficacy Construct Grouping was a series of four items sensing the building level school leaders' perceptions of their own self-confidence, their understanding of how their beliefs and thoughts determine their future, their knowledge of how to build self-confidence in themselves, and finally their attitudes toward setting goals in their schools. The personal efficacy construct grouping demonstrated a mean increase of 0.83 points on a 5-point Likert-type scale in the school leaders' perceptions of their own self-efficacy as measured by the survey instrument.

The change in the personal efficacy construct variable was significant with a mean increase in the percentage of *Excellent* or *Above Average* self-perception by school leaders of 41.5%. The personal efficacy construct grouping demonstrated a significant change in the school leaders' perceptions of their own self-efficacy when questions 1 through 4 were combined into one variable to test the first research question. Table 1 shows that the personal efficacy construct variable

Table 1: School Leader's Self-Perceived Personal Efficacy Judgment

Personal efficacy: Summary of means and significance of variance

Pre-test	Post-test
3.60	4.44
$T(67) = 11.875, p < .01$	

Table 2: School Leader's Self-Perceived Collective-Efficacy Judgment

Collective-efficacy: Summary of means and significance of variance

Pre-test	Post-test
3.19	3.89
$T(67) = 8.932, p < .01$	

showed a significantly positive t-statistic. The aggregate means of the school leaders indicated that they had *Above Average* or *Excellent* level of self-referent efficacy of 55.1% before the intervention compared to 96.7% afterwards.

The collective-efficacy construct grouping was a series of four questions sensing the building level educational leaders' perceptions of their teacher colleagues' self-confidence (as a group), their understanding of how their teacher colleagues' beliefs and thoughts determine their future, their knowledge of how to build self-confidence in themselves, and finally their teacher colleagues' attitudes toward setting goals in their schools. The collective-efficacy construct grouping demonstrated a mean increase of 0.70 points on a 5-point scale in the school leaders' estimation of the self-efficacy and confidence of their teacher colleagues as measured by the survey instrument.

The change in the collective-efficacy construct variable was significant with a mean increase in the percent of *Excellent* or *Above Average* self-perception by school leaders of 39.3%. The collective-efficacy construct grouping demonstrated a significant change in the school leaders' estimation of the collective-efficacy and confidence of their teacher colleagues when questions 5-8 were combined into one variable to test the second research question. Table 2 shows that the collective-efficacy construct variable showed a significant positive t-statistic. The aggregate means of the school leaders indicated that they had *Above Average* or *Excellent* levels of self-referent efficacy of 32.4% before the intervention compared to 71.7% afterwards.

Both of these research studies provide considerable support for the strong influence of a verbal persuasion model

on judgments of self-efficacy, especially when accompanied by vicarious and mastery experiences as reinforcement. There were strongly significant positive statistics for each survey item and a significant positive difference in teachers and school leaders who participated in the structured intervention. The participants of these studies experienced a change in their level of self-confidence as evidenced by a significant difference following the *21 Keys* program. While some caution is appropriate in interpreting these findings, because of a relatively untested instrument, a convenience sample, minor delivery variations, and possible social effects, the strength of the statistical measures is persuasive. School leaders' perceptions of their personal self-efficacy and the collective-efficacy of their teacher colleagues were significantly different after participating in *21 Keys for High Performance Teaching and Learning*[™].

Evidence suggests that high efficacy groups are characterized by being highly focused on obtainable goals, taking responsibility for outcomes, being highly collaborative, and changing more readily. We both recommend further study on long-term influences on school performance to help narrow the estimation of the limiting variables. It would be helpful to learn if the impact of *21 Keys* expanded to the collective-efficacy of the school unit that was under the leadership of principals who had participated in the seminar. One example might be the application of Goddard's collective-efficacy instrument (Goddard, 2000) in a post-hoc comparison of higher mean collective-efficacy schools and lower mean collective-efficacy schools to illuminate the differences in their implementation of *21 Keys* over a longer period.

See Figures 2 and 3 on the following pages.

Figure 2: Self-appraisal items

Constructs of interest were the level of self-confidence of each subgroup; how those subgroups build self-confidence; how beliefs affect their view of life; how thoughts determine their future; the level of priority placed on setting goals and their ability to take on difficult tasks that require learning new things. All constructs of interest were measured using a scale of Excellent, Above Average, Average and Below Average. The survey measured teachers' perceptions of the following questions before and immediately following the 21 Keys for High Performance Teaching and Learning™.

For teachers, each question was answered on a scale of 1-4: 1 being *Excellent*; 2, *Above Average*; 3, *Average*; and 4 being *Below Average*.

When I think about myself:

1. My current level of self-confidence is
2. My current knowledge of building self-confidence in others is
3. My understanding of how my students' beliefs affect their view of life is
4. My understanding of how my students' thoughts determine their future is
5. The setting of goals as a priority in my classroom is

When I think about my high performing students, on average:

6. Their level of self-confidence is
7. Their understanding of how to build self-confidence is
8. Their knowledge of how to set goals and develop specific strategies in order to achieve them
9. Their ability to take on difficult tasks that require learning new things is

When I think about my low performing students, on average:

10. Their level of self-confidence is
11. Their understanding of how to build self-confidence is
12. Their knowledge of how to set goals and develop specific strategies in order to achieve them is
13. Their ability to take on difficult tasks that require learning new things is

For principals and assistant principals, each question was answered on a scale of 1-5: 1 being *Excellent*; 2, *Above Average*; 3, *Average*; 4 being *Below Average*; and 5 being *Poor*.

When I think about myself:

1. My current understanding of how to build self-confidence in others is
2. My ability to impact how teachers' thoughts and beliefs affect their performance and future is
3. My current level of self-confidence for improving performance in my school is
4. My priority for setting goals and strategies for improving performance in my school is

When I think about my teacher colleagues, on average:

5. Their current understanding of how to build self-confidence in others is
6. Their ability to take on difficult tasks that require learning new things is
7. Their level of self-confidence is
8. Their ability to set goals and develop specific strategies in order to achieve them is

Figure 3: Self-appraisal items

The 21 Keys seminar spans up to three days, depending on the client's arrangement with The Pacific Institute. The course and curriculum has concepts, strategies, tools, skills and teaching techniques that are designed to develop the self-efficacy and release the potential of participants. The program allows them to become more accountable, self-directed and self-advocating, while teaching them strategies and skills to help them think, learn and develop more of their potential over an entire lifetime. The content of the course consists of an Overview and 21 units that present the 21 key principles and related skills. Unit summaries are detailed below.

Unit 1: After completing the unit, the participant will be able to define and give an example of a scotoma and will discover why one can look right at something and not see it.

Unit 2: After completing the unit, the participant will be able to explain how the way one thinks affects the way one acts and will learn to control their self-talk, the constant conversation they have with themselves.

Unit 3: After completing the unit, the participant will be able to give an example of how we limit ourselves by locking-on and locking-out information and will learn that, "You act like the person you know yourself to be."

Unit 4: After completing the unit, the participant will be able to give an example of how we act, not in accordance with the truth, but the truth as we believe it to be, and will learn that the reticular activating system controls what gets through to one's mind.

Unit 5: After completing the unit, the participant will be able to explain how the mind and thought process works and will discover three levels of the mind and what each performs.

Unit 6: After completing the unit, the participant will be able to provide an example of how some beliefs we hold could be holding us back, and will learn that we behave in accordance with the truth as we believe it to be.

Unit 7: After completing the unit, the participant will be able to state the importance of continuing to set new goals, and will learn how their habits and attitudes are formed.

Unit 8: After completing the unit, the participant will be able to define and give an example of self-talk, and will learn that beliefs are formed with a three-dimensional thought process.

Unit 9: After completing the unit, the participant will be able to explain the concept of an attitudinal balance scale and how it functions and will learn that positive beliefs allow them to use their potential to achieve their goals.

Unit 10: After completing the unit, the participant will be able to explain how affirmations are personal, positive, action-based, and will learn that once they change the picture in their mind, they naturally change the outside.

Unit 11: After completing the unit, the participant will be able to explain why visualization is a fundamental tool, and will learn to visualize goals, the new habits and attitudes they want.

Unit 12: After completing the unit, the participant will be able to give an example of a comfort zone and recognize situations where we feel out of our comfort zones and will discover how their comfort zones are built, how they help and hinder performance.

Unit 13: After completing the unit, the participant will be able to state the importance of controlling self-talk and will learn the importance of reinforcing that new picture of themselves with positive self-talk, constantly affirming the way they want to be.

Unit 14: After completing the unit, the participant will be able to state the importance of keeping a clear vision of what one wants and will learn that their present thoughts determine their future: to dwell on what they want, not what they don't want.

Unit 15: After completing the unit, the participant will be able to explain the effects of high self-esteem and the power it provides to make sound, worthwhile choices and will learn the importance of building high self-esteem, in themselves and in those around them.

Unit 16: After completing the unit, the participant will be able to explain the benefit of giving themselves constructive problems to solve and will learn that internal conflict turns on energy and creativity so goal-setting helps create the drive to make positive change.

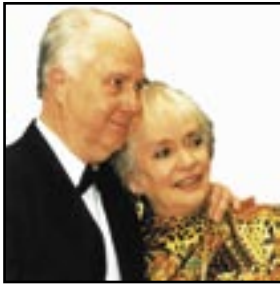
Unit 17: After completing the unit, the participant will be able to give an example of coercive motivation and will discover how coercive motivation undermines success.

Unit 18: After completing the unit, the participant will be able to explain how current reality can hold one back and will learn to create the vision of the way they want their future to look before it actually happens.

Unit 19: After completing the unit, the participant will be able to explain the importance of self-efficacy in relation to achieving goals and will learn how to handle setbacks in life.

Unit 20: After completing the unit, the participant will be able to explain how important thoughts are at keeping one from going into a downward spiral and will learn to keep their self-talk strong and avoid the downward spiral.

Unit 21: After completing the unit, the participant will be able to explain why it is important to reiterate successes and will learn that one statement of fact can change one's life forever.



A MESSAGE FROM LOU & DIANE TICE

We congratulate Dr. Smith, Dr. Freeman and Theresa Cole, M.Ed. for the excellent report contained in this issue of *The LETTER*! It contains such convincing data on the favorable effect of *21 Keys for High Performance Teaching and Learning™* on teachers, leaders, and student attitude and performance.

We believe that our programs pertaining to teacher and student performance are among the most important of our TPI initiatives. We encourage Drs. Smith and Freeman, as well as Theresa Cole, to continue their superb work, and we look forward to other reports in the months and years ahead. We also look forward to hearing of your results with *21 Keys*.

Lou & Diane Tice

In addition to the above quantitative results of implementing the 21 Keys program, there are significant qualitative results, as reflected in the following, contributed by Theresa Cole, M.Ed.:

This article represents ongoing anecdotal evidence of the effectiveness of The Pacific Institute's *21 Keys for High Performance Teaching and Learning™* in focusing adult commitment on student learning, across a school district as a whole.

Education is a funny thing – it's not like business where there is a "bottom line" that can be objectively measured easily. Statistics don't quantify the look in a child's eye when they "get it" or measure the impact of the words a child hears every day. We do know that when a teacher exudes a belief in each student's ability to learn, children thrive; if a teacher believes, "there is no way," children flounder. One teacher can drive a classroom toward antagonism and hostility, another toward optimism, even inspiration, in the face of difficulty. Though often invisible or ignored entirely, this crucial aspect of teaching determines the effectiveness of everything else a teacher does.

21 Keys has opened opportunities for me to meet and work with educators across the United States over the past four years – exposing them to the concepts and supporting them in implementing those concepts. Throughout this work, I have reaped a rich harvest of anecdotal data from participants. Over and over, people attest that the pay-off of *21 Keys* has extended not only into their effectiveness in the classroom, but into their personal and family lives as well. One principal recently reported that she has lost 50 lbs., roughly an average-sized kindergartener. Participants commonly report these types of results. Using the information, they find themselves losing weight, paying off debt, enjoying their own children more, and improving their relationship with their spouse.

In my own school, my principal has credited *21 Keys* for launching a mind-set shift and establishing a performance

culture among staff. The results speak for themselves. We have had a strong positive trajectory of passing rates on the Washington Assessment of Student Learning (WASL) for the last three years, and currently lead our district in all areas of the assessment at the middle school level. The questions inspired by *21 Keys* are not just, "Are we doing what we need to do?" but "To what level are we doing what we need to do and where do we want to increase our efforts?" Our staff has developed a deep unwavering commitment to student learning. Teachers are taking personal accountability for successes and challenges, not only in their own classrooms but in our effectiveness school wide. The vast majority of teachers on our staff are consciously abandoning activities in their classrooms that do not help students reach the targets and demonstrate mastery. My school, like many others who have implemented *21 Keys*, is undergoing sustained, continuous improvement.

There is no silver bullet in education; no plan or legislative bill that will inspire change in the way we do business with kids. *21 Keys* is a means to an end... not the end.

Implementing *21 Keys* fosters teaching that gets results. Below are just a few anecdotal results, unsolicited, that I have received from participants:

A Principal writes:

Theresa: As I have shared with you before, yours was one of the best workshops I have participated in and the positives just continue to surface in my building. Over 60% of our 4-8 graders qualified for Honor Roll or High Honor Roll. We are experiencing about half of the misconduct referrals compared to last year. Recently, we were recognized as the best elementary school in the NW Phoenix suburban area. I believe that a lot of this is attributable to the information we have implemented from the *21 Keys* training. NOTE: My golf game has also improved greatly — to a zero

handicap! *January 2005*

An elementary teacher reports:

Because of *21 Keys*, I realized that I need to be more aware of the pre-judgments I make about kids. I am now able to see kids where they are, and aim high from there. I now have more positive ways to approach kids and their parents. I see such differences every day. *November 2004*

A Superintendent emails:

21 Keys is having an incredibly positive impact on our district. To date, we have trained 97% of all employees, including maintenance and support staff. After just a few months, we are already experiencing changes and creating a new culture of success. Thank you for all you have done to make this happen. *November 2004*

After experiencing *21 Keys*, people have the tools to adopt an approach that frees the best in students and helps them to excel:

An Elementary teacher shares:

When I took *21 Keys* I didn't know if I would be able to apply it. But I've found that I'm looking at all the kids differently, and it's making a huge difference in their attitudes. In the past, if a kid did something I didn't appreciate or think was right, I'd assume he or she just had a bad attitude. Now I am using what I learned in *21 Keys* way more than I ever thought I would. It's very powerful. It's making a big difference. *January 2005*

A Principal writes:

I've been dealing with three particularly challenging parents the last couple of days. Their kids have gotten themselves into quite a bit of trouble. As parents, they are frustrated, angry and aren't able to get past that sometimes. I have been saying to them, with genuine belief, things like, "I see Joe as being a kind-hearted, capable boy who makes good decisions; in this instance, he made a poor choice. That's not like him. Joe is a good kid who is full of potential. Let's move

on, to get to that potential." Sometimes, parents need people to affirm the goodness in their children. It's invaluable to them to know that school "authority figures" see worth and goodness in their children. It changes their approach when dealing with their kids when they have done something out of line. *21 Keys* applies in so many ways, and I wanted you to know. *October 2004*

An Elementary teacher says:

I have a child in my classroom who started off the year telling me that he couldn't do what I was teaching. He would look at his work, shake his head, and come to tell me that he was "no good" in math. I started using the techniques from *21 Keys*. At first, the changes started slowly; now he notices his successes without any prompting from me. He has been able to do everything! *October 2004*

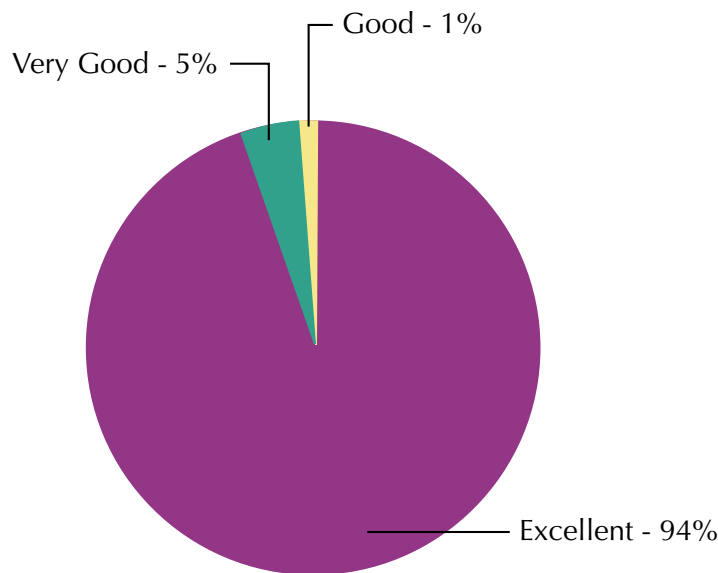
Another teacher reports:

Just thought I'd give you a heads up on the much more efficient Parent-Teacher Conferences I have had because of your teachings from Lou Tice. I was working with a mom who came into the conference believing that she was a "math dummy" who also had one as a son. She left ready to convince her struggling son that she was the "math genius" to help him, and that they would figure it out together. On a personal note, the simple *21 Keys* techniques that I have already used are making a remarkable difference in my home with my own family. Thank you ever so much! *October 2004*

A teacher writes:

After participating in *21 Keys* I found I had new tools to help my students approach learning in a different way. The first week following my use of the

21 Keys Evaluation Results



Approximately 4800 school personnel have taken *21 Keys for High Performance Teaching and Learning™* affecting approximately 140,000 students per year. The above chart reflects the participant evaluations of the program, extrapolated from a random sample group of 426 evaluations. 94% found the course Excellent; 5% Very Good; 1% Good; 0% Fair; and 0% Poor.

tools, 23 out of 24 test takers earned 100% on their spelling tests – and the other student only missed one word! I noticed that over a 4-6 week period, the spelling scores were rising. Now, the students and I use these tools every week. *December 2003*

A parent writes:

I just have to tell you about the experience I had with my son today. He had to give his “Famous Person” presentation this morning in English. He was very nervous and asked me if I thought he could do a good job. Of course, I said, “It’s just like you to do a fantastic job. You will speak loudly and clearly.” Before I learned about *21 Keys*, I would have said, “Now, don’t do this... and make sure not to do that...” This morning it never occurred to me to plant any seed of doubt about whether he would do well or not. Sure enough, he gave the presentation and did a fantastic job just like I knew he would and just like

he knew he would. I’m sharing this with you because it is just one more example that *21 Keys* works. *November 2003*

Based on anecdotal feedback over the past few years, effective implementation of *21 Keys* makes a significant impact on teaching and learning. The teacher that utilizes the concepts gives students the tools to reach their potential. The school that imbeds these concepts into the culture moves forward with momentum and focus. The district that builds accountability from top to bottom is more effective at reaching each child and teaching them how to cause their own success. The results of *21 Keys* are seen not just in tangibles such as better achievement scores and retention of good teachers, but also in the all-important intangibles, such as school climate, unity of purpose and commitment to results. The bottom line is, that’s what education is all about.

Contributor Biographies

Dr. Jeff Smith is currently the Director of Curriculum and Instruction for the Paradise Valley Unified School District in Phoenix, Arizona. He has 22 years of experience as a teacher and school administrator and was recognized as the 2003 Distinguished Administrator for the State of Arizona.

Dr. Roger Freeman is the first-born son of two schoolteachers from Iowa. He re-careered from medical educational media to public school teaching in 1986 after working with a program for gifted students at the university where he was employed. Dr. Freeman went on to serve as an elementary school principal for twelve years and was recognized as Arizona’s Distinguished Elementary Administrator in 2002 before becoming the Director of Assessment in the Paradise Valley Unified School District.

Theresa Cole is a master educator with over 24 years of experience on the “front lines” working in the classroom and at all levels of education – with district leadership, school administrators, teachers, parents and students K-12. As a consultant and trainer, Theresa excels in demonstrating how to use The Pacific Institute’s concepts to improve teaching and learning within the context of whole-school improvement, helping educators move from compliance to commitment and creating results that matter for students.



Dr. Glenn Terrell earned his B.A. in Political Science from Davidson College, his M.S. in Psychology from Florida State University, and a Ph.D. from the University of Iowa.

Dr. Terrell served as Chairman of the Department of Psychology, University of Colorado, Dean of the College of Liberal Arts and Sciences and as Dean of Faculties at the University of Illinois in Chicago before an 18-year tenure as President of Washington State University. He also served as President of the National Association of State Universities and Colleges, Commissioner for the State of Washington on the Western Interstate Commission for Higher Education, served on the Board for General Telephone Northwest and West for 23 years, is a Member of the Society for Research in Child Development, and a Fellow for the American Psychological Association and the American Association for the Advancement of Science.

Dr. Terrell has received numerous honorary degrees and awards, among them a listing in *Who's Who in America: American Men of Science*, and Distinguished Graduate of the Department of Psychology, University of Iowa. His first book, *The Ministry of Leadership: Heart and Theory*, was published in December, 2002.



Christy Watson is Director of Marketing for The Pacific Institute, as well as acting as Associate Editor for *The LETTER*. In addition to her marketing responsibilities, Christy has played the editor's role in the creation and updating of many Institute programs. A Seattle native, Christy received her B.A. from the University of Washington.