the LETTER

Volume 3, Issue 1 THE PACIFIC INSTITUTE® Spring 2000

The Education Initiative Update

by Dr. Glenn Terrell

Although the Summer and Fall issue of The Letter contained a piece by Dr. Joe Pace and John Ratay entitled "The Success Strategies for Effective Schools," much has happened since then in our Education Initiative. Accordingly, this issue of The Letter will be devoted entirely to the developments that have occurred in the Education Initiative in recent months, since our Phoenix meeting

As members of The Pacific Institute family probably know, we have developed an application of The Pacific Institute's curriculum specifically designed for school children 4-12 with home connection for parents, the leadership in this development coming from our TPI Canadian associates, Pat Boon-Anderson and Janet Stiles. The actual use of this program with children ages 4-12 is expected to begin in the near future. Although we have no outcome measures that we can cite in support of the effectiveness of this particular program, this writer has every expectation that it will be successful based on 1) responses of the children-participants in the development of the program; 2) the successful experience of our TPI colleagues in the United Kingdom in their work with school children; and 3) the body of research showing that children ages 5-10 have the ability to learn skills necessary to grasp concepts like self-talk and goal setting, concepts important for developing self-efficacy. Two studies abstracted below leave little doubt about young children's ability to engage in self-talk, or as it is referred to in one of the studies, to use "inner speech" in solving problems.

1. Delay of Gratification in Children, Mischel, W., Shoda, Y., and Rodriguez, M., Science, Vol. 244, 1989.

The reader may remember that this study was cited in the Spring 1999 issue of The Letter, featuring The Social Service Initiative. Accordingly, the description of the study in this issue of The Letter will be a condensed version of the one used in the Spring 1999 issue.

The children in this study, four year olds, demonstrate that they are capable of choosing a more highly valued, but delayed goal, instead of a less valued, but immediate goal, if they used effective self-talk, or to use the term in the study, "cognitive strategies" as instructed by the experimenter. These strategies came in the form of encouraging the children to think of the arousing features of the less preferred goal, or alternatively, to think about the more abstract, informative features of the preferred goal for which they were willing to delay gratification. It is also interesting to note that the children who waited longer for the preferred goal were described ten years later by their parents as more cognitively and socially advanced, better able to handle stress and frustration, better able to concentrate and think ahead (forethought), and more verbally fluent than their peers, all characteristics of high efficacy.

2. The Development of Children's Knowledge about Inner Speech, John H. Flavell, Frances L. Green, Eleanor R. Flavell, and James B. Grossman. Child Development, February 1997, Volume 68, Number l, Pages 39-47.

This study suggests quite strongly that the so-called "golden age" for learning how to engage in self-talk, or "inner speech" is during the elementary and secondary school years. But the definition of inner speech in this study is somewhat different from that typically used by The Pacific Institute. Flavell, et al. tested the inner speech concept, among other criteria, with the following three questions: Can a person say the words to a story up in his head, without moving his lips? Can a person tell himself things or talk to himself "up in his head? When a person is talking out loud, can he be thinking at the same time?

The subjects in the Flavell et al study were 20 four-year-olds, 20 six to seven year-olds, and 20 adults, college students. Four tasks were given to determine whether or not the sub-

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jects could meet the criteria for engaging in active inner speech (self talk) as described in the previous paragraph.

Table 1 below contains the percentage of correct responses (indicating understanding of inner speech) for criteria one and two above for the 4 year-olds, the 6-7 year-olds, and for the adults.

1. There is a steady progression in the ability of subjects in this study to use self-talk.
2. Even 4 year-old subjects show some ability for inner speech.
3. The 6-7 year-olds demonstrate considerable ability for self-talk on both tests.

The authors included additional tasks in an effort to determine the children's ability to use inner speech, with similar results to those cited in Table 1. They conclude that "These strategies include such inner speech processes as covert counting and verbal rehearsal. It is reasonable to think that experience in elementary school would foster awareness of inner speech. Reading, writing, and arithmetic, the basic staples of primary grade education – all require considerable private speech on the part of the learner… as they become increasingly aware of the existence of inner speech as a cognitive ability and increasingly able to notice its occurrence when they engage in it, they should come to realize that it occurs frequently and can take many forms: rehearsing the past or planning the future, verbal reasoning, daydreaming and fantasizing, worrying, and obsessing, and so forth. And with this realization, they will have learned a lot about what people's lives are like."

Table 1

Percentage of correct responses to tests of the inner-speech hypothesis

Test	4 year-olds	6-7 year olds	Adults
Question 1	20*	65	90*
Question 2	45	95*	100*

Note: Percentages marked with asterisks are significant at the 5% level of confidence that chance alone (errors of sampling) produced the results. Put another way, there is a 95% probability that the differences observed in Table 1 reflect real differences between the three age groups, rather than a bias in the sample. Example: the samples used in the study were brighter than the populations they represent. The results in Table 1 show several trends:

With the knowledge provided by Flavell et al. we at The Pacific Institute can proceed with our new program, confident that children at the kindergarten level, and certainly the elementary grades can be taught to use self-talk effectively. The next question is can these children use self-talk to enhance their sense of efficacy? This calls for an analysis of studies that reveal all the sources of high self-efficacy, including the child's own beliefs, teachers, parents, and the collective efficacy of schools. The remaining studies addressing these questions are abstracted from a paper by Bandura: Perceived Self-efficacy in Cognitive Development and Functioning. Educational Psychologist, 28, (2), 117-148, Copyright, 1993, Lawrence Erlbaum Associates, Inc.

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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.*

We would like to take this opportunity to express our appreciation to the distinguished Dr. Glenn Terrell and his outstanding contributions to the mission of The Pacific Institute and to us personally in the constant process of improving ourselves in order to better serve those we are committed to reach. Dr. Terrell is celebrating his 80th birthday this May 24th and we wish you to join us in congratulating him on this special occasion.

We are equally proud of the developments in our education initiative, especially in the application of our curriculum at the elementary school (ages 4-12) level.

This issue of the letter is exciting and supports the work of each of you. Thank you all for all your efforts.

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Children's Beliefs

The impact of children's perceived high self-efficacy is illustrated in a study by Collins, J. L. (1982), March. Self-efficacy and Ability in Achievement Behavior. Paper presented at the annual meeting of the American Educational Research Association, New York.

In this study, Collins compared the performance in mathematics of three groups of children of high, medium and low self-efficacy beliefs in mathematics and reading. The results appear in Figure 1 below.

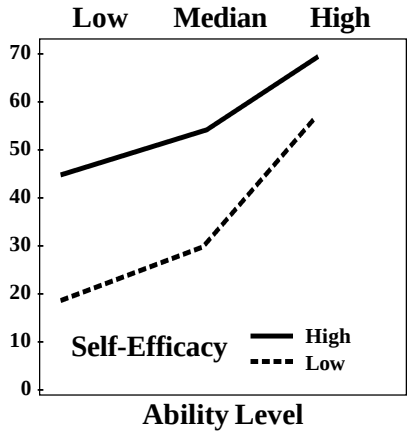

Figure 1, Mean levels in mathematical solutions achieved by students as a function of mathematical ability and perceived mathematical Self Efficacy. Plotted From Collins (1982) data. From "Perceived Self-efficacy in the Exercise 0f Personal Agency" by A. Bandura, 1989 , The Psychologist: Bulletin of the British Psychological Society, 2, P. Copyright 1989 by the British Psychological Society. Reprinted By Permission.

The data in Figure 1 show that children of high self-efficacy for mathematics exceed the performance of those of low self-efficacy in mathematics at all ability levels. Bandura concludes that "At each level of ability, children who believe strongly in their capabilities were quicker to discard faulty strategies… .They chose to rework more of the problems they failed and did so more accurately than did children of equal ability who were plagued by self doubts. Positive attitudes toward mathematics were better predicted by perceived self-efficacy than by actual ability."

The results of the Collins experiment were corroborated by a similar study by Bouffard-Bouchard, T. (1989), Influence of Self-efficacy on Performance in a Cognitive Task. Journal of Social Psychology, 130, 353-363.

Teachers' Self-efficacy

Gibson, S., and Dembo, M. H. (1984) Teacher Efficacy: A Construct Validation. Journal of Educational Psychology, 76, 569-582) found that teachers who are high in perceived self-efficacy for teaching mathematics produce in their pupils higher performance levels than teachers who doubt their ability to teach mathematics. In assessing the Gibson and Dembo data, Bandura writes the following: "Gibson and Dembo found that teachers who have high instructional efficacy devote more classroom time to academic learning, provide students who have difficulty learning with the help they need to succeed, and praise them for their accomplishments. In contrast, teachers who have a low sense of instructional efficacy spend more time on nonacademic pastimes, readily give up on students if they do not get quick results, and criticize them for their failures."

Two additional, studies, reviewed briefly by Bandura, support the findings of the Gibson and Dembo study with respect to the important role of the teacher in building the self-efficacy of students.

Woolfolk, A. E. and Hoy, W. K. (1990) Prospective Teacher's Sense of Efficacy and Beliefs about Control. Journal of Educational Psychology, 82, 81-91.) "…teachers' sense of personal efficacy affects their general orientation toward the educational process as well as their specific instructional practices. Those who have a low sense of instructional efficacy favor a custodial orientation that relies heavily on extrinsic inducements and negative sanctions to get students to study. Teachers who believe strongly in their instructional efficacy support development of students' intrinsic interests and academic self-directedness. "Ashton, P. T., and Webb, R. B., (1986). Making a Difference: Teachers' sense of efficacy and student achievement. White Plains, N.Y. Longman. documented the cumulative impact of teachers' instructional efficacy on students academic achievement..." teachers' beliefs concerning their efficacy predict students' level of achievement over the course of the academic year, with variations in students' entering ability statistically controlled."

Collective School Efficacy

First of all, what is collective school efficacy? Bandura defines it in two ways, namely, "The aggregated individual efficacies of all the staff, the leaders, principals, superintendents, and the aggregated efficacies of the staff, leaders, principals and superintendents with respect to their beliefs about the school's ability to perform as a whole, as a social system." Bandura further elaborates: "In activities requiring low system interdependence, members of the group need to coordinate their efforts, but the systems level of attainment is the sum total of the outcomes produced independently. In endeavors requiring high system interdependence, members must work jointly to achieve group outcomes. School systems rank at an intermediate level of interdependence. Although the level of academic progress achieved by a school largely reflect the summed contributions of teachers in their individual classrooms, (Definition one above), schools involve organizational interdependencies that contribute to teachers' collective sense of efficacy," (Definition two above).

An example of a measure of Definition One of collective efficacy would be the average SAT scores of a particular school, while an example of a measure of Definition Two

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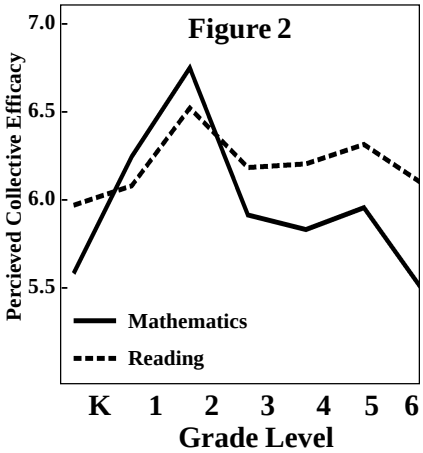
collective efficacy would be the performance of students in a group project requiring a high level of interaction between students, teachers and the principal, i.e. teamwork. Examples are a school-community project to improve the school's image, the performance of a choral group, or an athletic team.

Brookover, Beady, Schweitzer, Flood and Weisenbacher, (l979) and others have shown that a teacher's perceived collective efficacy changes with grade level as revealed in Figure 2 below. The trend indicates low collective efficacy at entry, increasing during the early elementary grades, only to drop sharply from grades 2 through 6. This pattern can have a deleterious effect on students moving from elementary to junior high school, since we know from previous research reviewed here that students' efficacy is influenced by the efficacy of teachers, individually and collectively.



Parental Self-efficacy

Parental self-efficacy contributes in significant ways to the performance of their children. (Epstein, J. L. 1990, School and family connections: Theory, Research and Implications for Integrating Sociologies of Education and Family. In D. G. Unger and M. B. Sussman (Eds), Families in Community Settings: Interdisciplinary Perspectives (pp 99-126) New York: Haworth. Epstein's research, provides convincing evidence, in the words of Bandura, for the importance of parental roles in the performance of children in school, …"They prepare their children for school, place a value on education, convey belief in their children' scholastic ability, encourage development and comprehension through reading, set standards for them, establish regular homework habits, help them with their homework at home, keep track of their academic progress, reward their efforts, support school related functions, assist with school activities, and participate in school governance or community advocacy groups for school improvement."

Hoover-Dempsey, et al. found that self-efficacious parents, again in the words of Bandura,…"regard education as a shared responsibility. The higher their sense of efficacy to instruct their children, the more they guide their children' learning and participate actively in the life of the school. In contrast, parents who doubt their efficacy to help their children learn turn over their childrens' education entirely to teachers. Hoover-Dempsy, K.V., Bassler, O.C. and Brisse, J.S., Parent Efficacy, Teacher Efficacy and Parent Involvement: Explorations In Parent-School Relations, Journal of Educational Research.

The role of parental efficacy and participation nurtured by the parent-home connection to the school has been crucial to the success of The Pacific Institute's work with Head Start groups. Edward Zigler, the co-founder of the Head Start Program often refers to the importance of active parental involvement in the nearly thirty year success of Head Start. This view of the importance of parental involvement is also shared by administrators in the Head Start program with whom The Pacific Institute has worked during the past several years.

In summary, the foregoing studies demonstrate that: 1) Steady improvement in the effective use of self-talk takes place during the preschool years, even to some extent in four-year olds, thus suggesting quite strongly that our new program will be successful, since the effective use of self-talk is one of the important skills in learning self-efficacy, 2) The sources of self-efficacy in children are the following: children' own beliefs of efficacy, teachers self-efficacy, collective efficacy of schools, and parent self-efficacy. 3). The Pacific Institute's programs are suitable for the full range of students in elementary and secondary schools. What better way can we accomplish our mission of building efficacy than to work with the next generation, those enrolled in the public and private schools throughout the world?

One final matter. Many states in a common interest to increase the quality of schools, have instituted testing programs distributed throughout the public schools. Washington is one of those states. While the desire to increase quality of the educational system is a laudable goal, in the opinion of this writer, we need to make sure that the goals of our educational system are not identified entirely with tests. Also, the predictive value of scores on paper and pencil tests is notoriously poor. Another potential problem is what the schools are going to do with the scores. It's one thing if they are used along with other data about student performance for the purpose of making decisions about promotion and graduation, but quite another if they are to be used as the sole criterion for these critically important decisions.

We know that the pressure is great in the schools to prepare students to take the tests, since that will weigh heavily in school evaluation and budget decisions. This should not deter us in our efforts to work with schools. We know that if we can help raise the efficacy of students, teachers, and parents and the collective efficacy of the schools, the overall effectiveness of the schools will be enhanced and the students will perform better in all aspects of their lives, and they will score higher on any valid test.