

Children's Self-Competence

Grades One through Twelve

Article Review by Glenn Terrell, Ph.D.

This issue of THE LETTER is a review of a recent study of children's self-competence as they progress from grades one through twelve, Jacobs, Janis E.; Lanza, Stephanie; Osgood, D. Wayne; Eccles, Jacquelynne S.; and Wigfield, Allan. *Child Development*, March/April, 2002, Vol. 73, Number 2, pages 509-527, "Changes in Children's Self-Competence and Values: Gender and Domain Differences across Grades One through Twelve." This exceedingly well-constructed study, hereafter referred to as the "Jacobs et al study," contains findings that support The Pacific Institute's education initiative in the respect that children in grades one through twelve need the efficacy-building experiences they are *not* getting.

One would hope that self-competence, or as we would call it, self-efficacy, would increase as children adjust to the demands of education. But as we shall see, such is generally not the case. The study also measures the effect of self-competence on the degree that one values school performance in language arts, mathematics and sports. Also measured is the effect of values students have toward language arts, mathematics and sports on their performance in these components of the school curricula.

As indicated above, the Jacobs et al study contains extraordinarily convincing findings which support our assumption that TPI's curricula is a missing piece in the nation's effort to strengthen the educational experiences of our young people. (It is important that the reader of this review for THE LETTER understands that we use the terms "self-competency," "self-efficacy" and "self-confidence" interchangeably.)

Bandura and others have demonstrated that people with high self-efficacy will perform difficult tasks better than those individuals with low self-competency beliefs. Apparently, the BELIEF that one can perform a task largely determines whether or not difficult tasks will even be attempted. Bandura, A. (1994), *Self-Efficacy: The Exercise of Control*. New York: Freeman; Covington, M. V. (1994), and "The Motive For Self-Worth" in R. Ames and C Amens (Eds), *Research on Motivation in Education* (Volume 1, pp. 77-113). New York: Academic Press.

Other research demonstrates that the VALUE the learner attaches to a task is an important factor in performance of that task. Eccles, J.S. et al (1998) "Motivation to Succeed" in N. Eidenberg (Ed.), W. Damon (Ed. Series) *Handbook of Child Psychology*, Volume 3 "Social, Emotional and Personality Development" (5th Ed. pp. 1051-1071) New York, Wylie.





A MESSAGE FROM LOU & DIANE TICE

This issue of THE LETTER convincingly shows the need for efficacy-building skills for children and adolescents, and should be an excellent eye-opener for education professionals throughout North America.

The value of the Jacobs et al study is enhanced by the longitudinal design employed by the researchers, and by the number of students in the study. However, the students used were from a middle-class Midwest U.S. city, a factor which may limit the application of the findings to schools from this background. We cannot think of any reason why the results would differ for children from other cultural backgrounds, but there is always that possibility.

For the reasons stated above, it would be interesting to see a pilot study done with one of our clients, with children from another cultural background. We suspect the results would be very much the same. In the meantime, we now have convincing data from the Jacobs et al study that children from middle-class backgrounds need efficacy-building experiences in order to improve school performance.

Lou & Diane Tice

Jacobs et al point out that although previous research has been performed on the relationships between self-competence, task performance and task value, there are no longitudinal studies covering grades one through twelve. For this reason, I regard the Jacobs et al study as very important.

Method

Jacobs et al used a very sophisticated research design known as the Hierarchical Linear Modeling technique, particularly well adapted to longitudinal studies of this type. Also, the Jacobs et al study is a part of another project conducted by Ecces, J.S., Adler, T.F., Futterman, R., Goff, S.B., Kaczala, C.M., Meece, J. & Midgley, C. (1983) "Expectancies, Values and Academic Behaviors," in J.T. Spence (Ed.), *Achievement and Achievement Motives*, (pp. 75 -146) San Francisco: Freeman.

Seven hundred and sixty one children (761), from grades one through twelve

were chosen from 10 schools in a large Midwest city. Gender composition consisted of 53% girls and 47% boys. The subjects were largely from middle class, European American schools.

Questionnaires measuring competence beliefs and task values in mathematics, language arts and sports were administered each spring. The questionnaire items were tested in a pilot study to be sure that the children understood the meanings of the items. Also, the reliability and validity of the test were determined to be very high.

Results

To quote Jacobs et al, "The central goal of the present study was to describe the changes in children's ability perceptions and task values in three domains from first through twelfth grade." Gender differences were also determined. Jacobs et al applied appropriate tests to determine that the gender differences were not

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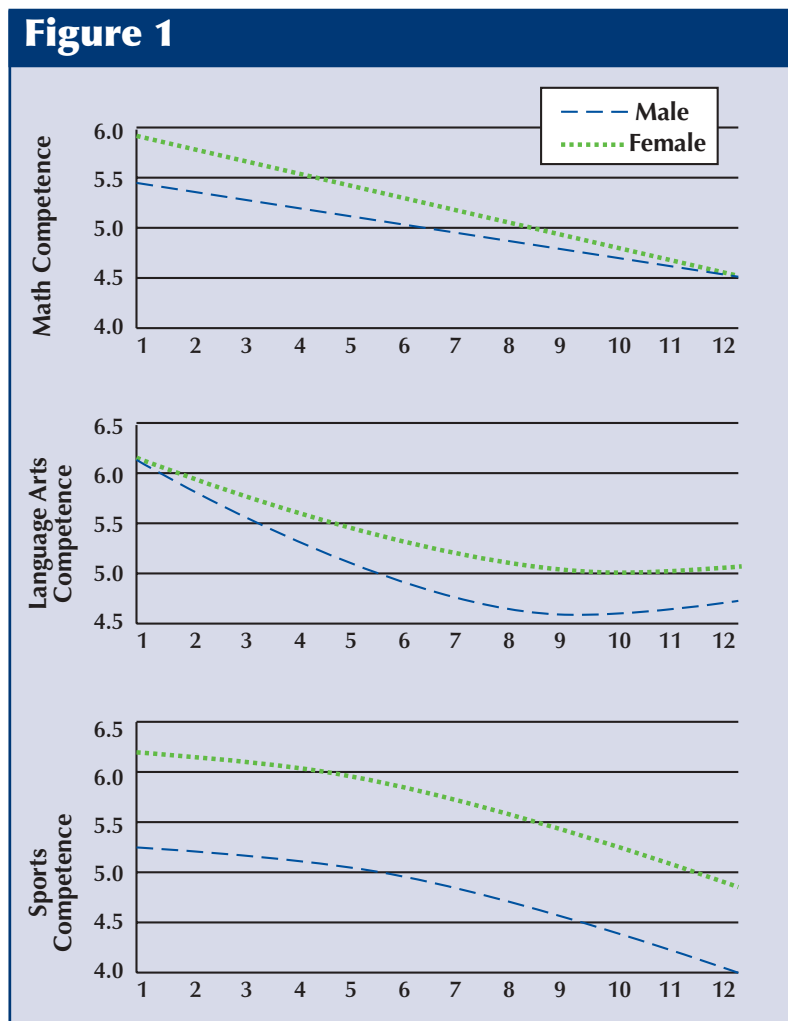
due to differences in ability. Figure 1 below contains growth curves for competence beliefs for both male and female participants from grades one through twelve in math, language arts and sports. These are the main findings of the study, findings that dramatically reveal that The Pacific Institute has what is needed to strengthen the performance of young people, both boys and girls, from the beginning of their school experience through high school – cognitive skills that will build self-competence, or self-efficacy.

A. Self-Competence Beliefs

Specifically, Figure 1 reveals the following paths of self-confidence, grades one through twelve:

1. Over-all, self-confidence decreases from the first through the twelfth grade, for both genders, in math, language arts and sports.

2. Self-Competence in math decreases in virtually a linear fashion for both genders.
3. Self-Competence in language arts decreases sharply through grade six, then gradually through grade twelve, again for both genders.
4. Self-Competence in sports decreases gradually for both genders.
5. Male self-competence in math, slightly superior to female early on, disappears later.
6. Female and male self-competence in language arts is high early, then gradually diminishes, more so for males than females.
7. Male self-competence in sports, higher than females in early grades, diminishes slightly by grade twelve, interestingly on a parallel track.



B. Subjective Task Value

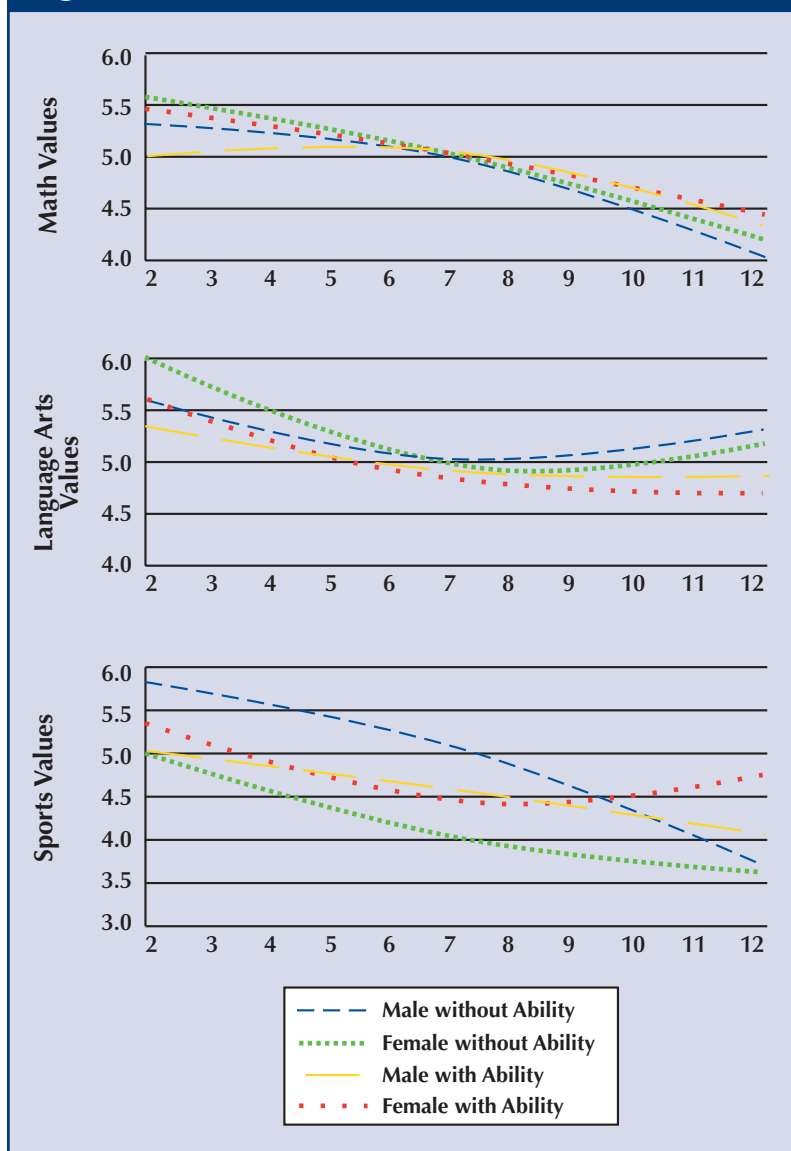
It will be remembered that one of the purposes of the Jacobs et al study was to ascertain the relationship between self-competence and the values students hold for the three domains of self-competence: math, language arts and sports. These relationships are revealed in Figure 2 below.

Specifically, Figure 2 reveals the following:

1. The most important finding suggested by the curves in Figure 2 is their similarity (i.e., declining curves of task value), to the downward slope of the self-competence curves in Figure 1. The curves are, in the words of Jacobs "highly significant."

2. Quoting the authors again, "Significant gender differences in the average values were found only for language arts and sports, but no gender differences in the average math values were found. A significant gender difference in the rate of change was found only for sports, with the greatest similarity between boys and girls found at the end of high school, because boy's values for sports declined more rapidly than girl's values. Nonetheless, the trend for differences in slope for language arts suggested that girls' valuing of language arts may increase during the high school years whereas boys' valuing does not rebound during high school."

Figure 2



Other Indicators of the Relationship Between Self-Competence and Task Values

The authors of this study cite two analyses that suggest quite strongly that perceptions of self-competence influence the values that students attach to math, language arts and sports, which in turn affect performance.

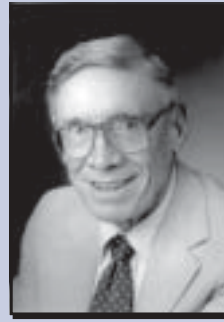
1. At a statistically significant level, the respondents "were much more likely to value math, language and sports when they felt competent in the domain."
2. "Perceptions of competence explained between 38% and 71% of the previously unexplained variance in stable individual differences in subjective task values for each do-

main." This means that self-competence perceptions accounted for between 38% and 71% of all the factors that contribute to the development of the values of the children in this study.

Discussion

I have several observations to emphasize:

1. Of greatest by far is the finding that, in general, the students in this study lost self-confidence as they progressed from the first through the twelfth grade. Although other studies, both cross-section and short-term longitudinal, have found similar results, I was hopeful that the longitudinal study reviewed here would yield more promising results.
2. The gender gap in self-competence, value and performance in the Jacobs et al study is in a decreasing mode.
3. I am unaware of any performance measures employed by Jacobs et al to determine the force of self-competence and values. Abundant evidence is presented to show important relationships between self-competence and values, which do suggest that performance measures would also be affected by both self-efficacy and the values students attach to the importance of math, language arts and sports.
4. This study has limitations in terms of the population used. Strictly speaking, we cannot assume that the same results would apply to non-middle class populations. As the authors point out, replication of this study on a different class population is needed.
5. I return to an oft-repeated value of the Jacobs et al study: There is a need, bordering on the desperate, for the expertise of The Pacific Institute to raise the self-efficacy of the students in our school systems – both public and private.



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