

Empirical Research And Underlying Research Framework For *Success Highways*





University of Colorado at Denver and Health Sciences Center

**Research and Evaluation Methodology
School of Education and Human Development**

Campus Box 106, P.O. Box 173364
Denver, Colorado 80217-3364
Phone: 303-556-4858
Fax: 303-556-4479

I have reviewed the three principal studies that have been carried out to evaluate the impact of *Success Highways* on important school outcomes. The studies are limited by the fact that they were carried out only in one city (Milwaukee), where the program was first developed, but they are strong in their methodology. They provide persuasive evidence that participation in the program led to significant improvements in grades, attendance, and test scores for participating students, and that improvements were demonstrated by both African American and Latino students.

It is not an easy matter to show that a program is effective. First, one must show that students who participate improve in respect to important outcomes. But improvement alone is not enough, because students can improve for a host of reasons, which may have nothing to do with the program. The classic way to control for these competing explanations for improvement is to randomly assign students to participate in the program, and compare their outcomes to the outcomes of a control group. But this is rarely possible to do.

Without random assignment, the challenge to demonstrating the link between program participation and improved outcomes, referred to as the internal validity of a study, involves showing that improved outcomes are not due to such things as school-wide staff development, district curriculum reform, an influx of high SES students into the school, changes in school personnel, or the targeting of the program at either the students who are lowest already and have nowhere to go but up, or a select group of students who are highly motivated and primed to benefit from the program from the outset. The research conducted on *Success Highways* showed that the program was targeted at a broad range of students, students did experience improvements in attendance, grades, and test scores, and the more units students participated in, the higher their outcomes.

One reason that students participating in more units might have higher outcomes is that the students participating in fewer units might be simply less capable or less motivated, and therefore stopped coming. This would create a false correlation between participation and high outcomes. But the researchers examined this possibility, showing that the grades and attendance of students who participated in all units were no higher at the beginning than the grades and attendance of those who participated less. They further controlled statistically for initial differences in students. The researchers also attended to other changes occurring in the schools implementing *Success Highways*, and were able to eliminate other school reform initiatives or demographic shifts as competing explanations for program effects. I conclude that the research builds a convincing case that the program itself brought about important improvements in outcomes for participating students.

Dr. Alan Davis

Associate Professor of Research and Evaluation Methodology
University of Colorado at Denver and Health Sciences Center

Campuses: Downtown Denver • Fitzsimons at Aurora • Ninth and Colorado

Success Highways Methodology

The methodology underlying *Success Highways* was developed over a 15-year period from doctoral and on-site piloting work done by Dr. V. Scott Solberg at the University of Wisconsin at Milwaukee from 1998–2006. This research continues today and will continue into the foreseeable future as the program is implemented nationwide.

The initial methodology was formed through the integration of numerous theoretical perspectives from experts in the field of human development and change, including Ann Masten, Paul Baltes, Albert Bandura, Sheldon Cohen, Stevan Hobfoll, Edward Deci, and Richard Ryan. From this body of work, several resiliency skills were identified as having a significant effect on a student achieving academic success in high school. These resiliency skills were identified as:

- ← Building confidence
- ← Making connections
- ← Setting goals
- ← Managing stress
- ← Increasing well-being, and
- ← Understanding motivation

Resiliency Skills Assessment Instrument and Research Studies

V. Scott Solberg created a resiliency skills assessment instrument consisting of 108 questions covering all six resiliency skills (Solberg, Gusavac et al., 1998; Solberg, Hale, et al., 1993; Solberg, O'Brien et al., 1993) that was revalidated for use with urban precollege populations (Close, 2000).

Beginning in 1998, a curriculum was developed and implemented in South Division and North Division high schools in the Milwaukee Public School District. During this time, it is estimated that over 2,500 students were exposed to the curriculum. The curriculum was designed to help students strengthen these resiliency skills during their transition into high school. During the seven years of piloting, three evaluation studies were conducted in relation to students attending South Division High School.

- 1) The first study was conducted from 1998-2000 to answer the question of whether initial exposure to the *Success Highways* methodology contributed to increased academic achievement one and two years after being exposed to the curriculum.
- 2) The second study evaluated whether students exposed to the curriculum during the 2000 fall semester demonstrated improved attendance and academic performance.
- 3) The third study was conducted in the 2004 fall semester in order to replicate the second study with a set of new, unduplicated students. In addition, this study evaluated whether the effects were different for students from different racial and ethnic groups.

“Resiliency skills have a significant effect on students achieving academic success.”

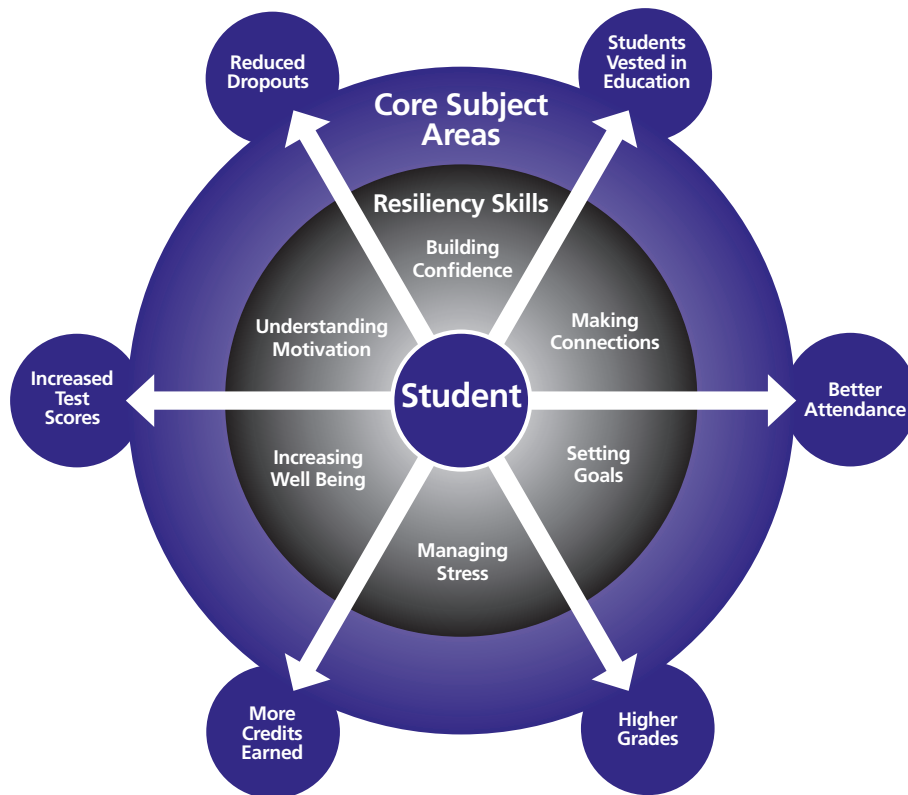
Outcomes

These studies clearly demonstrated that students who were exposed to the *Success Highways* program achieved higher academic success. Study 2 for example found that students exposed to the curriculum at South Division High School showed a:

- ← 137% improvement in attendance
- ← 52% improvement in grades
- ← 33% increase in classes passed
- ← 64% rise in retention rates

In sum, students exposed to the resiliency building curriculum became more invested in their education as indicated by demonstrating:

- ← Better attendance
- ← Higher grades
- ← More credits earned
- ← Increased test scores, and
- ← Reduced dropouts.



“Students exposed to *Success Highways* achieved higher academic success.”

The research behind *Success Highways* demonstrates that this program can have a significant positive effect on increasing academic performance in urban schools.

STUDY 1

The program contributed to students achieving higher grades for the semester during which they received curriculum intervention. Students receiving three or more interventions also had improved grades one and two years following the initial intervention. This study shows the impact and staying power of the initial intervention for students receiving three or more exposures to the curriculum. The program was shown to have a long-term effect on academic success. The results indicate exposure to the *Success Highways* curriculum during a student's transition into high school has a profound effect on their academic performance even two years after exposure.

Participants: 661 10th, 11th and 12th grade students

Time period: 1998, 1999, and 2000 fall semesters

Objective: Determine if the level of exposure to the *Success Highways* curriculum contributed to academic improvement one and two years following the initial intervention.

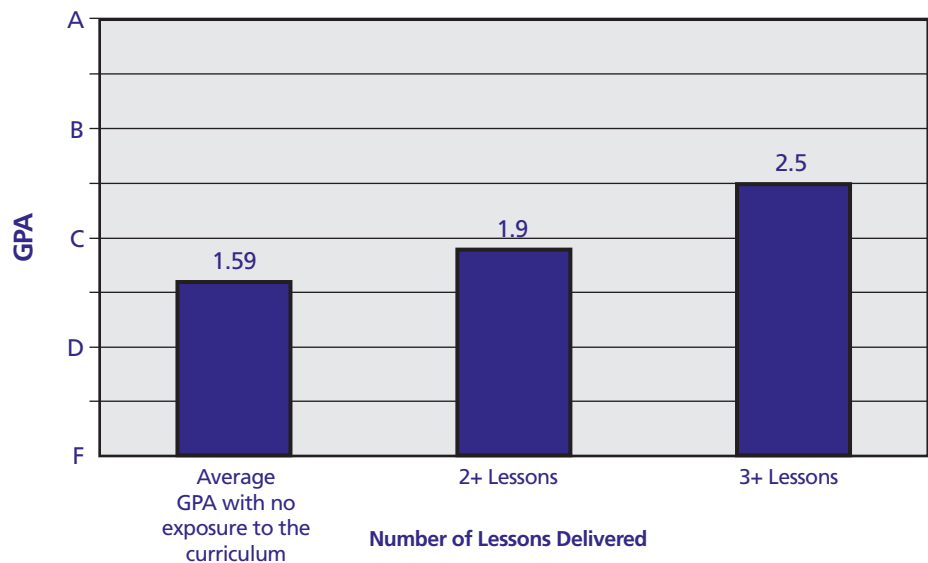
Methodology: This research was a longitudinal study—an analysis carried out over a designated period of time. Repeated measures analysis of variance was used to evaluate whether students exposed to different levels of curriculum demonstrated improved grades one and two years following exposure.

Results

Students who were exposed to two lessons of *Success Highways* had a higher grade point average (1.9) after two years than the average student. Students who were exposed to three or more lessons achieved an even higher grade point average (2.5) after two years. This concludes that the lessons learned from *Success Highways* continue to positively affect academic achievement even two years after the exposure.

“*Success Highways* has a long term effect on student achievement.”

Longitudinal Effect of *Success Highways* 2 Years After Exposure



STUDY 2

Exposure to *Success Highways* curriculum contributed to improvement in all of the end-of-semester indicators measured. Of particular note is the degree of improvement regarding credits earned. A significant body of literature indicates that credit completion levels in the first two years of high school are strongly associated with attaining a high school diploma.

Participants: 131 9th grade students

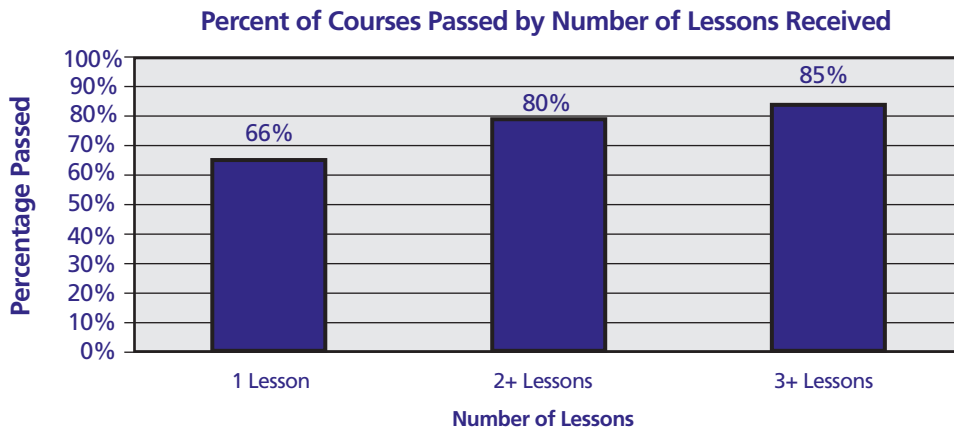
Time period: 2000 fall semester

Objective: Determine if exposure to the curriculum improves academic performance and attendance.

Methodology: Students received various degrees of exposure to the *Success Highways* curriculum and a one-way multivariate analysis of co-variance was performed using the levels of possible curriculum exposure as the independent variable. The dependent measures included end-of-semester grades, credits earned, and attendance. The co-variates included first mark period grades and attendance.

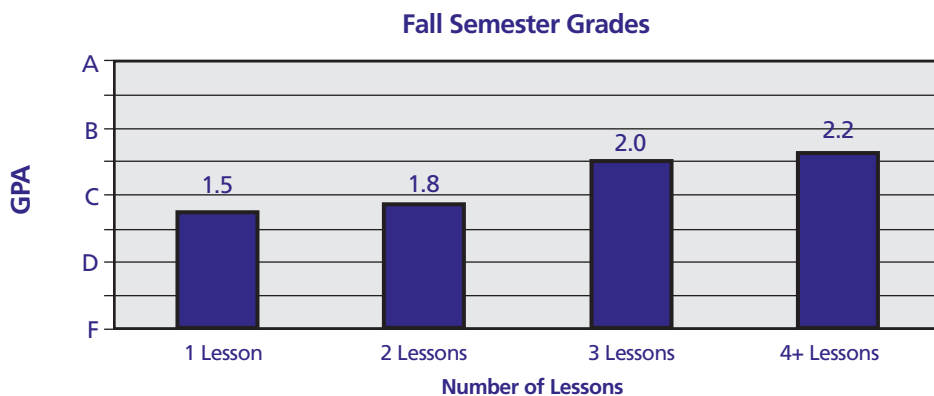
Relationship Between Program Exposure And Improved Academic Outcomes

The more students were exposed to the *Success Highways* curriculum, the more courses they passed.



“*Success Highways* increases student grade point averages as much as 50%.”

The more students were exposed to the *Success Highways* curriculum, the higher their grade point average. Students who were exposed to four or more lessons achieved a 2.2 GPA as compared with the school average of 1.6—this represents a 50 percent improvement in GPA.



STUDY 3

This study indicates that the results from Study 2 can be replicated and the initial findings are confirmed and reinforced; the academic improvement shown in Study 2 was not an anomaly. End of semester grades increased significantly as a function of exposure to *Success Highways* curriculum for both Latino and African-American youths.

Participants: 861 9th grade students

Time period: 2004 fall semester

Objective: Replicate Study 1 using new and unduplicated participants and break out data separately for different racial and ethnic cohorts.

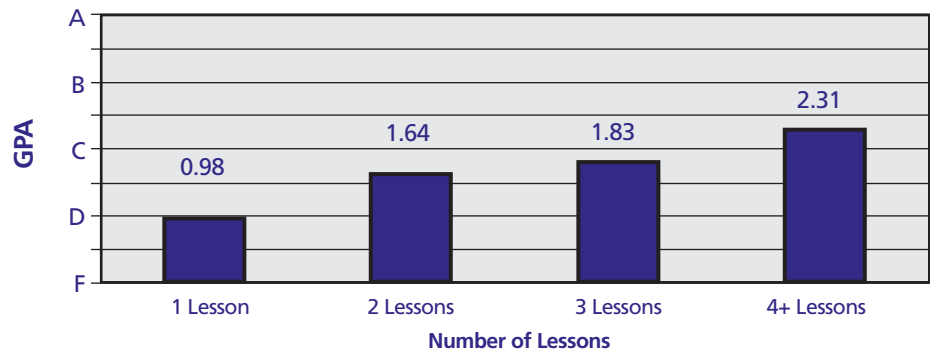
Methodology: Students received various degrees of exposure to the *Success Highways* curriculum, and a one-way analysis of variance was performed using the levels of possible curriculum exposure as the independent variable. The dependent measure was end of semester grades.

End of semester grades increased as a function of exposure to *Success Highways* curriculum and replicated the results of Study 1. This increase in GPA represents a 40 percent improvement rate for students receiving more than four lessons and an 11 percent increase for students receiving three lessons.

Grade Improvement for Latino and African-American Students

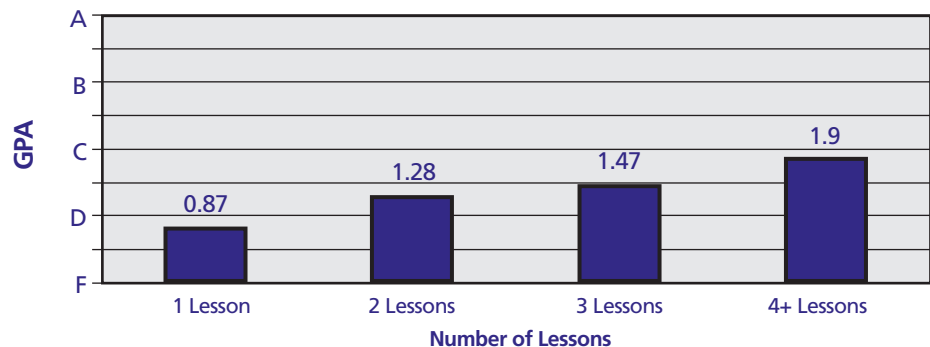
221 Latino students were exposed to *Success Highways* in the fall of 2005. Compared to the school's average GPA of 1.59, the increase in GPA represents a 45 percent improvement rate for students receiving four or more *Success Highways* lessons and a 15 percent increase for students receiving three lessons.

Latino GPA by Number of Lessons



82 African-American students were exposed to *Success Highways* in the fall of 2005. Compared to the school's average GPA of 1.59, students receiving four or more lessons achieved a 19% increase in their grade point average.

African-American GPA by Number of Lessons



“*Success Highways* is effective with ethnic minorities.”

Research Framework

Success Highways was derived from research and theory regarding human development and change. The lessons were developed based on a curriculum that was piloted for more than eight years in urban high schools serving predominantly lower-income youth. These youth were at risk, having entered high school averaging fourth and fifth grade reading and math levels, with more than 70 percent of the students meeting federal guidelines for free and reduced-price lunch. The pilot curriculum is credited with improving retention rates, grades, and credits earned by students in historically low-performing schools.

For multiple evaluation documents about *Success Highways* pilot programs, please visit www.ScholarCentric.com.

Research Supporting *Success Highways*

ScholarCentric believes that to improve schools, we must focus on establishing relevance, relationships, and rigor, and we must promote resiliency skills in individual classrooms and whole learning communities.

“Relevance” involves connecting the importance of what students are learning to the world of work and to achieving one’s life aspirations.

“Relationships” refers to establishing supportive connections between teachers and students and among peers.

“Rigor” refers to providing challenging curriculum that incorporates the highest expectations for youth. Low expectations are the worst form of oppression; by not believing in youths potential to learn, we restrict their development and contribute to their academic failure.

“Resiliency” refers to the range of skills and cognitive templates that students must possess to effectively navigate school and life challenges (Masten, 2001; Masten, Best, & Garmezy, 1990). Although many risk factors lie outside a school’s scope of influence, schools can help youth develop the resiliency, or developmental assets, they need to ensure that these risk factors do not result in school failure. *Success Highways* focuses on helping students build these resiliency skills.

Resiliency Skills

As the construct “resilience” is translated from the scientific literature to popular culture, there is always the possibility of misrepresenting the scientific developments in a given field. *Success Highways* was developed in schools where youth were living in communities characterized by low income and high violence exposure. The “resiliency skills” incorporated into *Success Highways* were identified because they have been found to promote academic success. Helping all youth develop these skills will help them become resilient if and when they encounter challenging life events. For the many youth of color and youth living in low-income urban settings, these resiliency skills will continue to offer strategies for helping them to successfully navigate through their current academic and life challenges.

Goal-Setting

Much has been written about the importance of goals. Most recently, Paul Baltes and his colleagues conducted longitudinal research on this topic and found that healthier life outcomes were related to individuals who engaged in three goal-setting strategies. These strategies form the title of the researchers’ SOC (selection, optimization, compensation) model. Individuals who had higher SOC ratings selected a few goals, optimized their opportunities to achieve those goals, and compensated by switching or modifying goals when faced with adversity. Individuals using these SOC strategies had better health and well-being at later phases of life (Baltes, 1997; Lerner, Freund, & De Stefanis, 2001). *Success Highways* helps students begin to select a future life course and break down long-term goals into specific short-term activities that students are able to respond to. In this way, *Success Highways* identifies goal-setting as a resiliency characteristic. The program recognizes that realizing one’s aspirations occurs when one is able to create a plan for achieving one’s goals and understands the importance of education in establishing the foundations for life success.

Confidence

In the science world, academic confidence—referred to as “self-efficacy”—is defined as the degree to which a student feels capable of successfully performing school-related tasks. Albert Bandura and his colleagues found that individuals who possess higher academic self-efficacy beliefs are more likely to persist when challenged with difficult academic material, perform better during tests, and perceive negative performance evaluations as challenges to overcome rather than threats to avoid.

In part, Dr. Bandura created this construct of self-efficacy after studying how people were able to overcome a fear of snakes. What he found was that the more a person felt able to manage a situation, the longer they could stay in a room with a snake and the closer they could move toward the snake. Using the same concept, students who gain academic confidence are more likely to try difficult material and continue trying until they get it right (Bandura, 1997). *Success Highways* offers students both understanding about how increased confidence contributes to achieving success and specific methods for developing more confidence.

Connections

A tremendous amount of research links the quality of social support systems to development and health. Most notably, research has indicated that perceived availability of social support consistently provides health benefits during times of stress. One theory argues that during times of high stress, social support acts as a buffer to protect one from becoming ill. Another theory argues that social support enhances one's overall health regardless of stress level. Although theories may differ as to why social support works, it is a fact that having quality social support is beneficial (Cohen & Wills, 1985). In *Success Highways*, there is an ongoing focus on the significance of support systems and on strategies for identifying and taking advantage of both formal and informal supports.

Stress

Noted psychology professor Stevan Hobfoll argued that stress can be understood as one's ability to conserve emotional, psychological, and behavioral resources. For example, most of us can answer a telephone. Although we have the skills needed to answer the phone, there are times when receiving and answering one more phone call pushes us to the tipping point. In other words, while one may possess the skills needed to perform the activity, stress is often about whether one has the emotional resources needed to perform the activity (Hobfoll, 1998).

Research has consistently found a very strong correlation between academic self-efficacy—confidence—and academic stress. This means that individuals with stronger academic confidence have the personal resources they need to manage the pressures associated with performing academic-related tasks (Solberg, Gusavac, Hamann, Felch, et al., 1998; Torres & Solberg, 2001; Solberg & Villareal, 1997). *Success Highways* focuses on stress management as one of the resiliency skills students must acquire to effectively confront any academic or personal roadblocks they find.

As described in the previous section, Connections, the “enhancing” hypothesis argues that social support also offers resources to a person to reduce the amount of pressure that person experiences (Cohen & Wills, 1985).

Health and Well-Being

Many cumulative risk factors affect health and well-being. For youth living in lower-income communities, cumulative risk factors include access to health care during neonatal development, birth, and childhood, quality of housing, and level of community violence. Living in situations characterized by high cumulative risk can result in chronic stress and health concerns. Some implications of this include increased drug use, risky sexual activity, and school failure (Evans, 2004; McEwen, 1998). *Success Highways* acknowledges the challenges youth face and introduces students to establishing a necessary balance between relationships, school, and health.

Motivation

The model of motivation exposed in *Success Highways* was drawn from Deci and Ryan’s self-determination theory. In their model, motivation is divided into four types – two that are related to extrinsic motivation and two that are related to volitional, self-determined motivation. Extrinsic motivation refers to performing an activity because one feels forced to do it or because one is concerned with disappointing others; extrinsic motivation results in a person performing the activity in order to avoid sanctions or guilt. Self-determined motivation, on the other hand, involves choosing to perform the behavior because it is perceived as meaningful or enjoyable (Deci & Ryan, 1985; Ryan & Deci, 2000). Through examining personal motivation factors, *Success Highways* allows students to rethink their motivation in school and understand their control over this resiliency skill.

Bibliography

- Baltes, P. B. (1997). On the incomplete architecture of human ontogeny: Selection, optimization, and compensation as foundation of developmental theory. *American Psychologist*, 52, 366–380.
- Bandura A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Benard, Bonnie (2005). *Breaking the barriers to achievement* [Video]. Available from Association for Supervision and Curriculum Development (ASCD), ASCD Express, 1703 N. Beauregard St., Alexandria, VA 22311-1714.
- Casas, J. M., Furlong, M. J., Solberg, V. S. H., & Carranza, O. (1990). An examination of individual factors associated with academic success and failure among Mexican-American and Anglo students. In A. Barona & E. E. Garcia (Eds.), *Children at risk: Poverty, minority status and other issues in educational equity*. Washington, DC: National Association of School Psychologists.
- Cohen, S., & Wills, T. A. (1985). Social support and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357.
- Cohen, S., Underwood, L. G., & Gottlieb, B. H. (2000). *Social support measurement and intervention: A guide for health and social scientists*. New York: Oxford University Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human development*. New York: Plenum.
- Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist*, 59(2), 77–92.
- Freund, A. M., & Baltes, P. B. (1998). Selection, optimization, and compensation as strategies of life management: Correlations with subjective indicators of successful aging. *Psychology and Aging*, 13, 531–543.
- Huitt, W. (2001). *Motivation to learn: An overview*. Educational Psychology Interactive. Valdosta, GA: Valdosta State University. Retrieved April 11, 2006, from <http://chiron.valdosta.edu/whuitt/col/motivation/motivate.html>.
- Hobfoll, Stevan E. (1998). *Stress, culture, and community, the psychology and philosophy of stress*. Dordrecht, the Netherlands: Kluwer Academic/Plenum Publishers.
- Howard, K. A., & Solberg, V. S. H. (in press). School counseling as a method for achieving social justice. *Professional School Counselor*.
- Lee, V., & Smith, J. (2001). *Restructuring high schools for equity and excellence*. New York: Teachers College Press.
- Lerner, R. M., Freund, A. M., & De Stefanis, I. (2001). Understanding developmental regulation in adolescence. The use of the Selection, Optimization and Compensation model. *Human Development*, 44, 29–50.
- Morrison, G. M., Walker, D., Wakefield, P., & Solberg, V. S. H. (1994). Teacher preferences for collaborative relationships. *Psychology in the Schools*, 31, 221–231.

Bibliography *(continued)*

- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56, 227–238.
- Masten, A., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology*, 2, 425–451.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 322, 171–179.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38, 30–38.
- Nota, L., Soresi, S., Solberg, V. S. H., Ferrari, L. (in press). Promoting vocational development: Methods of intervention and techniques used in the Italian context. International Association of Educational and Vocational Guidance.
- Pajares, F. & Urdan, T. C. (2005). *Self-efficacy beliefs of adolescents*. Greenwich, CT: Information Age Publishing.
- Resnick, M. D. (2000). Protective factors, resiliency and healthy youth development. *Adolescent Medicine*, 11, 157–165.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Ryan, N. E., Solberg, V. S. H., & Brown, S. E. (1996). Family dysfunction, parental attachment, and career search self-efficacy among community college students. *Journal of Counseling Psychology*, 43, 84–89.
- Sarason, B. R., & Duck, S. (2000). *Personal relationships: Implications for clinical and community psychology*. New York: Wiley.
- Solberg, V. S. H. (1998). Assessing career search self-efficacy: Construct evidence and developmental antecedents. *Journal of Career Assessment*, 6, 181–193.
- Solberg, V. S. H. (2003). Exemplarian action research: Conducting vocational psychology in school settings/La ricerca azione: Fare psicologia dell'orientamento a scuola. *Gipo: Giornale Italiano di Psicologia Dell'Orientamento* 5(1) (April): 14–25.
- Solberg, V. S. H., & Villareal, P. (1997). Self-efficacy, stress, and social support as predictors of Hispanic college adjustment. *Hispanic Journal of Behavioral Sciences*, 19, 182–201.
- Solberg, V. S. H., Close, W., & Metz, A. J. (2001). Promoting success pathways for middle and high school youth: Introducing the Adaptive Success Identity Plan for school counselors. In C. Juntunen & D. Atkinson (Eds.), *Counseling Strategies* (pp. 135–157). Thousand Oaks, CA: Sage.
- Solberg, V. S. H., Good, G., & Nord, D. (1994). Career search efficacy: Ripe for intervention and applications. *Journal of Career Development*, 21, 63–72.

Bibliography *(continued)*

Solberg, V. S. H., Good, G., Nord, D., Holm, C., Hohner, R., Zima, N., Heffernan, M., & Malen, A. (1994). Assessing career search expectations: Development and validation of the Career Search Efficacy Scale. *Journal of Career Assessment*, 2, 111–123.

Solberg, V. S. H., Valdez, J., & Villareal, P. (1994). Social support, stress, and Hispanic college adjustment. *Hispanic Journal of Behavioral Sciences*, 16, 230–239.

Solberg, V. S. H., Choi, K., Ritsma, S., & Jolly, A. (1994). Asian-American college students: It's time to reach out. *Journal of College Student Development*, 35, 296–301.

Solberg, V. S. H., Hale, B., Villareal, P., & Kavanagh, J. (1993). Validation of the College Stress Inventory for use with Hispanic populations: A confirmatory analytic approach. *Hispanic Journal of Behavioral Sciences*, 15, 80–95.

Solberg, V. S. H., Howard, K. A., Blustein, D. L., & Close, W. (2002). Career development in the schools: Connecting school-to-work-to-life. *Counseling Psychologist*, 30, 705–725.

Solberg, V. S. H., Ritsma, S., Davis, B., & Jolly, A. (1994). Asian-American students experience of college and the likelihood of using university counseling centers: A replication and extension. *Journal of Counseling Psychology*, 41, 275–279.

Solberg, V. S. H., Good, G. E., Fischer, A. R., Brown, S. E., & Nord, D. (1995). Relative effects of career search self-efficacy and human agency upon career development. *Journal of Counseling Psychology*, 42, 448–455.

Solberg, V. S. H., O'Brien, K., Villareal, P., Kennel, R., & Davis, B. (1993). Self-efficacy and Hispanic college students: Validation of the College Self-Efficacy Inventory. *Hispanic Journal of Behavioral Sciences*, 15, 80–95.

Solberg, V. S. H., Gusavac, N., Hamann, T., Felch, J., Johnson, J., Lamborn, S., & Torres, J. (1998). The Adaptive Success Identity Plan (ASIP): A career intervention for college students. *Career Development Quarterly*, 47, 48–95.

Torres, J. B., & Solberg, V. S. H. (2001). Role of self-efficacy, stress, social integration, and family support in Latino college student persistence and health. *Journal of Vocational Behavior*, 59, 53–63.

Torres, J. B., Solberg, V. S. H., & Carlstrom, A. H. (2002). The myth of sameness among Latino men and their machismo. *American Journal of Orthopsychiatry*, 72, 163–181.

Vygotsky, L. S. (1978). *Mind and society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.

Success Highways Author and Chief Researcher



V. Scott Solberg, Ph.D.

V. Scott Solberg, PhD., is currently the Director of Wisconsin Careers, a program within the Center for Education and Work in the University of Wisconsin–Madison School of Education. He is an active member in the Society for Vocational Psychology, a Section in Division 17 (Society for Counseling Psychology) of the American Psychological Association. He is also a member of the International Association of Applied Psychology and International Association for Educational and Vocational Guidance. Dr. Solberg has served on the editorial boards of the *Journal of Counseling Psychology*, *Italian Journal of Vocational Psychology* (GIPO), *Hispanic Journal of Behavioral Sciences*, and *Journal of Career Assessment*.

In addition, Dr. Solberg is currently Chair of the American Psychological Association's Coalition for Psychology in Schools and Education. He has served in leadership roles with the Milwaukee Partnership Academy and the Milwaukee Public Schools Small Schools reform movement.

Dr. Solberg has published over 20 empirical and theoretical articles pertaining to youth development and academic success.



2406 W. 32nd Ave, Suite C
Denver, CO 80211

800-995-8779

www.scholarcentric.com