# The Science of Hope and
# Its Impact on Human Achievement
# A review of the research and literature

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**Executive Summary**

**Objectives**
The purpose of this review is to curate and examine hope science research concerning the trait of hope and its impact on human and organizational achievement in order to inform the development of hope practice in individuals and organizations.

**Methods**
We reviewed existing quantitative and qualitative research on the impact of hope on human and organizational achievement. We were open to all study designs (e.g. cross-sectional, correlational, longitudinal) and considered research from 1994 when Richard Snyder initially published his Hope Theory (Snyder, 1994) through 2021. We considered studies that measured hope as either the main variable or as one variable among other variables related to human achievement, using any form of the hope scale. All referenced studies were peer-reviewed, and we also referenced book chapters and interviews of respected hope researchers, and business and education leaders who reported on implementation of hope practices. Our primary interest was the impact of hope on workplace and academic performance; however, we also closely examined the impact of hope on mental and physical health. Papers came from the disciplines of Positive Psychology, Educational Psychology, Organizational Development, Positive Organizational Behavior, Positive Leadership, and Business.

**Results**
- The research is conclusive that hope is beneficial to academic achievement.
- The research is conclusive that elevating hope in employees elevates their engagement, performance, and well-being.
- The research is conclusive that hope contributes to physical and mental health.

Our review identified significant findings in the development of individual attributes, organizational attributes, the components of hopeful environments, and evidence of coachable hope skills. An overview of these findings is shared below.

***Individual Attributes***
There is strong evidence that individuals with higher hope are more likely to choose healthy behaviors and have greater:

- well-being
- engagement
- desire and ability to learn
- adaptability
- resilience
- productivity
- trust
- decision-making skills

- problem-solving skills
- leadership skills
- self-regulation
- self-improvement
- accountability
- desire to improve
- attendance

These traits feed individual achievement in the workplace, in schools, and in life.

### Organizational Attributes

There is strong evidence that individuals' improvement in the areas listed above improves an organization's (workplace or school) progress toward its mission/vision and its bottom line, increasing organizational:

- trust and community
- engagement
- attendance
- productivity
- attitude of continuous review and improvement
- loyalty and retention
- collective accountability

### Components of Hopeful Environments

Additionally, research has clarified the kinds of environments that grow hope, and the component skills of hope that can be taught and developed in individuals, schools, and the workplace. Hopeful environments include:

- Hopeful leaders
- Opportunities for autonomy
- Commitment to learning
- Trust/Safety
- Regular feedback
- Policies that support collaborative learning

### Key Skill Development to Increase Hope

Individuals can increase their levels of hope by developing a practice of hope, with deliberate attention to growing skills, including:

- Honest self-appraisal
- Understanding of strengths and talents
- Setting clear and attainable goals
- Developing multiple strategies to reach goals
- Breaking goals into component parts
- Asking for help
- Staying motivated
- Reframing failure as learning
- Futurecasting ("Nexting")
- Re-goaling when necessary

**References - Executive Summary**

Chang, E. C., & Banks, K. H. (2007). The color and texture of hope: Some preliminary findings and implications for hope theory and counseling among diverse racial/ethnic groups. Cultural Diversity and Ethnic Minority Psychology, 13(2), 94-103. doi:10.1037/1099-9809.13.2.94

Gallagher, M. W., & Lopez, S. J. (2018). *The Oxford handbook of hope*. NY: Oxford University Press.

Mouton, A. R., & Montijo, M. N. (2018). Hope and work. In *Oxford handbook of hope* (pp. 327-340).

Pedrotti, J. T. (2018). The will and the ways in school: Hope as a factor in academic success. In *The Oxford handbook of hope* (pp. 107-116). New York, NY: Oxford University Press.

Snyder, C.R. (1994). The psychology of hope: You can get there from here. New York: Free press. Cited in Snyder, C.R. (2000). Hypothesis: There is Hope. In C.R. Snyder (Eds.), Handbook of Hope Theory, Measures and Applications (pp.3-21). San Diego: Academic Press.

Snyder, C. R., Harris, C, Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T, Yoshinobu, L., Gibb, J., Langelle, C, & Hamey, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. Journal of Personality and Social Psychology, 60, 570-58.

Hope Defined

GOAL "What" Power

Goal - What Power
Desired future state

HOPE

AGENCY "Will" Power

PATHWAYS "Way" Power

Agency - Will Power
Belief driven reservoir of commitment and energy

Pathways - Way Power
Seeing multiple ways to your goal

**What is Hope?**
According to Dr. Shane Lopez (student of Dr. Rick Snyder, pioneer in Positive Psychology who created Hope Theory), hope is not just wishful thinking, rather it is an attribute that can be *measured*, *increased* and *deployed*. (Gallup, 2007) Hope is active in business organizations and academic environments as the thing that drives persistence, motivation, goal setting, and innovation. Hopeful thinkers don't get stuck when they run into an obstacle, they just generate new pathways to their goal. (Gall*up, 2*007) Hopeful thinking is an infinite resource that can power growth in businesses, schools, and beyond.

Hope is a frame of mind *and* hope is active. Review the diagram above. Agency without pathways is just a wish. Understanding the ways to get to your goal, but not having belief in your ability to get there doesn't get you any closer to your goal. When the three (agency, pathways, goal) work in concert, there is Hope.

In their book *Hope Rising: How the Science of Hope Can Change Your Life*, Casey Gwinn and Chan Hellman describe hope using the analogy of traveling in a minivan. Goals are your destination for the trip whether it's cross-town or cross-country. Goals require a map from which one can see many possible routes to the destination—some are direct and some are a little more convoluted. Sometimes road construction or other obstacles require that you take detours. Agency is the engine that powers the minivan. Keeping the engine tuned up and supplied with fuel is important. We tend to carry a lot of baggage in our minivan. Burdens such as worry and regret can distract us from our destination if we allow them to ride in the front seat. "Healthy hope puts burdens in the back of the van, and always looks forward, not back." (Gwinn & Hellman, 2018))

***Hope as Science***
Since Rick Snyder first published his theory of hope in 1994 there have been nearly 2,000 research studies conducted on the impact of hope, making hope a science in and of itself. We know that hope is measurable, malleable, and attainable. Hope can be taught!

Why is this important?  Study after study declare with evidence that those with higher hope are better equipped to deal with (and, in some cases, overcome) physical and mental illnesses. Hope has been proven to have a positive impact on sports achievement, academic achievement and workplace performance. Hope is a powerful tool for maximizing all kinds of human achievement!

***Hope as Informed Practice – Building Cultures of Hope***
What would happen if the leaders and workers in your school or organization adopted hope as an informed practice--a teachable set of skills and concepts, a way of thinking?  What if, together, you built a culture of hope?  Business has discovered the power of organizational culture in the last couple of decades. Deloitte's 2016 Global Human Capital Trends survey reported that 82% of respondents believe that culture is a potential competitive advantage. (Deloitte, 2016)

So, what is organizational culture?  It's the collective mindset of assumptions, beliefs, and values that shape individuals' ways of being, relating, knowing, and working. This collective mindset is powerful!  It influences the decisions that are made and how they are made. It influences how systems are structured and how processes are designed and executed. Culture guides the behaviors of leaders and of the workforce. Culture influences employee engagement; loyalty and retention; and productivity.

And what's the power of a *hopeful* culture or *hopeful* organizational mindset?  In an article for *Harvard Business Review* Deborah Mills-Scofield writes, "After a few decades of helping organizations create highly actionable, measurable, living strategic plans that adapt to the changing world instead of leaving our companies stuck in concrete, I've seen hope achieve marvelous success for customers, employees, communities, stakeholder, and shareholders." (Mills-Scofield, 2012)

A 2013 study by hope researchers Rebecca Reichard, Shane Lopez and colleagues, reports that hope accounts for 14% of productivity in the workplace!  This is greater than the impact of intelligence, optimism, or self-efficacy. (Reichard, et al; 2013)

Hopeful cultures in schools can be a game changer. Measuring hope in high school students in EdVisions schools across the United States has demonstrated that creating hopeful cultures "that create sets of relationships, norms of behaviors, and values and obligations that lead to the development of healthy and productive adults' ' is possible. (Newell & Van Ryzin, 2007) The EdVisions design essentials encourage schools to intentionally build in space, relationships, time, and opportunities for students to be self-directed, explore their passions, and learn how to learn. Initial Hope Study results have been positive. EdVisions students have shown higher

6

levels of engagement, autonomy, belongingness, and learning goal orientation--and higher overall hope-- than students in traditional schools. In fact, it has been reported that students in schools with hopeful cultures show longitudinal increase in hope while students in traditional schools show a decline. (Newell & Van Ryzin, 2009) Further study has shown that hope skills positively impacted academic achievement in math and reading test scores. (Wurdinger, Newell, Kim, 2020)


**Preparing the Hopeful Environment**
The work of building a collective hope mindset requires focused attention. This is consistent with Carol Dweck's work in growth mindset. She defines a growth mindset as believing that one's talents can be developed through hard work, good strategies, and input from others. It is useful to consider her expertise in growing an organizational growth mindset.

Dweck highlighted features of organizational commitment to a growth mindset in a 2016 article in the Harvard Business Review, arguing, "Organizations that embody a growth mindset encourage appropriate risk-taking, knowing that some risks won't work out. They reward employees for important and useful lessons learned, even if a project does not meet its original goals. They support collaboration across organizational boundaries rather than competition among employees or units. They are committed to the growth of every member, not just in words but in deeds, such as broadly available development and advancement opportunities. And they continually reinforce growth mindset values with concrete policies." (Dweck, 2016)

She further cautions, "It's critical to reward not just effort but learning and progress, and to emphasize the processes that yield these things, such as seeking help from others, trying new strategies, and capitalizing on setbacks to move forward effectively. In all of our research, the outcome — the bottom line — follows from deeply engaging in these processes." (Dweck, 2016)

That is the kind of commitment required to build a collective mindset of hope practice. Individuals must understand and see examples of hopeful thinking, and be given space, time, and opportunities, to practice hope.

The practice of hope requires:
- Hopeful leadership.
- Individual autonomy and discretion for decision-making.
- Mutual respect.
- Work that is meaningful. Being part of something larger than self.
- Work that is reasonably challenging.
- Feedback on process and outcomes from someone the individual trusts.
- Reflection on performance.
- Self-regulation—individual and collective accountability.
- Opportunities to learn and grow.

*A Note About Psychological Capital (PsyCap)*

7

Several of the studies listed in this paper (see Findings below) refer to PsyCap measures. PsyCap is short for Psychological Capital and comprises the traits of Hope, Efficacy, Resilience, and Optimism. Fred Luthans coined the term PsyCap in 2004 as he encouraged organizations to look at psychological development of employees over and above educational development. Indeed, it has been shown that people with higher scores in PsyCap have greater job - and life satisfaction. (Luthans, 2004) We focused primarily on studies that separated those variables and looked directly at the impact of hope.

**References - What is Hope**

Deloitte. (2016). *Global human capital trends 2016: The new organization - different by design*. Deloitte University Press.

Dweck, C. (2016). What having a "growth mindset" actually means. Harvard Business Review. Retrieved from https://hbr.org/2016/01/what-having-a-growth-mindset-actually-means

Gallup. (2007, February 8). The business case for instilling hope. Retrieved from https://news.gallup.com/businessjournal/26380/business-case-instilling-hope.aspx

Gwinn, C., & Chan Hellman, P. (2018). Hope rising: How the science of HOPE can change your life. NY: Morgan James Publishing.

Luthans, F., Luthans, K. W., & Luthans, B. C. (2004). Positive psychological capital: Beyond human and social capital. Business Horizons, 47(1), 45-50. doi:10.1016/j.bushor.2003.11.007

Mills-Scofield, D. (2012). Hope is a strategy (Well, sort of). Harvard Business Review. Retrieved from https://hbr.org/2012/10/hope-is-a-strategy-well-sort-o

Newell, R. J., & Van Ryzin, M. J. (2007). Growing hope as a determinant of school effectiveness. *Phi Delta Kappan*, *88*(6), 465-471.

Newell, R. J., & Van Ryzin, M. J. (2009). *Assessing what really matters in schools: Creating hope for the future*. Rowman & Littlefield.

Wurdinger S, Newell R, Kim ES. Measuring life skills, hope, and academic growth at project-based learning schools. Improving Schools. 2020;23(3):264-276

Reichard, R. J., Avey, J. B., Lopez, S., & Dollwet, M. (2013). Having the will and finding the way: A review and meta-analysis of hope at work. The Journal of Positive Psychology, 8(4), 292-304. doi:10.1080/17439760.2013.800903

**Findings**
**Impact of Hope in the Workplace**
Hope is a key predictor of employee engagement (and the employee's accompanying well-being and performance). The impact on engagement is critical as a large body of research demonstrates that higher engaged employees have better overall job performance, productivity, effort, creativity, organizational commitment, well-being, and contribute to customer satisfaction, profitability, and financial return. In addition, the research is clear that higher-hope individuals are better at self-directed learning, are more ambitious, and find the greatest job satisfaction. There is evidence that helping employees find goals that are both meaningful to them (positively valenced, personally valued) and contribute to the organization further amplifies hope, engagement, and other positive outcomes.

*Workplace Well-Being*
This workplace study found that the character strengths that most highly correlated with total workplace well-being (positive emotions, engagement, positive relationships, meaning, and achievement) were zest, teamwork, hope, love, gratitude, leadership, and perseverance.

> Harzer C., Mubashar T., & Dubreuil P. (2017). Character strengths and strength-related person-job as predictors of work- related wellbeing, job performance, and workplace deviance. Wirtschaftspsychologie, 19(3), 23-38.

*Job Performance*
Character strengths (zest, perseverance, hope, and curiosity) play a key role in health and ambitious work behavior.

> Gander, F., Proyer, R. T., Ruch, W., & Wyss, T. (2012). The good character at work: An initial study on the contribution of character strengths in identifying healthy and unhealthy work-related behavior and experience patterns. International Archives of Occupational and Environmental Health.

There is a strong relationship between hope and job performance. Using three different samples from different job levels and industries, the researchers found that higher-hope sales employees, mortgage brokers, and management executives had higher job performance, after controlling for self-efficacy and cognitive ability, even a year after the study. Higher-hope management executives produced more and better quality solutions to a work-related problem.

> Peterson, S. J., & Byron, K. (2008). Exploring the role of hope in job performance: Results from four studies. *Journal of Organizational Behavior*, *29*(6), 785-803. doi:10.1002/job.492

Hope accounts for 14% of productivity in the workplace. This is greater than the impact of intelligence, optimism, or self-efficacy. "Basically, a hopeful person does one day a week more work than a less hopeful person in a seven-day work week," Lopez says. "It's quite a big chunk of the pie."

> Reichard, R. J., Avey, J. B., Lopez, S., & Dollwet, M. (2013). Having the will and finding the way: A review and meta-analysis of hope at work. The Journal of Positive Psychology, 8(4), 292-304. doi:10.1080/17439760.2013.800903

### Self-Directed Learning

Hope, growth mindset, and self-directed learning are positively correlated. The pathway thinking of hope and the intelligence of the growth mindset influence self-directed learning in employee-level workers. The pathway thinking of hope influences self-directed learning in higher level workers.

Lee, C., Yoo, E., & Jang, H. (2018). Variables affecting self-directed learning of office workers: Focusing on hope and growth mindset. *Journal of Digital Convergence*, *16*(9), 29-37

### Job Satisfaction

In a study of 226 employees, researchers found the strengths under the virtue of transcendence (hope, humor, gratitude, and spirituality) have a direct positive relationship with a calling work orientation.

Gorjian, N. (2006). Virtue of transcendence in relation to work orientation, job satisfaction and turnover cognitions. Dissertation Abstracts International: Section B: The Sciences and Engineering, 67 (2-B), 1190.

Examining various occupational subgroups (nurses, physicians, supervisors, office workers, clinical psychologists, social workers/educators, economists, and secondary school teachers) and their highest strengths, researchers found that strengths most associated with overall job satisfaction were: zest, hope, curiosity, love, and gratitude.

Heintz, S., & Ruch, W. (2019). Character strengths and job satisfaction: Differential relationships across occupational groups and adulthood. Applied Research in Quality of Life. http://doi.org/10.1007/s11482-018-9691-3

In a study of 1,031 working adults, signature strengths had the highest contribution to performance, organizational citizenship behavior, and counterproductive work behavior, while "happiness strengths" (zest, hope, etc.) had the highest unique contribution to work meaningfulness, engagement, and job satisfaction.

Littman-Ovadia, H., Lavy, S., & Boiman-Meshita, M. (2016a). When theory and research collide: Examining correlates of signature strengths use at work. Journal of Happiness Studies. Advance online publication

Across occupations, curiosity, zest, hope, gratitude, and spirituality are the Big 5 Strengths associated with work satisfaction.

Peterson, C., Stephens, J. P., Park, N., Lee, F., & Seligman, M. E. P. (2010). Strengths of character and work. Oxford handbook of positive psychology and work. In Linley, P. A., Harrington, S., & Garcea, N. (Eds.). Oxford handbook of positive psychology and work (pp. 221-231). New York: Oxford University Press.

### Psychological Capital (PsyCap) and Workplace Success

PsyCap (self-efficacy, optimism, hope, and resilience) has been linked to numerous workplace measures, including:
- well-being (Culbertson, Fullagar, & Mills, 2010),

- job satisfaction (Cheung, Tang, & Tang, 2011),
- creativity (Sweetman, Luthans, Avey, & Luthans, 2011),
- citizenship behaviors, commitment, job performance (Luthans, Avey, Avolio, & Peterson, 2010),
- and employment status (Cole, Daly, & Mak, 2009).

It is negatively associated with burnout, cynicism, turnover intentions, and counterproductive workplace behaviors (Cheung et al., 2011; Norman, Avey, Nimnicht, & Pigeon, 2010). A recent meta-analysis (Avey, Reichard, Luthans, & Mhatre, 2011) confirmed that PsyCap predicted job satisfaction, well-being, and organizational commitment.

Peterson, Luthans, Avolio, Walumbwa, and Zhang (2011) longitudinally found that PsyCap changes over time were predictive of ratings of performance and sales revenue. Research is summarized. (See Additional References for studies cited.)

> J. Mills, M., R. Fleck, C., & Kozikowski, A. (2013). Positive psychology at work: A conceptual review, state-of-practice assessment, and a look ahead. *The Journal of Positive Psychology*, *8*(2), 153-164.


**Impact of Hope on Academic Achievement**
The benefits of academic achievement have been highlighted in multiple research studies: college admission, college success, finding a career, greater wealth, greater happiness, and longevity. The impact of hope on academic achievement is also well documented. Higher hope individuals do get better grades, are more self-directed, have better problem-solving skills, are more likely to persevere on tasks and to continue to graduation, enjoy learning, and contribute to a positive environment. Hope is contagious.

***Hope and Higher Grade Point Average***
In a 6-year longitudinal study, high-hope scores predicted better overall grade point averages. High-hope students were more likely to have graduated over the 6-year period. Hope Scale scores provided reliable predictions about college students' academic performances over the course of their undergraduate careers.

> Snyder, C. R., Shorey, H. S., Cheavens, J., Pulvers, K. M., Adams, V. H., & Wiklund, C. (2002). Hope and academic success in college. *Journal of Educational Psychology*, *94*(4), 820-826.

A study sample of 289 10th grade high school students (152 girls and 137 boys) demonstrated that hopeful thinking had a direct effect on grade expectations, which predicted academic achievement. The results suggest that scaffolding learning environments to incrementally provide students with meaningful experiences leads to higher academic expectations and successes.

> Levi, U., Einav, M., Ziv, O., Raskind, I., & Margalit, M. (2013). Academic expectations and actual achievements: The roles of hope and effort. *European Journal of Psychology of Education*, *29*(3), 367-386. https://doi.org/10.1007/s10212-013-0203-4

### Hope and Subject Area Achievement

In a correlational study of 11 project-based learning schools affiliated with EdVisions, a non-profit that creates individualized, project-based learning schools, it was determined that hope (and life skills such as self-direction and collaboration) positively impact academic achievement in math and reading.

Wurdinger S, Newell R, Kim ES. Measuring life skills, hope, and academic growth at project-based learning schools. Improving Schools. 2020;23(3):264-276. doi:10.1177/1365480220901968

### Hope and Problem-Solving Ability

High-hope students have greater problem-solving abilities and greater engagement than students with low-hope. The study also found that hope is an important predictor of academic and interpersonal life satisfaction.

Chang EC. Hope, problem-solving ability, and coping in a college student population: some implications for theory and practice. J Clin Psychol. 1998 Nov;54(7):953-62.

### Hope and Perseverance and Drop-Out Prevention

Hope helps students succeed and persevere to graduation. This study built on the longitudinal studies of Snyder et al. 2002 and Day et al 2010 (see Additional References)  which showed that hope uniquely predicted academic achievement and graduation aside from educational history and intelligence. The study isolated hope from self-efficacy and engagement and demonstrated that hope was the only psychological construct that consistently predicted academic performance, enrollment, and graduation status when controlling for educational history and other predictors.

Gallagher, M. W., Marques, S. C., & Lopez, S. J. (2016). Hope and the academic trajectory of college students. *Journal of Happiness Studies*, *18*(2), 341-352. https://doi.org/10.1007/s10902-016-9727-z

Hope in the future significantly predicted dropout versus graduate status in a study of 97 students aged 14 - 21 years. School climate has vital impact as well. The study suggests protective factors to overcome risk.

Worrell, F. C., & Hale, R. L. (2001). The relationship of hope in the future and perceived school climate to school completion. *School Psychology Quarterly, 16*(4), 370–388.

### Hope Can Be Increased Through School Culture

In a study which included nine secondary schools and over 400 students, the authors determined that students' perceptions of the school culture (autonomy, teacher- and peer-related belongingness, and mastery goal orientation) increased engagement. The process of engaging in learning influences hope development. Schools with intentionally created hope-inducing cultures described above gained in hope, while more traditional schools saw hope scores decline.

Newell, R. J., & Ryzin, M. J. (2009). *Assessing what really matters in schools: Creating hope for the future*. Rowman & Littlefield.

**Impact of Hope on Mental and Physical Health**

Dozens of studies have found links between individuals with high hope and mental and physical wellness. This is important when one considers both attendance and performance in the workplace and at school. Evidence demonstrates that those with high hope are more likely to act now in order to ensure a healthy future. They are able to generate multiple pathways and move around obstacles, remaining motivated and disciplined to seek out and use available resources. Those with high hope are less likely to engage in high-risk behaviors. More research must be done concerning hope as a protective factor.

### Hope Influences Mental and Physical Health

Hope is a strong predictor of positive emotions which, in turn, improves  mental and physical health.

> Gallagher, M.W. & Shane J. Lopez (2009) Positive expectancies and mental health: Identifying the unique contributions of hope and optimism, The Journal of Positive Psychology: Dedicated to furthering research and promoting good practice, 4:6, 548-556, DOI: 10.1080/17439760903157166

There is a growing recognition that positive psychological functioning (including constructs such as hope and optimism) influences health.

> Schiavon, C. C., Marchetti, E., Gurgel, L. G., Busnello, F. M., & Reppold, C. T. (2017). Optimism and hope in chronic disease: A systematic review. *Frontiers in Psychology*, *7*. doi:10.3389/fpsyg.2016.02022

### Hope Reduces Anxiety and Depression

Levels of Hope predict levels of anxiety and depression, but levels of anxiety and depression have no effect on future levels of Hope. Strengthening hope can prevent future anxiety and depression.

> Arnau RC, Rosen DH, Finch JF, Rhudy JL, Fortunato VJ. Longitudinal effects of hope on depression and anxiety: a latent variable analysis. J Pers. 2007 Feb;75(1):43-64. doi: 10.1111/j.1467-6494.2006.00432.x. PMID: 17214591.

Hope provides resilience and combats the impact of hopelessness on suicide ideation. Inducing hope in people is a promising path for suicide prevention.

> Huen, Jenny M Y et al. "Hope and Hopelessness: The Role of Hope in Buffering the Impact of Hopelessness on Suicidal Ideation." *PloS one* vol. 10,6 e0130073. 24 Jun. 2015, doi:10.1371/journal.pone.0130073

Hopeful people have a greater sense that life is meaningful and has purpose.

> Varahrami, Annahita et al. The Relationships Between Meaning, Hope, and Psychosocial Development. International Journal of Existential Positive Psychology, [S.l.], v. 3, n. 1, july 2010. ISSN 1708-1696. Available at:

13

<http://journal.existentialpsychology.org/index.php/ExPsy/article/view/136>. Date accessed: 16 Nov. 2020.

**Hope and Healthy Choices**

Hopeful individuals choose healthy behaviors to a greater extent than those with low hope. Healthy behaviors in diet, physical activity, and overall health have impact on attendance, energy, and productivity.

High hope is positively linked to being a non-smoker.

Berg, C. J., Ritschel, L.A., Swan, D.W., An, L. C., & Ahluwalia, J. S. (2011). The role of hope in engaging in healthy behaviors among college students. American Journal of Health Behavior, 35(4). doi:10.5993/ajhb.35.4.3

Berg, C. J., Schauer, G. L., Rodgers, K., & Naurula, S. K. (2012). College student smokers: Former versus current and non-smokers. American Journal of Preventive Medicine, 43(5 Suppl.3),S229-S236.

Higher hope is linked to choosing to eat more fruits and vegetables.

Nollen, N., Befort, C., Pulvers, K., James, A. S., Kaur, H., Mayo, M. S., Ahluwalia, J. S. (2008). Demographic and psychosocial factors associated with increased fruit and vegetable consumption among smokers in public housing enrolled in a randomized trial. *Health Psychology,* 27(3 Suppl.), S252-S259.

Those with higher hope find it easier to engage in behavioral strategies for a healthier lifestyle--planning, self-monitoring, food buying, food preparation, portion control.

Berg, C. J., Ritschel, L.A., Swan, D.W., An, L. C., & Ahluwalia, J. S. (2011). The role of hope in engaging in healthy behaviors among college students. American Journal of Health Behavior, 35(4). doi:10.5993/ajhb.35.4.3

Nothwehr, F., Clark, D.O., & Perkins, A. (2013). Hope and the use of behavioral strategies related to diet and physical activity. *Journal of Human Nutrition and Dietetics,* 26(Suppl.1), 159-163. http://doi.org/10.1111/jhn.12057

Hope is related to choosing to engage in physical activity--self-monitoring, social interaction, and number of active days

Berg, C. J., Ritschel, L.A., Swan, D.W., An, L. C., & Ahluwalia, J. S. (2011). The role of hope in engaging in healthy behaviors among college students. American Journal of Health Behavior, 35(4). doi:10.5993/ajhb.35.4.3

Nothwehr, F., Clark, D.O., & Perkins, A. (2013). Hope and the use of behavioral strategies related to diet and physical activity. *Journal of Human Nutrition and Dietetics,* 26(Suppl.1), 159-163. http://doi.org/10.1111/jhn.12057

**Additional References**
**General**
The books listed here are excellent resources for an overview of Hope Science and its application.

Bormans, L. (2018). The world book of hope: The source of success, strength and happiness. Lannoo Publishers.

Gallagher, M. W., & Lopez, S. J. (2017). *The Oxford handbook of hope*. Oxford University Press.

Gwinn, C., & Chan Hellman, P. (2018). *Hope rising: How the science of HOPE can change your life*. Morgan James Publishing.

Lopez, S. J. (2014). *Making hope happen: Create the future you want for yourself and others*. Simon & Schuster.

McDermott, D., & Snyder, C. R. (1999). *Making hope happen: A workbook for turning possibilities into reality*. New Harbinger Publications.

Newell, R. J., & Van Ryzin, M. J. (2009). *Assessing what really matters in schools: Creating hope for the future*. Rowman & Littlefield.

Oades, L. G., Steger, M., Fave, A. D., & Passmore, J. (2020). The Wiley Blackwell handbook of the psychology of positivity and strengths-based approaches at work. John Wiley & Sons.

Snyder, C. (2010). *Psychology of hope: You can get here from there*. Simon & Schuster.

Snyder, C. R. (2000). *Handbook of hope: Theory, measures, and applications*. Academic Press.

**Additional Studies Reviewed - Hope and Workplace Performance**

Avey, J. B., Nimnicht, J. L., & Graber Pigeon, N. (2010). Two field studies examining the association between positive psychological capital and employee performance. *Leadership & Organization Development Journal*, *31*(5), 384-401. doi:10.1108/01437731011056425

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly*, *22*(2), 127-152. doi:10.1002/hrdq.20070

Cheung, F., Tang, C. S., & Tang, S. (2011). Psychological capital as a moderator between emotional labor, burnout, and job satisfaction among school teachers in China. *International Journal of Stress Management*, *18*(4), 348-371. doi:10.1037/a0025787

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