

Intrinsic Motivation: Research Review

When teaching a child

*great care must be taken that it never be made a business to him,
nor he look on it as a task*

*I have always had a fancy that learning might be made a play and a recreation to children;
and that they might be brought to a desire to be taught,
if only learning were proposed to them as a thing of delight and recreation,
and not a business or a task.*

--John Locke. *Some Thoughts Concerning Education*. 1693.

Why create a research review about intrinsic motivation?

The purpose of this research review is to highlight the incredible amount of research on intrinsic motivation and its widespread positive influence on human learning, performance, achievement, and emotional well-being—the activation of human potential. Intrinsic motivation remains the last unexploited frontier for activating the full potential of humans. Thiebaut Method was created to pioneer this frontier.

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Definitions of Intrinsic Motivation

Its effect on the individual

In The Oxford Handbook of Human Motivation, intrinsic motivation is defined as “the inherent propensity to engage in one’s interests and to exercise one’s capacities and, in doing so, to seek out and master optimal challenges.” (p. 374)

Its effect on the individual’s decision-making, performance and outcomes

“People who truly excel creatively in a pursuit, whether vocational or avocational, almost always genuinely love what they do. Certainly the most creative people are intrinsically motivated in their work (Amabile, 1996). Less creative people often pick a career for the money or prestige and are bored with or loathe their career. Most often, these people do not do work that makes a difference in their field.” (Sternberg, R. J. (2005). *The WICS Model of Giftedness*. Conceptions of Giftedness. 2nd Ed. 327-342.)

General Findings About Intrinsic Motivation

1. **Adults** whose jobs are based on childhood motivations are more successful than adults who have jobs not based on their childhood motivations.
2. **Students** who learn about what intrinsically motivates them are more academically successful and emotionally satisfied than students who feel forced to learn.
3. **Employees** who are intrinsically motivated by their jobs perform better, feel happier, and earn more money than their less motivated coworkers.
4. One of the top traits associated with **gifted children, breakthrough innovators, and geniuses** is their extremely high levels of intrinsic motivation to learn.
5. **Human development** research, **personality** research, **motivation** research, **intelligence** research, **giftedness** research, **creativity** research, **genius** research, **neuroscience** research, **genetics** research, **business** research, **athletic** research, and more, all report findings that show intrinsic motivation enhances human learning, performance, achievement, productivity, and emotional well-being—activate human potential.

Research Highlights on Intrinsic Motivation

1. Students who engaged in schoolwork for intrinsic reasons reported **more involvement, persistence, participation, and curiosity** along with less boredom in school activities than students who reported being extrinsically motivated. Intrinsically motivated students also reported **feeling less anxious and angry, more confident, and less likely to avoid schoolwork or to fake diligence.**” (Stipek, 2002)
2. “Intrinsically motivated people function in performance settings in much the same way as those high in achievement motivation do: They **pursue optimal challenges, display greater innovativeness, and tend to perform better under challenging conditions.**” (Koestner, 1987)
3. “The [eminent] creator must **focus on the intrinsic properties of the task, not on potential rewards or criticisms** that await the outcome.” (Simonton, 1990)
4. “While engaging in a task that they find intrinsically interesting, individuals feel that their involvement is free of strong external control: **they get the sense that they are playing rather than working.**” (Hennessey, 2005)
5. “**Creativity generally flourishes under conditions that support intrinsic motivation** (signified by enjoyment, interest, involvement, and focus on personally challenging tasks).”
6. “Intrinsic, task-focused motivation is also essential to creativity. **People rarely do truly creative work in an area unless they really love what they are doing** and focus on the work rather than the potential rewards.” (Beghetto, 2010)
7. “All the breakthrough innovators I studied **invested heavily in self-education.** They were avid consumers of knowledge, but they **followed their own rhythms** rather than an instructor's pace. They **went deeply into a topic or broadly across topics** they chose rather than following the path of the syllabus. They were **fueled by intrinsic motivation--a true love of learning--**even if they had no love for school.” (Schilling, 2018)
8. “**Teachers must help students find what excites them** to unleash their students' best creative performances.” (Note: This is different than “making learning fun”.) (Sternberg, 2011)
9. **Some of the most exhilarating experiences** we undergo are generated inside the mind, triggered by information that challenges our ability to think. (Callahan, 2005)
10. When students are more **motivated by rewards and approval they use less sophisticated learning strategies and score lower** on standardized test scores. (Boggiano, 1991)

Research Review on Intrinsic Motivation

Regardless of the life domain studied, when people are intrinsically motivated they show increased learning, performance, achievement, productivity, and emotional well-being—maximization of human potential. The list below presents excerpts from research on intrinsic motivation across many life domains, including education, business, science, academia, personal well-being, and more.

Intrinsic Motivation Research Review		
Domain(s)	Finding(s)	Research Source(s)
Grade School Work Academic Achievement Well-Being	Intrinsic motivation increases: <ul style="list-style-type: none"> • academic performance of grade school students and college students • emotional well-being of children, students, adults, and employees • Productivity, job satisfaction, and income of employees 	Deci, E. L., Ryan, R. M. (2009). <i>Self-Determination Theory: A Consideration of Human Motivational Universals</i> . The Cambridge Handbook of Personality Psychology, 441-456.
Performance in school, work, sport, etc.	“Intrinsically motivated people function in performance settings in much the same way as those high in achievement motivation do: They pursue optimal challenges, display greater innovativeness, and tend to perform better under challenging conditions.”	Koestner, R., Zuckerman M., & Koestner, J. (1987). <i>Praise, Involvement, and Intrinsic Motivation</i> . Journal of Personality and Social Psychology. 53: 383-90.
Grade School Test Performance	Intrinsic motivation improved performance on a math test of elementary students.	Cordova, D.I., & Lepper, M. R. (1996). <i>Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice</i> . Journal of Educational Psychology., 88(4), 715-730.
Grade School Academic Achievement	Intrinsic motivation is correlated with better academic outcomes for students in 3rd-8th grade, yet intrinsic motivation consistently declines over that same time period.	Lepper, M. R., Corpus, J. H., & Iyengar, S. S. (2005). <i>Intrinsic and Extrinsic Motivational Orientations in the Classroom: Age Differences and Academic Correlates</i> . Journal of Educational Psychology, 97(2), 184-196.

Grade School Creativity	Intrinsic motivation increases a person’s focus and concentration required to pursue creative goals.	Csikszentmihalyi, M., Montijo, M. N., & Mouton, A. R. (2018). <i>Flow Theory: Optimizing Elite Performance in the Creative Realm</i> . APA Handbook of Giftedness and Talent, 215-227.
School Intelligence	“We describe research that finds that the affective states of pleasure, enjoyment, and interest (that accompany and constitute ‘intrinsic’ motivation for an activity) enhance intellectual performance, leading to higher grades and test scores.”	Carr, P. B., & Dweck, C. S. (2011). <i>Intelligence and Motivation</i> . The Cambridge Handbook of Intelligence, 748-770.
Intelligence Grade School Preschool	<p>“People are more likely to select challenging tasks when they are intrinsically motivated than when they are motivated to obtain an extrinsic reward.”</p> <p>“Miserandino (1996) found that students who engaged in schoolwork for intrinsic reasons reported more involvement, persistence, participation, and curiosity along with less boredom in school activities than students who reported being extrinsically motivated. Intrinsically motivated students also reported feeling less anxious and angry, more confident, and less likely to avoid schoolwork or to fake diligence (Valerand, 1997; See also Patrick et al., 1993).”</p> <p>“Conditions supporting intrinsic motivation also foster greater creativity” (see Hennessey, 2000).</p> <p>“Amabile and Hennessey (1992) report studies in which researchers were able to increase children’s creativity by focusing their attention on their intrinsic interest and away from extrinsic rewards related to tasks.”</p> <p>“Lepper, Greene, and Nisbett (1973) conducted a study with preschool-age children, in which children who had been offered a reward for playing with Magic Markers subsequently spent less free time on the activity than children who were never given a reward. As many as 100 studies have used as a paradigm similar to these two studies to examine the effects of reward on subsequent engagement in various activities (see reviews by Cameron & Pierce, 1994; Deci, Koestner, & Ryan, 2000; Tang & Hall, 1995). These studies suggest that external rewards can undermine intrinsic interest in a task, and the larger</p>	<p>Stipek, D. (2002). <i>Motivation to Learn: Integrating theory and practice</i>. 4th Ed. A Pearson Education Company.</p> <p>Lepper, M. R., & Greene, D. (1973). <i>Undermining children’s intrinsic interest with extrinsic reward: A test of the “overjustification” hypothesis</i>. Journal of Personality and Social Psychology, Vol. 28, No. 1, 129-137.</p>

	<p>the reward, the more negative the effect on intrinsic interest.”</p> <p>“Enhanced learning occurs, at least in part, because people are more attentive to text that interests them, and this attention helps them process and remember what they have read.”</p>	
College	Increased curiosity (in the family of intrinsic motivation) increases memory retention of college students using fMRI studies.	Matthias J. G., Bernard D. G., & Charan, R. (2014). <i>States of Curiosity Modulate Hippocampus-Dependent Learning via the Dopaminergic Circuit</i> . Neuron.
Grade School Giftedness	Intrinsic motivation is one of the three main elements that comprise giftedness (Creativity and Intelligence are the other two elements.). Intrinsic motivation is cited as important a force as intelligence in giving people the determination, drive, and energy needed to develop their intelligence and creativity into useful ideas, products, and/or services.	<p>Winner, E. (1996). <i>Gifted Children: Myths and Realities</i>. Basic Books. A Member of the Perseus Books Group.</p> <p>Renzulli, J. S. (2005). <i>The Three-Ring Conception of Giftedness</i>. <i>Conceptions of Giftedness</i>. 2nd Ed. 246-279.</p>
Personal Well-Being	Increased levels of intrinsic motivation result in higher levels of emotional well-being.	Domenico, S. I., Ryan, R. M., (2017). <i>The Emerging Neuroscience of Intrinsic Motivation: A New Frontier in Self-Determination Research</i> . <i>Frontiers in Human Neuroscience</i> .
Genius Work Science Creativity Academia	<p>Successful scientists, largely considered to be “geniuses” are found to possess extremely high levels of intrinsic motivation.</p> <p>“Successful scientists are exceptionally energetic and hardworking and their commitment to work is positively correlated with the number of publications they receive. In academic settings, the best prediction of the number of articles published in professional journals, as well as the productivity rate per unit of time, is the individual’s fascination with research, and this is true even after controls are introduced for the effects of age and discipline: ‘highest producers...express more of an interest in research, communicate more frequently with scholars at other institutions, and subscribe to more academic journals than do less productive faculty’. The influential researcher is unusually ambitious and enduring, and in</p>	Simonton, D. K. (1990). <i>Scientific Genius: A psychology of science</i> . Cambridge University Press.

	<p>general, ‘great drive, as reflected in extraordinary commitment to work, is one of the personal characteristics that has often been found to differentiate creative scientists from their less creative peers.”</p> <p>“We must recognize the inherent superiority of intrinsic over extrinsic motivation. Amabile (1983) amply documented, with experimental and anecdotal evidence, how extrinsic motives--whether evoked by evaluation, social approval, or exception of material rewards--tend to vitiate creativity; the creator must focus on the intrinsic properties of the task, not on potential rewards or criticisms that await the outcome. Indeed, extrinsic motivation should deflect any chance permutations toward the wrong goal. An individual might waste too much time generating change permutation about the wrong things, such as fantasies about all the benefits of becoming rich and famous or worries about the adverse repercussions of failing to get tenure or a pay raise.”</p>	
Personal Experiences	<p>“While engaging in a task that they find intrinsically interesting, individuals feel that their involvement is free of strong external control: they get the sense that they are playing rather than working.”</p>	<p>Hennessey, B.A., & Amabile, T.M. (2005). <i>Extrinsic and intrinsic motivation</i>. In N. Nicholson, P. Audia, & M. Pillutla (Eds.), <i>Blackwell Encyclopedia of Management, Second Edition, Organizational Behavior</i> (121-122). Malden, MA: Blackwell Publishing.</p>
Creativity Emotional Well-Being	<p>“Creativity generally flourishes under conditions that support intrinsic motivation (signified by enjoyment, interest, involvement, and focus on personally challenging tasks).”</p>	<p>Beghetto, R. A., (2010). <i>Creativity in the Classroom</i>. The Cambridge Handbook of Creativity. 447-463.</p>
Grade School Creativity Performance	<p>“Intrinsic motivation is conducive to creativity and extrinsic motivation is almost always detrimental.”</p> <p>Students who were expected to be graded produced less creative art work than those who did not expect to be evaluated.</p>	<p>Amabile, T. M. (1996). <i>Creativity in Context</i>. Perseus Books Group.</p> <p>Amabile, T. M. (1983). <i>The Social Psychology of Creativity</i>. Springer-Verlag.</p>
Creativity Work Genius	<p>“Intrinsic, task-focused motivation is also essential to creativity. People rarely do truly creative work in an area unless they really love what they are doing and focus on the work rather than the potential rewards (Amabile, 1996).”</p>	<p>Simonton. D. K. (2014). <i>The Wiley Handbook of Genius</i>. Wiley Blackwell.</p>

Work Business Entrepreneurism Science	<p>“All the breakthrough innovators I studied invested heavily in self-education. They were avid consumers of knowledge, but they followed their own rhythms rather than an instructor's pace. They went deeply into a topic or broadly across topics they chose rather than following the path of the syllabus. They were fueled by intrinsic motivation--a true love of learning--even if they had no love for school.”</p>	<p>Schilling, M. A. (2018). <i>Quirky: The Remarkable Story of the Traits, Foibles, and Genius of Breakthrough Innovators Who Changed the World</i>. PublicAffairs. New York.</p>
Work	<p>[Eminent] creators have to be prepared to fail and fail again, and be invigorated by this process to boot.”</p>	<p>Winner, E. (1996). <i>Gifted Children: Myths and Realities</i>. Basic Books.</p>
Preschool	<p>Preschoolers with an intrinsic motivation to draw saw their levels of motivation diminish in a study that systematically offered them extrinsic rewards for drawing. In other words, they lost interest drawing when the activity was based on receiving rewards for their effort.</p>	<p>Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). <i>Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis</i>. <i>Journal of Personality and Social Psychology</i>, 28(1), 129-137.</p>
Work Creativity Giftedness Grade School	<p>“Creative people are almost always intrinsically motivated for the work they do.”</p> <p>“Gifted children remain gifted as adults if they love what they do.”</p> <p>“Teachers must help students find what excites them to unleash their students’ best creative performances.”</p> <p>“People who truly excel creatively in a pursuit, whether vocational or avocational, almost always genuinely love what they do. Certainly the most creative people are intrinsically motivated in their work (Amabile, 1996). Less creative people often pick a career for the money or prestige and are bored with or loathe their career. Most often, these people do not do work that makes a difference in their field.”</p>	<p>Sternberg, R. J., Jarvin, L., & Grigorenko, E. L. (2011). <i>Explorations in Giftedness</i>. Cambridge University Press. 38.</p> <p>Sternberg, R. J. (2005). <i>The WICS Model of Giftedness</i>. <i>Conceptions of Giftedness</i>. 2nd Ed. 327-342.</p>
Giftedness Grade School	<p>“Intrinsic motivation for learning is often noted as a characteristic of gifted children (Csikszentmihalyi, Rathunde, & Walen, 1993; Kanevsky, 1922). What seems to be less discussed is having an intrinsic motivation for learning for learning’s sake. Gifted students are often stimulated and motivated by the working of their own minds (Winner, 1997). Csikszentmihalyi (1990) describes this experience as the ‘flow of thought.’ The concept of ‘flow’ was coined</p>	<p>Callahan, C. M., & Miller, E. M. (2005). <i>A Child-Responsive Model of Giftedness</i>. <i>Conceptions of Giftedness</i>. 2nd Ed. 38-51.</p>

	<p>by Csikszentmihalyi to describe optimal experiences in which time passes quickly, and one is enjoyably immersed in a task that is challenging without being overwhelming. That task does not necessarily need to be focused toward production. In fact, Csikszentmihalyi (p. 117) indicated ‘some of the most exhilarating experiences we undergo are generated inside the mind, triggered by information that challenges our ability to think, rather than from the use of sensory skills.’ Although flow of thought is an opportunity open to all, because flow of thought requires memory ability and knowledge of abstract systems (Csikszentmihalyi, 1992), those with intellectual gifts seem especially suited to finding flow in this way. For these students, learning is in itself a pleasurable activity that is self-motivating. They more one learns, the more one is motivated to pursue knowledge and skills.”</p>	
<p>Learning Performance Creativity</p>	<p>“When intrinsic motivation for learning is high, there is greater engagement in learning activities, greater creativity, learning, and greater persistence of learning over time.”</p>	<p>Saperstein, A. M., & Medalia, A. (2016). <i>The Role of Motivation in Cognitive Remediation for People with Schizophrenia</i>. Behavioral Neuroscience of Motivation. Springer. 535.</p>
<p>Learning Motivation in Animals</p>	<p>Landmark study on recognizing intrinsic motivation: “The behavior obtained in this investigation poses some interesting questions for motivation theory, since significant learning was attained and efficient performance maintained without resort to special or extrinsic incentives.”</p>	<p>Harlow, H. F., Harlow, M. K., & Meyer, D. R. (1950). <i>Learning Motivated by a Manipulation Drive</i>. Journal of Experimental Psychology 40: 231.</p>
<p>Grade School Test Performance</p>	<p>“Rewards have the effects that interfere with performance in ways that we are only beginning to understand.” In a word test, children who received candy or the promise of candy got fewer correct answers than those who only received feedback about how well they did.</p>	<p>Spence, J. T. (1970). <i>The Distracting Effects of Material Reinforcers in the Discrimination Learning of Lower- and Middle-Class Children</i>. Child Development 41: 95-102.</p>
<p>Grade School Test Performance</p>	<p>When students are more motivated by rewards and approval they use less sophisticated learning strategies and score lower on standardized test scores.</p>	<p>Boggiano, A. K., & Barrett, M. (1991). <i>Maladaptive Achievement Patterns: The Role of Motivational Orientation</i>. Unpublished paper.</p>
<p>Creativity</p>	<p>Professional artists did less creative work when they</p>	<p>Amabile, T. M., Phillips, E., & Collins,</p>

Work Performance	were contracted for their work than they did when they created for pleasure: "Commissioned works were rated as significantly less creative than the non-commissioned works, yet they were not rated as different in technical quality. Moreover, the artists reported feeling significantly more constrained when doing commissioned works than when doing non-commissioned works."	M. A. (1993). <i>Person and Environment in Talent Development: The Case of Creativity</i> . In Talent Development: Proceedings of the 1993 Henry B. and Jocelyn Wallace National Research Symposium on Talent Development, edited by Colangelo, N., Assouline, S. G., & Ambrosion, D. L.
Work Performance Creativity	"Artists who pursued their painting and sculpture more for the pleasure of the activity itself than for extrinsic reward have produced art that has been socially recognized as superior. It is those who are least motivated to pursue extrinsic reward who eventually receive them."	Carney, J. K. (1986). <i>Intrinsic Motivation and ARTistic Success</i> . Unpublished dissertation. University of Chicago. Getzels, J. W. & Csikszentmihalyi, M. (1976). <i>The Creative Vision: A Longitudinal Study of Problem-Finding in Art</i> . Wiley.
Military Work Performance	"Amy Wrzesniewski and her team followed 11,320 West Point military cadets and assessed their motives for attending the academy over a 14-year period. The researchers made a startling discovery: Cadets who entered West Point because of internal motivators were more likely to graduate, become commissioned officers, receive promotions, and stay in the military compared with those who entered due to external motives. Those cadets who entered with both strong internal (e.g., a desire to lead others) and external (e.g., to get a better job and make more money) motives, however, did not exhibit that same likelihood of success."	A. Wrzesniewski, B. Schwartz, X. Cong, M. Kane, A. Omar, & T. Kolditz. (2014). Multiple types of motives don't multiply the motivation of West Point cadets. Proceedings of the National Academy of Sciences.

Additional Intrinsic Motivation Research Not Excerpted From*

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*This is not an exhaustive list of references.

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