

# Pygmalion effect

The **Pygmalion effect**, or **Rosenthal effect**, is the phenomenon whereby higher expectations lead to an increase in performance.<sup>[1]</sup> The effect is named after the Greek myth of [Pygmalion](#), a sculptor who fell in love with a statue he had carved, or alternately, after the Rosenthal–Jacobson study (see below).

A corollary of the Pygmalion effect is the [golem effect](#), in which low expectations lead to a decrease in performance;<sup>[1]</sup> both effects are forms of [self-fulfilling prophecy](#). By the Pygmalion effect, people internalize their positive labels, and those with positive labels succeed accordingly. The idea behind the Pygmalion effect is that increasing the leader's expectation of the follower's performance will result in better follower performance. Within [sociology](#), the effect is often cited with regard to [education](#) and [social class](#).

Studies of the Pygmalion effect have been difficult to conduct. Results show a positive correlation between leader expectation and follower performance, but it is argued that the studies are done in an unnatural, manipulated setting. Scientists argue that the perceptions a leader has of a follower cause the Pygmalion effect. The leader's expectations are influenced by their perception of the situation or the followers themselves. Perception and expectation may possibly be found in a similar part in the brain.<sup>[2]</sup>

## Rosenthal–Jacobson study

[Robert Rosenthal](#) and [Lenore Jacobson](#)'s [study](#) showed that, if [teachers](#) were led to expect enhanced performance from children, then the children's performance was enhanced. This study supported the hypothesis that reality can be positively or negatively influenced by the expectations of others, called the [observer-expectancy effect](#). Rosenthal argued that biased expectancies could affect reality and create self-fulfilling prophecies.<sup>[3]</sup>

All students in a single California elementary school were given a disguised IQ test at the beginning of the study. These scores were not disclosed to teachers. Teachers were told that some of their students (about 20% of the school chosen at random) could be expected to be "intellectual bloomers" that year, doing better than expected in comparison to their classmates. The bloomers' names were made known to the teachers. At the end of the study, all students were again tested with the same IQ-test used at the beginning of the study. All six grades in both experimental and control groups showed a mean gain in IQ from before the test to after the test. However, First and Second Graders showed statistically significant gains favoring the experimental group of "intellectual bloomers". This led to the conclusion that teacher expectations, particularly for the youngest children, can influence student achievement. Rosenthal believed that even attitude or mood could positively affect the students when the teacher was made aware of the "bloomers". The teacher may pay closer attention to and even treat the child differently in times of difficulty.

Rosenthal predicted that [elementary school](#) teachers may subconsciously behave in ways that facilitate and encourage the students' success. When finished, Rosenthal theorized that future studies could be implemented to find teachers who would encourage their students naturally without changing their teaching methods. The prior research that motivated this study was done in 1911 by psychologists regarding the case of [Clever Hans](#), a horse that gained notoriety because it was supposed to be able to read, spell, and solve math problems by using its hoof to answer. Many skeptics suggested that questioners and observers were unintentionally signaling Clever Hans. For instance, whenever Clever Hans was asked a question the observers' demeanor usually elicited a certain behavior from the subject that in turn confirmed their expectations. For example, Clever Hans would be given a math problem to solve, and the audience would get very tense the closer he

tapped his foot to the right number, thus giving Hans the clue he needed to tap the correct number of times.<sup>[4]</sup>

A major limitation of this experiment was its inability to be replicated well. "Most studies using product measures found no expectancy advantage for the experimental group, but most studies using process measures did show teachers to be treating the experimental group more favorably or appropriately than they were treating the control group...because teachers did not adopt the expectations that the experimenters were attempting to induce, and/or because the teachers were aware of the nature of the experiment."<sup>[5]</sup>

## Students' views of teachers

Teachers are also affected by the children in the classroom. Teachers reflect what is projected into them by their students. An experiment done by Jenkins and Deno (1969) submitted teachers to a classroom of children who had either been told to be attentive, or unattentive, to the teachers' lecture. They found that teachers who were in the attentive condition would rate their teaching skills as higher.<sup>[6]</sup> Similar findings by Herrell (1971) stated that when a teacher was preconditioned to classrooms as warm or cold, the teacher would start to gravitate towards their precondition.<sup>[7]</sup> To further this concept, Klein (1971) did the same kind of study involving teachers still unaware of any precondition to the classroom but with the class full of confederates who were instructed to act differently during periods over the course of the lecture. "Klein reported that there was little difference between students' behaviors in the natural and the positive conditions."<sup>[8]</sup> In a more observational study designed to remove the likes of the [Hawthorne effect](#), Oppenlander (1969) studied the top and bottom 20% of students in the sixth grade from a school that tracks and organizes its students under such criteria.<sup>[8]</sup>

## Criticism of the Pygmalion study

[Robert L. Thorndike](#), an [educational psychologist](#), wrote that the instrument used to assess the children's IQ scores was seriously flawed.<sup>[9]</sup> For example, the average reasoning IQ score for the children in one regular class was in the retarded range, which, given the circumstances, is impossible. In the end, Thorndike wrote the Pygmalion study's findings were worthless. He summarized his evaluation of the instrument this way: "When the clock strikes thirteen, doubt is not only cast on the last stroke but also on all that have come before....When the clock strikes 14, we throw away the clock."<sup>[9]</sup> A meta-analysis indicates that the magnitude of the effect of inducing IQ-related expectancies in teachers is reduced by the amount of time teachers have spent getting to know their students prior to expectancy induction.<sup>[10]</sup> When teachers have gotten to know their students for more than two weeks prior to expectancy induction, the impact of expectancy induction is virtually zero.

## In the workplace

Leader expectations of the employee may alter leader behavior. This behavior that is expressed toward an employee can affect the behaviors of the employee in favor of the leader's expectations.<sup>[11]</sup> The more an employee is engaged in learning activities, the higher the expectation is from the leader. In turn, the employee participates in more learning behavior. Leaders will show more leader behaviors such as leader-member exchange (trust, respect, obligation, etc.), setting specific goals, and allowing for more learning opportunities for employees, and giving employees feedback. These factors were brought about by Rosenthal's model of the Pygmalion effect.<sup>[11]</sup>

## See also

- [Pygmalion in the Classroom](#)
- [Placebo effect](#)

- [Sports psychology](#)
- [Stereotype threat](#)

## References

- <sup>a b</sup> Mitchell, Terence R.; Daniels, Denise (2003). "Motivation". In Walter C. Borman; Daniel R. Ilgen; Richard J. Klimoski. *Handbook of Psychology (volume 12)*. John Wiley & Sons, Inc. p. 229. [ISBN 0-471-38408-9](#).
- <sup>^</sup> Whiteley, P., Sy, T., & Johnson, S. (2012). "Leaders' conceptions of followers: Implications for naturally occurring pygmalion effects". *The Leadership Quarterly*, 23(5), 822–834. doi: 10.1016/j.leaqua.2012.03.006 Referred to as leaders' implicit followership theories (or LIFTs)
- <sup>^</sup> [Rosenthal, Robert](#); [Jacobson, Lenore](#) (1992). *Pygmalion in the classroom : teacher expectation and pupils' intellectual development (Newly expanded ed.)*. Bancyfelin, Carmarthen, Wales: Crown House Pub. [ISBN 978-1904424062](#).
- <sup>^</sup> ["The Project Gutenberg eBook of Clever Hans \(The Horse of Mr. von Osten\), by Oskar Pfungst"](#). Gutenberg.org. Retrieved 2015-10-30.
- <sup>^</sup> Good, Jere E. Brophy, Thomas L. (1974). *Teacher-student relationships: causes and consequences*. London: Holt, Rinehart and Winston. p. 73. [ISBN 0-03-085749-X](#).
- <sup>^</sup> Jenkins, J. R., & Deno, S. L. (1969). *Influence of student behavior on teacher's self-evaluation*. [Journal of Educational Psychology](#), 60, 439-442
- <sup>^</sup> [Galatea in the Classroom: Student Expectations Affect Teacher Behavior](#); Herrell, James M.
- <sup>a b</sup> Good, Jere E. Brophy, Thomas L. (1974). *Teacher-student relationships: causes and consequences*. London: Holt, Rinehart and Winston. pp. 276–277. [ISBN 0-03-085749-X](#).

9. ^ *a b* Thorndike, R.L. (1968). Reviewed work: Pygmalion in the classroom by Robert Rosenthal and Lenore Jacobson. *American Educational Research Journal*, 5(4), 708-711.
10. ^ Raudenbush, S. W. (1984). Magnitude of teacher expectancy effects on pupil IQ as a function of the credibility of expectancy induction: A synthesis of findings from 18 experiments. *Journal of Educational Psychology*, 76(1), 85-97. doi:10.1037/0022-0663.76.1.85
11. ^ *a b* Bezuijen, X., van den Berg, P., van Dam, K., & Thierry, H. (2009). "Pygmalion and employee learning: The role of leader behaviors". *Journal of Management*, 35(5), 1248–1267. doi: 10.1177/0149206308329966

## Further reading

- Feldman, Robert S.; Prohaska, Thomas (1979). "The student as Pygmalion: Effect of student expectation on the teacher". *Journal of Educational Psychology*. **71** (4): 485–493. doi:10.1037/0022-0663.71.4.485.
- Jussim, L.; Harber, K. D. (2005). "*Teacher Expectations and Self-Fulfilling Prophecies: Knowns and Unknowns, Resolved and Unresolved Controversies*" (PDF). *Personality and Social Psychology Review*. **9** (2): 131–155. doi:10.1207/s15327957pspr0902\_3.

## External links

- [Pygmalion effect in banks, at school, and in the army](#)
- [Pygmalion Effect Video](#)

# Golem effect

The **Golem effect** is a [psychological](#) phenomenon in which lower expectations placed upon individuals either by supervisors or the individual themselves lead to poorer performance by the individual. This effect is mostly seen and studied in [educational](#) and [organizational](#) environments. It is a form of [self-fulfilling prophecy](#).

## Origin of the term

The effect is named after the [golem](#), a clay creature that was given life by [Rabbi Loew of Prague](#) in [Jewish mythology](#). According to the legend, the golem was originally created to protect the [Jews of Prague](#); however, over time, the golem grew more and more corrupt to the point of spiraling violently out of control and had to be destroyed. The effect was named after the golem legend in 1982 by Babad, Inbar, and Rosenthal because it "represent[s] the concerns of social scientists and educators, which are focused on the negative effects of self-fulfilling prophecies".<sup>[1]</sup>

## The effect

The Golem effect has very similar underlying principles to its theoretical counterpart, the [Pygmalion effect](#). [Robert Rosenthal](#) and [Lenore Jacobson's](#) *Pygmalion in the Classroom* and further experiments have shown that expectations of supervisors or teachers affect the performance of their subordinates or students. The most thoroughly studied situations of this effect are classrooms.<sup>[2][3][4]</sup> When arbitrarily informed that a particular student is "bright" or "dull", not only will the supervisor's behavior change to favor the "bright" students (as indicated by more praise or attention), the students themselves will exhibit behaviors in line with their labels (such as the "bright" students leaning more forward in their chairs relative to the "dull" students).<sup>[5]</sup> While the Pygmalion effect and the majority of studies focus on the positive side of this phenomenon, the Golem effect is the negative corollary. Supervisors with negative expectations will produce behaviors that impair the performance of their subordinates while the subordinates themselves produce negative behaviors.<sup>[1]</sup> This mechanism is an example of a [self-fulfilling prophecy](#): the idea that self-held beliefs can come true in reality. When both supervisor and subordinate notice the low performance, the negative expectations are confirmed and the belief is reinforced.

Up until Babad, Inbar, and Rosenthal, studies on teacher/supervisor [expectancy](#) and its effect on performance had primarily focused on the Pygmalion effect. Babad actually investigated the effect in his 1977 paper looking at [developmentally challenged](#) students but his 1982 paper is considered the seminal Golem effect article due to its more generalizable student population.<sup>[6]</sup> As opposed to other past teacher-student expectancy studies, the authors asked their teachers to nominate three high-expectancy and three low-expectancy students out of each class instead of just high-

expectancy nominations and a control group. In addition to replicating the findings of previous Pygmalion effect studies, the authors found support for the Golem effect. Teachers who were susceptible to biasing information treated their low-expectancy students more dogmatically than their high-expectancy students. Consequently, low-expectancy students performed worse than their high-expectancy counterparts. Teachers who were not susceptible to bias did not show any distinctions in behavior between high and low-expectancy students.

Although the majority of research looking at the Golem effect has focused on educational contexts, the effect has also been studied in the workplace. A study by Schrank that predated the Rosenthal and Jacobson article looked at [US Air Force Academy](#) airmen.<sup>[7]</sup> The author induced a "labeling effect" by randomly assigning incoming freshmen to one of five class sections

supposedly designating ability levels. McNatt performed a meta-analysis on studies with workplace samples and found that the Golem (and Pygmalion) effects still hold true to around the same magnitude at the workplace as they do in the classroom.<sup>[8]</sup> Furthermore, the Golem effect can influence entire organizations, not just supervisors and their direct subordinates.<sup>[9][10]</sup>

### **Absolute and relative**

Davidson and Eden suggested there are two different types of Golem effects: absolute and relative.<sup>[11]</sup> The absolute Golem effect occurs when the individuals who are identified as the low tier of their group are in fact underqualified for their group. For any given normal distribution of students or employees, this may be the case; there will be some individuals who do not meet the performance standards of the group. However, the more potentially dangerous type of effect is the relative Golem effect. In this case, the entire population is qualified to be in the group. However, because there will always be a "lower tier" even for a group of individuals who meet all of the performance standards of the group, the Golem effect could potentially degrade the performance of even highly skilled individuals. Davidson and Eden suggested a number of "de-Golemization" efforts such as convincing the group that the initial performance measures underestimate true potential in order to reduce this threat.<sup>[12]</sup>

### **Psychological mechanisms**

Although the consequences of the Pygmalion/Golem effects are well documented, the mechanisms behind them are more disputed among researchers. Both effects have been argued to stem from [Victor Vroom's expectancy theory](#).<sup>[3]</sup> This theory posits that people are more likely to perform behaviors that they believe they have a high expectation of performing successfully.<sup>[13]</sup> In relation to the Golem effect, when expectations are set low by the supervisor, subordinates do not require as much effort to successfully reach their performance expectation, which consequently results in lower performance. Rowe and O'Brian argued that the Golem effect was a result of



transaction cost and [agency theories](#).<sup>[15][16]</sup> They posit that because teachers monitor their classes for opportunistic behaviors, some students may take such monitoring as a sign that the teacher doesn't trust them and, in turn, engage in opportunistic behavior because it is expected of them. Although there have been proposed models of self-fulfilling prophecies including the Pygmalion/Golem effect, no model has been empirically tested.<sup>[15][16]</sup> This lack of research is especially glaring considering the golem effect is heavily involved with other established [motivational theories](#) and [organizational behavior](#) concepts such as [self-efficacy](#), [leader-member exchange](#), and [transformational leadership](#).<sup>[8]</sup>

## Methodological issues

There is currently a relative paucity of research that directly addresses Golem effects, and an even lesser body that measures and examines it. There are a multitude of reasons cited for this scarcity, but the most common reason involves the [ethical](#) concerns raised in examining negative and potentially harmful phenomenon.<sup>[1][17]</sup> Specifically, the concern arises in trying to operationalize negative expectancies in individuals, which will theoretically result in their lower performance. The worry then is the possible harmful, lingering effects on research participants beyond the study due to this manipulation. These effects could originate either from the participant having the knowledge that they performed worse than others, were unwittingly manipulated to perform worse, or were viewed negatively by a superior in the research paradigm; on the other hand, participants in a position of superiority that were manipulated to have negative expectancies may feel guilty about treating others differently following the experiment. Whatever the exact effect may be, these concerns have resulted in many researchers only making passive mention of the Golem effect in studies or ignoring it entirely.<sup>[17]</sup>

However, there is reason to believe that the apprehension towards conducting Golem studies may not be entirely well founded, as evidenced by several studies that have successfully set out to measure the effect explicitly. For example, Feldman & Prohaska used confederate subordinates to elicit negative expectations from subjects acting as students or teachers; in doing so, the ethical concerns of subjects having to be direct "victims" of the Golem effect were avoided.<sup>[18]</sup> Oz & Eden designed a study in which military squad leaders were differentiated by treatment and control conditions.<sup>[12]</sup> In the treatment condition, squad leaders' perceptions were manipulated as to believe that low scores on a physical fitness test were not indicative of a subordinate's ineptitude, whereas the control condition involved no manipulation. Thus, the Golem effect was measured indirectly through theoretically creating a "buffer" from the effect in the treatment condition. In this manner, the experimenters never actually created the Golem effect in their participants; rather, they measured a naturally occurring Golem effect in comparison to a "Golem treatment" group.

There is evidence that even studies that directly generate and measure Golem

effects in participants are still very viable and can be passed by ethics boards and other regulatory bodies. Reynolds designed a study in which support instructors for an introductory management course were led to believe they were assigned either lower-performing or higher-performing students based on a pretest, although the actual assignment was completely random and arbitrary.<sup>[17]</sup> He was able to demonstrate the Golem effect from this manipulation on a posttest (in which the "lower-performing" students actually performed worse, and the "higher-performing students" performed better), showing that it is very feasible to design studies that measure the effect in a more direct and controlled fashion without being shut down by regulatory bodies. However, studies such as this are regrettably still

extremely scarce in current Golem research.

## Pygmalion effect

Compared to the Golem effect, the Pygmalion effect enjoys a far greater body of literature; this is most likely due to the fact that this research is free from the ethical challenges of examining Golem effects. More specific and involved discussion of the Pygmalion effect is beyond the scope of this article, but several recent studies on this effect are worth mentioning in regards to their implications for the Golem effect and future research. Although the Pygmalion effect has been studied in great detail using [experimental](#) and [quasi-experimental](#) designs, due to the methodological issues surrounding the Golem effect, most of the conclusions drawn on the Golem effect have been from correlational data from Pygmalion studies.

## Cross-cultural effects

Recent research has explored the Pygmalion effect in cultural settings not previously studied. For example, a recent study examined how [Japanese](#) humanitarian aid workers stationed in different countries across the world perceived and interacted with the local organizations that they consulted with.<sup>[19]</sup> The researchers found support for the notion that when the aid workers held more positive perceptions of their local colleagues, higher levels of organizational performance were observed. Such findings raise the question of whether Golem effects would also be observed in such multicultural settings and provides ample opportunity for future research inquiry.

## Golem in reverse

Many modern organizations are starting to face a new challenge in superior/subordinate relationships: the older employee reporting to a younger supervisor. This particular situation is expected to occur more and more as the [baby boomer](#) generation reaches [retirement](#) age.<sup>[20]</sup> As such, there is great opportunity for research in examining the effects of older employees' expectations and perceptions of younger supervisors, a phenomenon that has been labeled as Reverse Pygmalion. A reverse Pygmalion effect is not synonymous with the Golem effect. In both the

regular Pygmalion and Golem effects, the expectations of the supervisor have an effect on the performance of the subordinate while in the reverse Pygmalion and Golem effects, the expectations of the subordinate have an effect on the performance of the supervisor. To date, there has been little research on the subject; however, one study found that, compared to younger workers, older workers with younger supervisors expected less out of their supervisors, and consequently rated their leadership behaviors as lower than in other conditions.<sup>[21]</sup> While this study refers to the effect studied as Reverse Pygmalion, it appears to be also lending credence to the possibility of a Reverse Golem effect existing, in that subordinates' negative expectations of supervisors may consequently influence supervisor behavior in a negative fashion. This would be an example of the "reverse" phenomenon due to the fact that the typical Golem effect runs in the direction of supervisor's expectation down to subordinates' behavior. However, more research is clearly needed to fully and rigorously test such speculation.

### **Golem in group settings**

Lastly, there have been concerns raised about the Pygmalion effect possibly being an artifact of interpersonal contrast effects;<sup>[22]</sup> by experimentally focusing high expectations on a treatment group, the control group (which typically receives no manipulation in Pygmalion studies) naturally is perceived with lower expectations. As such, the perceived difference between individuals becomes the driving force instead of high expectations alone. However, Eden demonstrated that this concern was not supported through manipulating entire groups (in this case, separate military squads randomly

receiving Pygmalion versus control status); he found that the Pygmalion effect was still observed beyond the scope of any contrast effects as evidenced by higher mean performances of groups with leaders that received Pygmalion manipulation when compared to controls.<sup>[22]</sup> It would be of significant value to the Golem research literature to see whether Golem effects are also unaffected by interpersonal contrast effects through similar group study designs.

### **Implications**

The Golem effect has many implications for various organizational settings, from schools to sports to multimillion-dollar corporations. [Public education](#) systems are likely to be very familiar with Golem effects in the form of controversy surrounding [tracking systems](#), which have been almost completely abandoned in education today due to their inefficacy and detrimental effects.<sup>[23]</sup> While tracking systems varied widely from school to school, the message conveyed to many students placed in remedial tracks was that of low expectations, which, in line with Golem research, led to poorer performance and behaviors. There is also great relevance for the Golem effect in sports, where a coach (a superior) must frequently gauge his or her outward displays of expectations towards individual teammates (the subordinate) in order to ensure that he/she is not sending negative messages.

Such negative messages have the possibility to affect players' performance significantly.<sup>[24]</sup> As such, it is far more ideal for coaches to engender high expectations towards all team members in order to harness the power of the Pygmalion effect.

Finally, there is something to be said about Golem effects towards disenfranchised and stigmatized demographics in society such as the [homeless](#), intellectually disabled, and other groups often looked down upon. Due to the low expectations often cast upon individuals in these groups by society as a whole, there is reason to believe that such individuals suffer from Golem effects in a truly significant and crippling manner. However, there is great hope for such trends to be stopped or even reversed, as evidenced by multiple government and [non-profit programs](#) aimed at recognizing and empowering these individuals to succeed in the modern workforce.<sup>[25]</sup>

## See also

- [David Moyes](#)
- [Educational psychology](#)
- [Industrial and organizational psychology](#)
- [Pygmalion effect](#)
- [Self-fulfilling prophecy](#)

## References

- <sup>^</sup> <sup>a</sup> <sup>b</sup> <sup>c</sup> Babad, E. Y.; Inbar, J.; Rosenthal, R. (1982). "Pygmalion, Galatea, and the Golem: Investigations of biased and unbiased teachers". *Journal of Educational Psychology*. **74** (4): 459–474. [doi:10.1037/0022-0663.74.4.459](#).
- <sup>^</sup> Rosenthal, R.; Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development*. New York: Holt, Rinehart & Winston.
- <sup>^</sup> <sup>a</sup> <sup>b</sup> Eden, D. (1984). "Self-fulfilling prophecy as a management tool: Harnessing Pygmalion". *Academy of Management Review*. **9** (1): 64–73. [doi:10.5465/amr.1984.4277938](#). [JSTOR 258233](#).
- <sup>^</sup> Rosenthal, R.; Rubin, D. B. (1978). "Interpersonal expectancy effects: The first 345 studies". *Behavioral and Brain Sciences*. **1** (3): 377–415. [doi:10.1017/S0140525X00075506](#).
- <sup>^</sup> Chaiken, A. L.; Sigler, E. & Derlega, V. J. (1974). "Nonverbal mediators of teacher-pupil interaction". *Social Education*. **30** (1): 54–58.
- <sup>^</sup> Babad, E. Y. (1977). "Pygmalion in reverse". *Journal of Special Education*. **11** (1): 81–90. [doi:10.1177/002246697701100112](#).
- <sup>^</sup> Schrank, W. R. (1968). "The labeling effect of ability grouping". *Journal of Educational Research*. **62** (2): 51–52. [doi:10.1080/00220671.1968.10883758](#).
- <sup>^</sup> <sup>a</sup> <sup>b</sup> McNatt, D. B. (2000). "Ancient Pygmalion joins contemporary management: A meta-analysis of the result". *Journal of Applied Psychology*. **85** (2): 314–322. [doi:10.1037/0021-9010.85.2.314](#).

[PMID 10783547](#).

9. ^ Starbuck, W. H.; Greve, A.; Hedberg, B. L. T. (1978). "Responding to crises". *Journal of Business Administration*. **9** (2): 111–137.
10. ^ Edwards, J. C.; McKinley, W. & Moon, G. (2002). "The enactment of organizational decline: The self-fulfilling prophecy". *International Journal of Organizational Analysis*. **10** (1): 55–75.  
[doi:10.1108/eb028944](#).
11. ^ Davidson, O. & Eden, D. (2000). "Remedial self-fulfilling prophecy: Two field experiments to prevent Golem effects among disadvantaged women". *Journal of Applied Psychology*. **85** (3): 386–398.  
[doi:10.1037/0021-9010.85.3.386](#). [PMID 10900813](#).
12. ^ <sup>a b</sup> Oz, S. & Eden, D. (1994). "Restraining the Golem: Boosting performance by changing the interpretation of low scores". *Journal of Applied Psychology*. **79** (5): 744–754. [doi:10.1037/0021-9010.79.5.744](#).
13. ^ Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.
14. ^ Rowe, W. G. & O'Brien, J. (2002). "[The role of Golem, Pygmalion, and Galatea effects on opportunistic behavior in the classroom](#)". *Journal of Management Education*. **26** (6): 612–628.  
[doi:10.1177/1052562902238321](#).
15. ^ Eden, D. (1990a). *Pygmalion in management: Productivity as a self-fulfilling prophecy*. Lexington, MA: Lexington Books.
16. ^ Sutton, C. D. & Woodman, R. W. (1989). "Pygmalion goes to work: The effects of supervisor expectations in a retail setting". *Journal of Applied Psychology*. **74** (6): 943–950. [doi:10.1037/0021-9010.74.6.943](#).
17. ^ <sup>a b c</sup> Reynolds D. (2007). "[Restraining the Golem and harnessing Pygmalion in the classroom: A laboratory study of managerial expectations and task design](#)" (PDF). *Academy of Management Learning and Education*. **6** (4): 475–483.  
[doi:10.5465/AMLE.2007.27694947](#).
18. ^ Feldman, R. S.; Prohaska, T. (1979). "The student as Pygmalion: Effect of student expectation on the teacher". *Journal of Educational Psychology*. **71** (4): 485–493. [doi:10.1037/0022-0663.71.4.485](#).
19. ^ Inamori, T. & Analoui, F. (2010). "Beyond Pygmalion effect: the role of managerial perception". *Journal of Management Development*. **29** (4): 306–321. [doi:10.1108/02621711011039132](#).
20. ^ Fullerton, H.N. & Toossi, M. (2001). "[Labor force projections to 2010: Steady growth and changing composition](#)" (PDF). *Monthly Labor Review*. **11**: 21–38.
21. ^ Collins, M. H.; Hair Jr. J. F. & Rocco, T. S. (2009). "[The older-worker-younger supervisor dyad: A test of the reverse Pygmalion effect](#)". *Human Resource Development Quarterly*. **20** (1): 21–41.  
[doi:10.1002/hrdq.20006](#).
22. ^ <sup>a b</sup> Eden, D. (1990b) (1990). "Pygmalion without interpersonal contrast effects: Whole groups gain from raising manager expectation". *Journal of Applied Psychology*. **75** (4): 394–398.  
[doi:10.1037/0021-9010.75.4.394](#).
23. ^ Hu, W. (June 14, 2009). "[No longer letting scores separate pupils](#)". *The New York Times*. Retrieved August 19, 2016.

24. ^ Mahoney, R. (February 11, 2011). "[Chris Bosh and the self-fulfilling prophecy](#)". *The New York Times*. Retrieved August 19, 2016.
25. ^ Mallozzi, V. M. (February 14, 2001). "[The neediest cases; Defying labels and low expectations](#)". *The New York Times*. Retrieved August 19, 2016.