The Pygmalion Effect: A Story of
Rats, Children, and Others
Robert Brooks, Ph.D.

In the early 1960s a group of psychology students at the University of North Dakota were asked to assist with an experiment involving lab rats. Six of the students were told that their rats had been bred for brightness in running the maze, while the other six students were informed that their rats could be expected for "genetic reasons" to have limitations to learning to run the maze. This distinction was highlighted by labeling rats in one cage as "maze-bright," while the other cage bore the label "maze-dull." In fact, none of the rats had been trained to transverse a maze and had been randomly assigned to either of the two cages.

This study at the University of North Dakota and those that followed at Harvard University were conducted by renowned social psychologist Robert Rosenthal. I have been thinking about Rosenthal's contributions to the field of psychology during the past several weeks since learning of his death at the age of 90 at the beginning of January, 2024.

I have cited this study in a number of my presentations, emphasizing, "These are rats! None had received special training in running mazes—I'm not even certain what special training would encompass. The first time I read about this study and prior to learning the results, I predicted that since there were actually no differences between 'maze-bright' and 'maze-dull' rats, and since the experimental task was the same for both groups, no differences would be found between the groups in learning to run the maze." A cynic might even say, "Why even do this study? It's another example of wasting taxpayer money!"

It turned out that my predictive powers were notably lacking, not only in terms of the findings of the study but in the ways in which these findings would serve as a catalyst for some of the most cited and significant research related to the impact that "expectations" have on our behavior and the behavior of those with whom we are interacting. In fact, the "maze-bright" rats right from the start performed significantly better in learning to run the maze than those designated "maze-dull." Some of the "maze-dull" rats would not even budge from the starting position in the maze. But what could possibly account for these results?

J. D. Warren, author of a 2018 article published by the University of California at Riverside, where Rosenthal became a faculty member in 1999 following a 36-year-career at

Harvard University, wrote that when the "maze-bright" rats ran the maze more efficiently and faster, Rosenthal concluded that the psychology students had "subconsciously" favored the "maze-bright" rats in the ways they "handled" them.

Differences in "Handling" Rats

In a *Scientific American* article co-authored by Rosenthal and educator Lenore Jacobson, they discussed the North Dakota study and what specifically was involved in the different ways in which the two groups of rats were "handled." They referred to the comments offered by the psychology students on a questionnaire following the experiment.

Rosenthal and Jacobson observed, "The students with the allegedly brighter rats ranked their subjects as brighter, more pleasant, and more likeable than did the students who had allegedly 'duller rats.'" From my perspective this explanation sounded as if the students were engaged in anthropomorphizing the rats!

But the proposed reasons for the differences didn't stop there. "Asked about their methods of dealing with the rats, the students with the 'bright' group turned out to be friendlier and more enthusiastic with the animals than the students with the 'dull' group had been. The students with the 'bright' rats also said they handled their animals more, as well as more gently, than the students expecting poor performance did."

Although I've often posited, just as many others have, that children learn best in an environment in which they feel teachers care about and believe in them, it's interesting to think that on some level, rats not only "knew" the students cared about them by the way they were handled but that this handling improved their learning to run the maze.

The Pygmalion Effect in Our Classrooms

Rosenthal described the implications of this study: "If rats became brighter when expected to, then it should not be farfetched to think that children could become brighter when expected to by their teachers." According to Warren, Lenore Jacobson, the principal of Spruce Elementary School in San Francisco, read the article and wrote to Rosenthal, "If you ever 'graduate' to classroom children, please let me know if I can be of assistance." Rosenthal quickly accepted the offer and one of the most cited psychological studies was born.

The teachers at Spruce were told that Rosenthal and his colleagues would be administering in the spring "The Harvard Test of Inflected Acquisition." In fact, this test, which was given to students from first to sixth grade, did not really exist. Rather, it was a standard IQ

test anointed with a "Harvard" label. After the tests were administered, teachers were told that based on the test results, there were a group of students in each class who were set to "blossom" academically during the new school year. In fact, this group of students was randomly selected.

A year later the students were re-tested on "The Harvard Test of Inflected Acquisition" and the scores of those in the "blossoming" group had climbed significantly more than those not in that group. The gains were even more dramatic for younger children in first and second grade when compared with those in sixth grade. Rosenthal attributed the overall results to the different positive ways that teachers interacted with the blossoming group without even realizing they were doing so. These differences included encouraging the blossoming group with extra help, providing positive feedback, not criticizing mistakes, and using warmer body language. Rosenthal called what had occurred the Pygmalion Effect in reference to the Greek legend in which a sculptor falls so much in love with a statue he's created that the statue comes to life.

An article authored by psychologist Daniel Goleman in *The New York Times* in 1986 titled "Studies Point to Power of Nonverbal Signals," highlighted the impact of expectations in different kinds of relationships such as judge and jury, physician and patient, or teacher and student. Goleman wrote, "The nonverbal messages people send, with a look, a gesture, a tone of voice, are far more pervasive and important in the workaday world than have been generally realized, researchers are finding. But they are concluding, too, that these messages are more complex and subtle than the popular accounts of 'body language' that have appeared in recent years have indicated."

Goleman continued, "Indeed the tacit communication of expectations between one person and another are found, in many cases to make all of the difference between success or failure in various kinds of endeavors." As one example, Goleman cited a study that found that when a judge was giving instructions to the jury, their "tone of voice, rather than anything in their words or body movements, communicated the strongest, most negative messages" even though judges were not aware that their tone of voice compromised their "neutrality."

Rosenthal and Jacobson described their research in *Pygmalion in the Classroom*, published in 1968. Many embraced the findings, especially as related to the impact that teachers could have on students from minority groups. Others viewed the same research much differently, arguing that the findings suggested that teachers were to blame for student failure rather than considering the impact of poverty and racism on student performance. Albert Shanker, the

founder of the United Federation of Teachers, was especially harsh in his assessment, sarcastically noting, "If thousands upon thousands of children are not learning to read, write, speak, and compute, it is not because of overcrowded classrooms, the effects of poverty and social conditions, poorly developed educational programs and materials and inadequately trained teachers. No, the children are not learning because the teachers don't expect them to learn."

Even in the face of such negative responses to his research, during the decade following the publication of *Pygmalion in the Classroom,* Rosenthal's research was to garner increased acceptance. This approval was reinforced when Rosenthal and a Harvard colleague, statistician Donald Rubin, analyzed 345 studies based on Rosenthal's original research, in many different settings, including doctor's offices, courtrooms, and military training centers. All of the studies confirmed the findings from Spruce Elementary School.

According to Goleman, Rosenthal attributed the Pygmalion Effect to subtle factors. Teachers, for example, expressed greater warmth towards some students, offered more specific feedback to how they performed, taught them more challenging material, and gave them more time to respond. Rosenthal said, "The same factors operate with bosses and their employees, therapists and their clients, or parents and children. The more warmth and more positive the expectations that are communicated, the better the person who receives those messages will do."

The Nonverbal Components of Communicating Expectations

Clay Risen noted in his obituary of Rosenthal that appeared in *The New York Times* that the latter voiced criticism of the ways in which research focusing on "expectations" could be overly simplified and distorted, especially by those attempting to reform the training and practice of those in the fields of education and medicine.

Rosenthal cautioned, "There is no single toolbox of gestures that a teacher or doctor could use to improve results. It's too simplistic to say, for example, a physician is sending a message of rapport when he nods or tilts forward. When you freeze the moment and extract one part of what is going on from it, you lose the richness of the phenomenon."

Interestingly, Goleman, who was to become very well-known with the publication of his book *Emotional Intelligence* in 1995, highlighted the importance of nonverbal attributes such as empathy, as part of emotional intelligence. Goleman observed in his 1986 *New York Times* article, "It is clearly important for everyone to know that, in one way or another, they are in almost constant nonverbal communication with others."

Goleman shared many research findings to highlight the significance of nonverbal communication. One study involved inpatients at a psychiatric hospital. “Tone of voice was a potentially damaging covert bias. When the therapists talked to resident patients their tone was much more hostile and anxious when they spoke with patients who lived outside the hospital.” The inpatients experienced the message as pessimistic, as if the therapist were saying that they didn’t believe the patient was going to improve. Interestingly, when the psychotherapists discussed the patient with their supervisors, the tone of voice they used was similar to the tone they used with their inpatients.

Rosenthal warned of seeking a “single toolbox” for improving expectations and relationships between and among people. In fact, his research has led to the creation of programs that focus on understanding and strengthening nonverbal cues—cues that reflect our expectations. As one example, psychiatrist Helen Reiss, director of the Empathy and Relational Science Program at Massachusetts General Hospital, has developed research-based programs for clinicians to improve their empathy skills. One finding was that as empathy skills are strengthened so too are patient satisfaction and communication between clinicians.

While appreciating the importance of nonverbal cues such as tone of voice and facial expressions in communicating expectations, we should not lose sight of the impact of our words in influencing the responses of another person. In my April, May, and June, 2022 articles I described ways to “prepare” others for messages with which they might disagree. A great deal of empathy is involved in creating an effective, caring dialogue even in the midst of different ideas and opinions. It is why such dialogue can be understood as “empathic communication.”

The Application of Rosenthal’s Research

How best to apply the research of Robert Rosenthal in our daily interactions with others, in both our personal and professional lives? In answering this question I am reminded that Goleman positioned “self-awareness” as a basic component of both emotional and social intelligence. Self-awareness indicates that we demonstrate the insight and, I might add, the courage, to examine the biases we may hold towards particular individuals or groups. Rosenthal applied such insight early in his career as he was doing research as part of his dissertation. He found that the way he asked certain questions and interacted with certain subjects had a significant impact on the results of the study, an effect he was to call “experimenter bias.”

Increased self-awareness of our expectations goes hand-in-hand with developing empathy

and empathic communication (both verbal and nonverbal). As one teacher said to me after I discussed the implications of Rosenthal's work, "As you were speaking about Dr. Rosenthal's research, that without realizing it I saw some of my students as 'blossomers' but not others. Without intending to, I may have created a self-fulfilling prophecy for success and failure." What an insightful comment!

In a similar fashion, a mental health professional observed, "As you reviewed empathic communication, I recognized that some of my communications with patients were worded in ways that were likely to come across negatively. I wouldn't be surprised if my frustration also led to a tone of voice that was experienced as negative. I will try to be more supportive and empathic in the future."

The Words of Goethe

It can be a very challenging task to identify, examine, and modify our expectations and communications, but it is an important challenge to address. I am reminded of Goethe's quote, "Treat people as if they were what they ought to be, and you help them become what they are capable of being." I would add that to treat people in an encouraging way requires that we strive to develop self-awareness, empathy, and empathic communication. When we do, we increase the likelihood that others will know we believe in them.