

The Development of Self-Image Bias: A Real-World Demonstration

Thomas Hill
Nancy D. Smith
Pawel Lewicki
University of Tulsa

This study investigates a mechanism by which individual differences in person perception evolve in the real world. Previous research has demonstrated that in order to maintain a positive self-image, people assign generally greater weight to traits representing their strong points as compared to traits representing their shortcomings; this effect has been labeled the self-image bias. Using an unobtrusive measure of centrality, the present study shows how the centrality of "computer skills" increased (over a semester) for students receiving a high grade in an introductory computer science course, whereas it (slightly) decreases for students receiving a low grade. This effect was shown to be specific, that is, limited to computer skills (and related mathematical skills).

Recent research has demonstrated that (positive) traits one considers descriptive of oneself (i.e., one's "strong points") carry greater weight in one's perception of others (e.g., Fong & Markus, 1982; Hill & Smith, 1986; Hill, Smith, & Hoffman, 1988; Kuiper, 1981; Lewicki, 1983, 1984; Markus & Smith, 1981; Markus, Crane, Bernstein, & Siladi, 1982); that is, they are assumed by the perceiver to be correlated with and indicative of many other positive traits. Traits that one does not consider descriptive of oneself carry less weight; that is, they are assumed by the perceiver to be uncorrelated with other (positive) traits. In other words, positive traits that one assigns to oneself are more central in person perception than positive traits that one does not assign to oneself; this effect has been labeled the self-image bias (Lewicki, 1983).

Presumably, this bias serves to create and maintain a positive view of the self by enhancing the importance of the positive traits that one believes oneself to possess (i.e., their implication for other positive traits) and decreasing the importance of one's shortcomings (Lewicki, 1983, 1984; Taylor & Brown, in

AUTHORS' NOTE: The preparation of this manuscript was supported by National Science Foundation Grant BNS-8504502 and National Institute of Mental Health Grant MH-42715 to Pawel Lewicki and Thomas Hill. We would like to thank Sharon Wilson (who taught the introductory computer science course from which subjects were recruited) for her support of this research. Correspondence concerning this paper should be directed to Thomas Hill or Pawel Lewicki, Department of Psychology, University of Tulsa, Tulsa, Oklahoma 74104; tel. (918) 631-2248.

press). For example, if one believes oneself to possess very good verbal skills, it fosters self-esteem to view verbal skills as correlated with (i.e., indicative of) many other skills and abilities. Analogously, if one lacks mathematical skills, one can limit the potentially negative implications of this fact for one's self-image by viewing the lack of math skills as not indicative of (i.e., uncorrelated with) the lack of other skills.

The research to date has focused on general trait descriptors such as warm versus cold (Lewicki, 1983, 1984), dependent versus independent (Markus & Fong, reported in Markus & Smith, 1981), or masculine versus feminine (Markus, Crane, Bernstein, & Siladi, 1982) and has been conducted under laboratory conditions. There is no research to date to demonstrate that natural, real-world experiences indicative of either possessing or not possessing specific abilities or skills can contribute to the development of self-image bias and lead to stable individual differences in person perception.

In the present research we investigated the long-term changes in person perception among college students who were enrolled in an introductory computer science course. Previous research (Hill, Smith, & Hoffman, 1988) has demonstrated that, consistent with the self-image bias hypothesis, when evaluating others, people who are experienced in the use of computers assign greater weight to computer skills—that is, assume them to be correlated with and indicative of many other skills. We expected that, over the course of a semester (4 months), students who were successful in acquiring computer skills (i.e., who received a high grade in the introductory computer science course) would develop a tendency to assign greater weight to computer skills than those who received a low grade in the course. In other words, at the end of the semester, students who received A's and B's (i.e., who were successful in this particular respect) were expected to assign greater weight to computer skills than they had at the beginning of the semester, whereas students who received C's and D's (i.e., who were not successful in the course) were expected not to increase (and, in fact, to decrease) the weight assigned to computer skills in person perception.

A major problem in person perception research is to obtain measures that are not obvious and not easily influenced by various social desirability motives and demand characteristics. For example, simply asking "How important are computer skills in your perception of others?" is likely to cause subjects to think about the "right" answer—for example, the one expected by the experimenter. Recent research (e.g., Markus, Crane, Bernstein, & Siladi, 1982; Lewicki, 1984) on the self-image bias has therefore utilized less obtrusive ways of assessing the centrality of traits. For example, Lewicki (1983) asked subjects to rate a number of different positive and negative target persons (e.g., best friend, a disliked person) regarding several traits. *For each subject*, he then calculated the average correlations between traits across targets. This results in a direct index of a trait's centrality for a given subject, because it assesses the degree to which a particular trait is correlated with others in this subject's ratings.

Using this measure, Lewicki could demonstrate the self-image bias: The average correlation (with other traits) was higher for those traits on which subjects rated themselves highly than for traits on which subjects did not assign high ratings to themselves. Thus, the former traits were more central in the perception of others.

The major advantage of this centrality index is that subjects most likely cannot consciously affect it. Although a subject may, for example, rate most people as somewhat intelligent (because of a general bias against saying anything bad), it is unlikely that a subject can consciously manipulate the *correlations* between intelligence and other traits across targets. The present research utilized this centrality index to assess the centrality of computer skills among students enrolled in an introductory computer science course, at the beginning of the semester and at the end of the semester. The changes in this measure of self-image bias over the semester were compared for subjects who obtained a high grade and those who received a low grade in the course.

METHOD

Subjects

Thirty male undergraduate students enrolled in an introductory computer science course participated in this research for course credit. The introductory (and not advanced) course was selected to minimize the influence of any previous “real life” feedback that subjects might have received in the past related to computer skills. Because all data were collected during the regular class meetings, almost 90% of those enrolled in the course participated.

It was not unusual for students in computer science courses to participate in psychological (mostly questionnaire) research. Thus, although subjects were aware that the study was conducted by members of the psychology department, subjects were unlikely to suspect that their current enrollment in a computer science course was of any relevance to the research.

Procedure

At the beginning of the semester (during the fourth meeting of the class), subjects were asked (by the second author, who served as the experimenter—not by the course instructor) to complete a rating form, described below, that presumably was designed to assess how they “saw other people.” Subjects were assured of the confidentiality of their answers; however, they were asked to identify themselves on their rating forms by writing down the last four digits of their Social Security numbers. The same rating form was administered toward the end of the semester (about 4 months later) during the last week of regular class meetings. Finally, subjects’ grades in the introductory computer science course were recorded.

The Rating Form

The main purpose of the rating form was to obtain ratings on several trait dimensions (including computer skills) for several targets. Subjects were asked to rate 10 target persons (adapted from Lewicki, 1983): (a) my best friend, (b) someone I avoided in school, (c) my mother, (d) someone I dislike, (e) myself, (f) the best teacher I ever had, (g) the worst teacher I ever had, (h) an aggressive person I know, (i) someone I would like to know better, (j) an average person. Where appropriate, subjects were instructed to think of an actual person known to them before completing the respective ratings.

Subjects were asked to rate each target with regard to 11 traits (i.e., skills; adapted from Hill, Smith, & Hoffman, 1988): (a) social skills, (b) good memory, (c) analytical skills, (d) good judgment, (e) writing skills, (f) computer skills, (g) verbal skills, (h) good intuition, (i) sense of humor, (j) mathematical skills, (k) general intelligence. Specifically, subjects were asked to rate the degree to which the respective target person possessed the respective skill; subjects were to make their ratings on 10-point scales (0 = *not at all*, 9 = *very much*).

Measure of Centrality

For each subject, an index was calculated to assess the centrality of computer skills in person perception (*computer skills centrality index*), separately for the beginning of the semester and the end of the semester. The index was computed in the same manner as proposed by Lewicki (1983)—namely, for each subject, the correlations between computer skills and the remaining 10 traits across the 10 targets were calculated. These correlations were then standardized with Fisher's r to z transformation and averaged. The resulting number is an index of centrality of computer skills—that is, how much computer skills are correlated with the other traits for the particular subject.

RESULTS

The computer skills centrality index (i.e., the mean z scores) served as the major dependent variable in a 2 between-groups (Grade: high [A or B] vs. low [C or D]) \times 2 within-subject (Time: beginning of the semester vs. end of the semester) ANOVA. It was predicted that for subjects who received a high grade the centrality of computer skills would increase from the beginning to the end of the semester. For subjects who received a low grade this index was not expected to increase but, rather, to decrease. Thus, an interaction between Grade and Time was expected.

Of the 30 students, 18 received a low grade in the computer science course (grade C or D) and 12 received a high grade (grade A or B). The means for the computer skills centrality index (i.e., the mean z scores) at the beginning and the end of the semester, for each group, are presented in Figure 1.

A 2×2 analysis of variance yielded a significant two-way interaction between Grade and Time, $F(1, 28) = 6.98, p < .02$. As is apparent in Figure 1, the centrality of computer skills increased from the beginning to the end of the

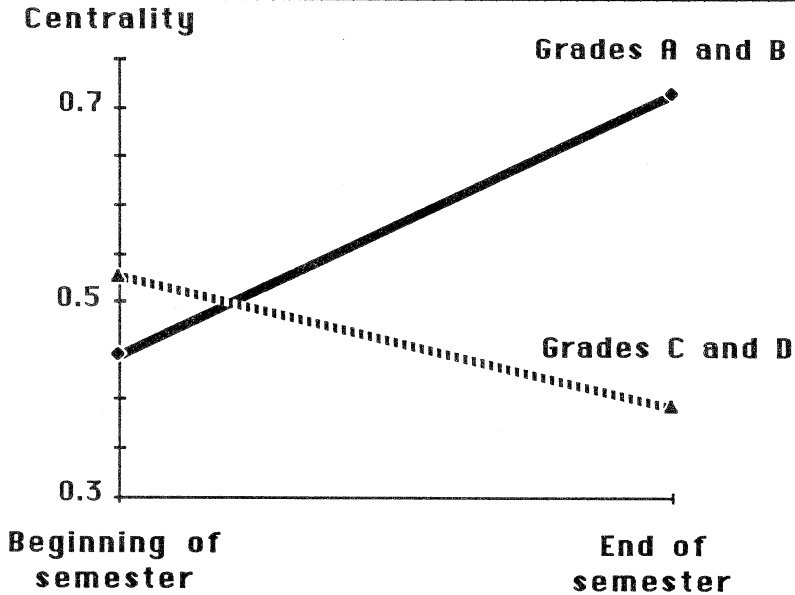


Figure 1 Mean centrality (z scores) of computer skills at the beginning and the end of the semester, as a function of course grade.

semester for subjects who received a high grade, $t(28) = 2.02$, $p < .06$. The centrality of computer skills slightly decreased for subjects who received a low grade in the course; however, this decrease was not significant, $t(28) < 1.00$. Put another way, there were no differences between subjects at the beginning of the semester, whereas at the end of the semester the centrality of computer skills was reliably greater for those who received a high grade, $t(28) = 2.27$, $p < .03$.

To ensure that the findings are specific to computer skills and not general (e.g., due to a general tendency for some subjects to produce higher correlations among traits), separate centrality indices were calculated (in the same manner as described earlier) for each trait. Analyses (via two-way ANOVAs) of those indices revealed a significant interaction only for one additional trait, mathematical skills, $F(1, 28) = 5.13$, $p < .03$. Figure 2 shows the mean centrality of mathematical skills for the two groups at the beginning and the end of the semester.

As is evident in Figure 2, the pattern of means for the centrality of mathematical skills mirrors that found for computer skills. This finding is not surprising, because the common stereotype often considers those two skills to be very similar. Thus, it appears that the effect of successfully acquiring computer skills on the centrality of various skills in person perception was specific—that is, limited to computer skills and mathematical skills.

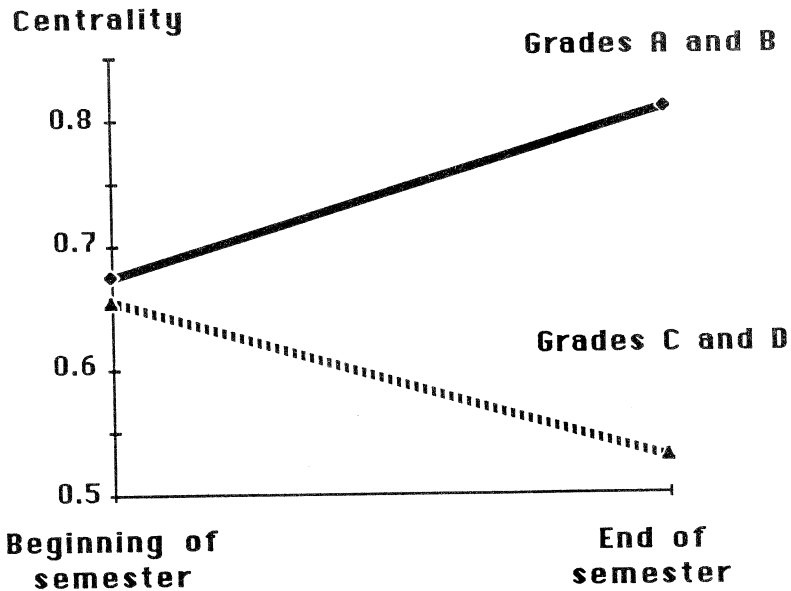


Figure 2 Mean centrality (z scores) of mathematical skills at the beginning and the end of the semester, as a function of course grade.

DISCUSSION

The present study shows how real-life, specific feedback that one receives can affect the manner in which one perceives others. The successful acquisition of computer skills made those skills a more central component of subjects' overall evaluation of others. Thus this study demonstrates a mechanism of how individual differences in person perception may evolve under natural conditions.

The changes in subjects' person perception in this study were assessed with a relatively unobtrusive measure, and it is unlikely that subjects were consciously presenting themselves in a particular manner by, for example, emitting socially desirable responses. Moreover, the effect registered in this study appears irrational (i.e., objectively "unjustified"), and it is not likely that subjects would accept and admit to their bias if they were consciously aware of it; most likely, subjects would not agree that their success in the course had changed their view of the general importance of computer skills. Therefore, the difference found in this study between students with high grades and those with low grades most likely does not pertain to self-presentational style but, rather, to the automatically operating, nonconscious encoding algorithms underlying person perception (Hill & Lewicki, in press; Lewicki & Hill, 1987).

One can speculate that, once initiated, individual differences in person perception (like those observed in this study) are likely to affect subsequent

social preferences. People who consider computer skills central are likely to evaluate positively others who have those skills and will prefer socializing or working with those individuals (Hill, Smith, & Hoffman, 1988). Thus, once initiated, such biases in person perception may strengthen in a self-fulfilling manner.

REFERENCES

- Fong, G. T., & Markus, H. (1982). Self-schemas and judgments about others. *Social Cognition, 1*, 191-204.
- Hill, T., & Lewicki, P. (in press). Personality and the unconscious. In V. J. Derlega, B. A. Winstead, & W. H. Jones (Eds.), *Introduction to contemporary research in personality*. Chicago: Nelson-Hall.
- Hill, T., & Smith, N. D. (1986, August). *Consequences of technology adoption for self-image and social preference*. Paper presented at the annual convention of the American Psychological Association, Washington, DC.
- Hill, T., Smith, N. D., & Hoffman, H. (1988). Self-image bias and the perception of other persons' skills. *European Journal of Social Psychology, 18*, 293-298.
- Kuiper, N. A. (1981). Convergent evidence for the self as a prototype: The "inverted-U RT effect" for self and other judgments. *Personality and Social Psychology Bulletin, 7*, 438-443.
- Lewicki, P. (1983). Self-image bias in person perception. *Journal of Personality and Social Psychology, 45*, 384-393.
- Lewicki, P. (1984). Self-schema and social information processing. *Journal of Personality and Social Psychology, 47*, 1177-1190.
- Lewicki, P., & Hill, T. (1987). Unconscious processes as explanations of behavior in cognitive, personality, and social psychology. *Personality and Social Psychology Bulletin, 13*, 355-362.
- Markus, H., Crane, M., Bernstein, S., & Siladi, M. (1982). Self schemas and gender. *Journal of Personality and Social Psychology, 42*, 38-50.
- Markus, H., & Smith, J. (1981). The influence of self-schema on the perception of others. In N. Cantor & J. F. Kihlstrom (Eds.), *Personality, cognition, and social interaction* (pp. 233-260). Hillsdale, NJ: Erlbaum.
- Taylor, S. E., & Brown, J. D. (in press). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*.

Thomas Hill is Assistant Professor of Psychology at the University of Tulsa. His research interests include nonconscious information processing and consumer decision making.

Nancy D. Smith received her PhD in industrial psychology from the University of Tulsa and is currently working as a consultant in Washington, DC.

Pawel Lewicki is Associate Professor of Psychology at the University of Tulsa. His research interests include nonconscious information processing.