

TITLE: Leadership Practices of Project Scientists at the United States National Aeronautics and Space Administration

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OBJECTIVE: This study focused on the unique leadership skills and practices of the individuals in an R&D environment by identifying the leadership practices used at NASA by project scientists.

METHODOLOGY: This study was conducted at NASA, using the population of project scientists, of which 59 participated (38% response rate). They, along with 120 project members (73% response rate), completed the Leadership Practices Inventory. The typical project scientist was 51 years old, with 12-plus years of experience in their role.

KEY FINDINGS: Internal reliability in this study for the five leadership practices were: Challenging .84, Inspiring .86, Enabling .78, Modeling .78, and Encouraging .89. The rank order of both the Self and Observer forms were the same as that found for the Kouzes and Posner normative sample. LPI-Observer scores were consistently higher than project scientists' (LPI-Self) scores for all five leadership practices, and significantly so for Challenging, Enabling and Encouraging.

Project scientists who reported spending 25 percent or more of their time on leadership scored significantly higher on Challenging, Inspiring, Modeling and Encouraging than did those project scientists who reported spending less time on leadership activities. Project scientists who reported spending 25 percent or more of their time on science had a significantly higher score on Challenging than did their counterparts. There were no statistically significant differences reported in the categories of public outreach/education or administration for the leadership practices. No significant relationship was found between the leadership practices and the project scientists' age or number of years of experience. "When leadership effectiveness ratings were low, leadership practice scores were also low" (p. 95).

Project scientists who were rated as very effective and extremely effective, versus somewhat effective, had significantly higher scores on all five leadership practices. ANOVA results indicated that leadership effectiveness rating was related to project scientist and project member scores for all five leadership practices. This was also true for the reported time spent on the leadership category of job responsibility for Challenging, Inspiring, Modeling and Encouraging.

“The findings of the current study lend support to the conclusion that the leadership practices identified by Kouzes and Posner (1996) are universal. The current study contributes by demonstrating that the leadership practices identified by Kouzes and Posner (1996) may be related to the leadership effectiveness of project scientists” (p. 96).