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The Impact of Past Performance on Expectations of Future Success: An Investigation of Australian Managers

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Competition among firms for market share and differential advantage is at an all-time high [3]. Moreover, investment in research and development (R&D) is seen as a major strategy in attaining and maintaining any competitive edge [4]. Little is known, however, about how experiencing poor performance in R&D endeavors affects managers’ perceptions of future opportunities for success in his or her company. Do managers believe that success breeds success, while poor performance is an indication of continued problems in the future? Or do managers believe that poor past performance is unrelated to future performance? Additionally, are some individuals prone to experience feelings of loss of control, while other individuals believe that they can influence future outcomes? When considering the importance of R&D endeavors to competitive strategy, these questions deserve attention and constitute the focus of this paper.

PRIOR RESEARCH ON THE PAST PERFORMANCE—FUTURE EXPECTATION LINKAGE

Previous inquiries into the area of reactions to failure (poor performance) in the organizational behavior literature show mixed support for both self-justification [7, 18, 20] and reactance effects [20]. When individuals felt personally responsible for failed decisions, they tended to commit more money to the same project—a self-justification process [18]. Staw and Fox [19] subsequently extended their study and reported that respondents eventually did waiver in their commitment to previous decisions over three time periods. In addition, Staw and Ross [20] found that information processing differs after a failed decision as opposed to a successful decision—i.e., individuals budgeted additional monies when they perceived personal responsibility for the failed decision—thus providing support for a “reactance effect” to decision-making.

The studies conducted by Staw and associates [18, 19, 20], employing organizational simulations, have provided initial support for the idea that individuals respond differently to failure than to success. However, two issues need further elaboration. Laboratory investigations are conducted
in a short time span. Experimental subjects are typically involved in activities for less than two hours. When considering the issue of failure, the importance of the performance history of the individual should not be ignored. Secondly, information regarding responsibility for failure has been systematically controlled in laboratory studies, thus allowing individuals to make direct inferences regarding causality for past performance. Questions remain concerning whether decision-makers actually make these casual deductions in organizational situations. Therefore, in order to fully study reactions to poor performance, actual organizational situations where decision makers are able to form their own opinions regarding reasons for past performance must be studied. The empirical study described later in this paper considers the prior organizational track record of failure and success and allows practicing managers to stipulate their own attributions for past outcomes.

The expanded expectancy theory model, developed by Porter and Lawler [14], also provides a solid basis for investigating the impact of past experiences in R&D on expectations of future performance. Expectancy theory is based on the premise that individual behavior is a function of our desire for a future outcome and our belief that we can achieve it [22]. Of importance to the present study is the proposition implicit in expectancy theory that past performance influences an individual's expectation for future performance [14]. Using this perspective, one would expect either continued success or continued poor performance in the future depending upon past experiences.

Nevertheless, several related issues should be considered. These include attribution theory, personality factors, and environmental conditions. In the paragraphs below, we elaborate briefly on each issue.

Since the perceived cause of past performance may influence expectations of future performance, it is important to consider the predictions of attribution theory [24]. McFarlin and Blascovich [11] point out that chronic self-esteem affects how individuals react to previous success or failure, thereby influencing expectations for future performance. Thus, how managers perceive themselves may be a mitigating factor. Consistent with this, Weiner [25] argues that affective reactions are largely determined by internal attributions to the manager's ability and effort. Internal attributions for failure produce intense shame, whereas external attributions for failure (for example, bad luck) result in lesser emotional responses [23]. Abramson, Seligman, and Teasdale [1] proposed that individual attributions are useful because they influence an individual's expectation of future success in a way that fosters a perceived loss of control over outcomes. Thus, the attributions that individuals make for past performance should not be ignored.

Personality factors may also play a part in how individuals respond to failure. Evidence suggests that individuals tend to cognitively respond to poor performance in a way that is consistent with their level of self esteem [2, 9, 10, 11, 13]. For example, following poor performance, low self esteem individuals may engage in self-denigrating behaviors [16]. In particular, it is likely that low self-esteem individuals will accentuate their failures by attributing them to lack of ability [6]. Not surprisingly, low self-esteem persons tend to set lower expectations for future performance than high self-
esteem subjects, especially following a failure experience [11]. High self-esteem individuals, on the other hand, are likely to attribute poor performance to unstable factors such as effort or luck. The study described below takes into account the attributions for failure made by managers as well as their relative level of self-esteem.

Finally, the impact of contextual factors cannot be totally ignored. Certain conditions exist over which the individual manager has little control but may influence how one views the opportunity for future success (e.g., favorableness of the economic environment or the technological level of the organization).

Therefore, this study will examine the impact of past performance on expectations of future success in R&D endeavors utilizing the perceptions of practicing managers. In addition, the effect of self-esteem and attributions for poor performance on expectations of future success will be addressed.

Based on the above theoretical and empirical discussion, the following predictions were developed for investigation:

Hypothesis 1a: Past performance in R&D endeavors will have an effect on expectations of future success.
Hypothesis 1b: The low success group will differ from the high success group on expectations for future success.
Hypothesis 1c: The impact of past performance on expectations for future success will be moderated by the level of past performance.
Hypothesis 2: For the low success group, individual self-esteem and attributions for performance will affect their expectations for future success.

METHODS

Sample

This research is part of a larger, government sponsored study focusing on the attitude of businesses toward competitiveness in Western Australia. Organizational diversity was necessary to avoid possible influences of organizational size, structure, and industry type. More importantly, for this study it was necessary to survey executives with specific and direct responsibility for R&D departments.

Organizations were selected on a judgmental basis utilizing the business pages of the Western Australian telephone directory. Interviewers telephoned 852 companies of which 356 agreed to participate in the overall project. Interviewers visited these companies and explained the nature of the study and the questionnaire to the appropriate individual. Interviewers returned after two weeks to pick up questionnaires and clarify any problems. A total of 211 questionnaires were returned. Given the survey length and involvement of top-level executives, a 25% return rate seems quite respectable. This study focuses on the portion of the questionnaire that dealt with R&D issues.

In order to qualify for this portion of the analysis, organizations must have had an active, organizationally internal, R&D department for the past five years to be included in the present analysis. This requirement allows for a track record in R&D to be developed in each firm. Therefore, the study
reported below is based on the 95 companies that met these criteria. Organizations in the study represented a wide range of industries. All individual participants were involved in top management decision making with their organizations and had direct responsibility for R&D decisions. Thirty-seven percent of the sample corporations had sales in excess of $10 million, and 40 percent were involved in what might be classified as high technology business (i.e., electronics, communications, medical equipment, etc.). The respondents were predominantly male (95%), with a mean age of 40 years (s.d. = 9.2), and with 9.5 years (s.d. = 9) in the organization. While recognizing the sample is not random, the diversity in size and business activities of the organizations in this study allows for a reasonable degree of generalizability.

**Measures**

*Past outcome history* was measured by asking respondents to indicate what is the percentage of their past successes in research and development. Recognizing the problems associated with using single item measures, this measure of past performance history was further correlated with other indicators in order to provide further justification for our categorization. The past performance measure was found to be related to the number of patents applied for (adjusted for size), the proportion of sales directly attributable to R&D efforts, and a general measure of past R&D success at a .02 level of significance. This outcome provides additional evidence that the past outcome history measure characterized the relative success of prior R&D endeavors.

*Self-Esteem* was measured using a ten item scale developed by de Charms and Rosenbaum [5] and based on an earlier scale devised by Janis [8]. This measure was designed to capture an individual’s general feeling of personal self-confidence. For instance, one item asked respondents to react to the statement, “I don’t spend much time worrying about what people think of me.” Scores for each statement were provided on a seven point agree/disagree scale. Cronbach’s alpha for the self-esteem scale was .74. Respondents were grouped into high and low esteem groups based on a median-split.

*Attributions for Success and Failure* were measured on seven point scales (0-“not at all a cause” to 6-“very much of a cause”). Executives were asked to indicate the extent to which their poor performance in past R&D endeavors was due to ability, effort, luck, and difficulty. Thus, four separate measures were developed, one for each attribute.

*Expectations for future success* were measured by two items. First, the executives were asked: “Could you please indicate your estimate of the chances that investment in R and D will lead to profitable opportunities. The chances are about ________ in 100.” The second question was: “The chances are ________ in 100 that research and development will lead to products and/or processes that will benefit our company.” A linear composite of the standardized scores of these two items was used in all subsequent analyses. Cronbach alpha for the scale was .89.
RESULTS

Given that the purpose of this study was to investigate the impact of past poor performance on future expectations, it is important to ensure that individuals believed that past efforts in R&D were a problem. Thus, a conceptual split, directly utilizing the scale mid-point of the measure of past income history, was performed. This split resulted in 37 individuals categorized as experiencing poor performance in past R&D efforts and 58 reporting positive experiences in past R&D efforts. The same procedure, splitting on the scale midpoint, was utilized for the attribution measures. For our self-esteem measure, a median split was performed because self-esteem measures tend to have a positively skewed distribution [15]. While the self-esteem scale runs from zero to seventy, our responses ranged from 33 to 70. The median split occurred at 52. Thus, our two esteem groups are more appropriately labelled "low positive" and "high positive." This is a common occurrence in research [21] and can be expected since respondents in this study are high level business executives.

IMPACT OF PAST PERFORMANCE ON EXPECTATIONS OF FUTURE SUCCESS

Regression equations (Table 1) were developed to test the first set of hypotheses. Support was found for hypothesis 1a. Past performance in R&D

| TABLE 1 |
| REGRESSION OF EXPECTATION OF FUTURE PERFORMANCE ON PAST PERFORMANCE |

| Equation (1) | Equation (2) |
| Pip | Pip |
| Past Performance | 636b | 08 |
| Past Perf x Perf Group | .58a |
| $R^2$ | .40 |
| Sum of Squares | 122.83 |
| Regression | 130.61 |
| Residual | 180.87 |
| df | 1/93 |
| F | 63.15b |
| 2/92 |
| 34.71b |

Note: Perf Group indicates whether individuals were assigned to the high or low success groups.

aP < .05
bP < .01
endeavors accounted for approximately 40 percent of the variance ($p < .001$) in expectations for future success. Thus, past performance appears to be a significant predictor of the managers' expectations for success in future R&D endeavors.

Of primary interest in this study was determining if the managers respond differently to past endeavors depending on the degree of success enjoyed. Hypotheses 1b and 1c focus on this issue. An interaction term, past performance x performance group, was computed to test hypotheses 1b and 1c. The interaction term measures the moderating impact of level of past performance (high versus low success) on the relationship between past performance and expectations of future success.

Hypothesis 1b stated that the expectations for future success in R&D endeavors will be different for the high and low performance groups. We tested this hypothesis by performing an F test on the difference in the sum of squared error for equations 1 and 2. The F test was significant at the .05 level providing support for hypothesis 1b. As expected, the high past performance group had higher expectations for future success than the low past performance group.

Hypothesis 1c is important because it focuses on the moderating impact of level of past performance on the relationship between past performance and expectations for future success. As previously stated, respondents were classified into a high or low performance group depending upon past success in R&D endeavors. This hypothesis is tested with the interaction term (past performance x performance group). The results suggest that level of past performance is important in determining expectations for future success. Thus, hypothesis 1c is supported. These findings indicate that managers in our high performance group expect continued success in R&D endeavors. However, no clear-cut relationship exists between past performance and future expectations for our low performance group. Some individuals reported that they expected continued poor performance while others expected to do either better or worse in the future. Thus, other factors besides past performance influence the expectations of future success for our low performance group.

**MODOERING EFFECT OF SELF-ESTEEM AND ATTRIBUTIONS FOR FAILURE**

As previously stated, the analysis performed involved classifying individuals as making high or low attributions to failure based on scale midpoint rather than using a median split. This classification of respondents is presented in Table 2. Approximately 70 percent of the respondents from the low success group indicated that effort played an important part in failure. In addition, the majority of the respondents also indicated that luck had little to do with failure. Thus, most respondents perceived that poor performance in R&D results more from a lack of effort than from just bad luck. Respondents were evenly grouped concerning the influence of ability and task difficulty on poor performance in R&D. Thus, there is little consensus among respondents concerning the importance of stable attributions, ability and task difficulty, on poor past performance, while effort, an unstable attribution, is seen as an important factor.
TABLE 2

FREQUENCY TABLE OF ATTRIBUTIONS FOR FAILURE

<table>
<thead>
<tr>
<th></th>
<th>Ability</th>
<th>Effort</th>
<th>Luck</th>
<th>Task Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Attribution</td>
<td>16</td>
<td>11</td>
<td>28</td>
<td>22</td>
</tr>
<tr>
<td>High Attribution</td>
<td>21</td>
<td>26</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

Hypothesis 2 states that a decisionmaker's self esteem and attributions for failure will affect expectations for success for the low performance group. The results of an analysis of covariance are presented in Table 3. Level of firm technology and economic state of the industry are treated as covariates to control for their effect. A main effect of task difficulty on expectations of future success was reported (p < .05). The meaning of this finding will be discussed shortly.

Additionally, possible interaction effects of self-esteem and attributions for failure were investigated. A weak but significant interaction of self-esteem and ability (p < .10) was found. In addition, a significant effect was found for the interaction term of self-esteem and task difficulty.

TABLE 3

ANOVA OF SELF-ESTEEM AND ATTRIBUTIONS ON EXPECTATION OF FUTURE SUCCESS IN RESEARCH AND DEVELOPMENT, CONTROLLING FOR LEVEL OF TECHNOLOGY AND INDUSTRY PERFORMANCE

<table>
<thead>
<tr>
<th>Sources</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability</td>
<td>0.81</td>
<td>0.34</td>
<td>ns</td>
</tr>
<tr>
<td>Effort</td>
<td>0.56</td>
<td>0.22</td>
<td>ns</td>
</tr>
<tr>
<td>Luck</td>
<td>2.28</td>
<td>0.94</td>
<td>ns</td>
</tr>
<tr>
<td>Task Difficulty</td>
<td>8.52</td>
<td>4.33</td>
<td>.05</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>1.96</td>
<td>0.80</td>
<td>ns</td>
</tr>
<tr>
<td>Interaction Effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Esteem * Ability</td>
<td>8.56</td>
<td>3.57</td>
<td>.10</td>
</tr>
<tr>
<td>Self-Esteem * Effort</td>
<td>4.59</td>
<td>1.81</td>
<td>ns</td>
</tr>
<tr>
<td>Self-Esteem * Luck</td>
<td>6.30</td>
<td>2.6</td>
<td>ns</td>
</tr>
<tr>
<td>Self-Esteem * Task Difficulty</td>
<td>13.75</td>
<td>6.99</td>
<td>.01</td>
</tr>
</tbody>
</table>
DISCUSSION AND SUMMARY

The results and implications of this research must be interpreted with care given the correlational nature of the study and the fact that our measures are primarily self-report data. The use of multiple organizations helps to overcome potential biases concerning corporate expectations of success or attitudes toward failure that may arise if a single organization was the focus of the research. In addition, previous studies have used insolvable anagrams and false feedback to create conditions of failure [cf. 11, 12, 17]. The long run impact of failure, more appropriately termed poor performance, upon organizations can only be determined through the development of organizationally-based studies. At the same time, the authors recognize the difficulty of transferring the study of failure from the laboratory to an organizational setting.

The primary purpose of this study was to extend the laboratory investigations of the impact of poor performance on future performance to organizational settings involving real world decision making about R&D. The usefulness of expectancy theory, as formulated by Porter and Lawler [14], to explain reactions to poor performance of previous decisions in organizations was utilized here. Our interest was focused on the behavior-performance relationship and the impact on expectations of future performance. Attributions for performance and individual self-esteem served as potential explanations for individuals' reactions to failure.

As projected, past performance was a significant predictor of expectations for future performance, supporting the premise of expectancy theory. However, closer inspection of the data indicated the effect of past performance on expectations of future performance was different for the high and low success groups. More specifically, the high performance group expected continued success in the future while no consistent pattern of expectations for success for our low performance group existed. Managers reacted to poor performance in different ways: some expected continued poor performance while other expressed optimism for a brighter future. The question then becomes, what triggers the specific reaction of an individual to poor performance? This is where attribution theory provides some possible insights.

Considering main effects of attributions for failure, only the attribution of failure to task difficulty had a significant impact on the managers' expectations of future performance. In other words, when managers explained their failure by virtue of the toughness of their task, this attribution influenced their future expectations. Weiner labels this an affective response, which allows an individual to remove himself/herself from direct personal responsibility for the failure. Specifically, managers who attributed failure to task difficulty were more likely to expect continued poor performance than those managers who did not perceive task difficulty affecting performance.

Interaction effects on expectations of future performance were found for self-esteem and task difficulty, indicating that a manager's self-esteem moderates the relationship between the task difficulty attribution for failure and expectations for future performance. In general, low self-esteem respondents who attributed failure to task difficulty were very low expectations for future performance in R&D while high self-esteem respondents, attributing failure to task difficulty, had much higher expectations for the
These findings hold considerable importance for organizations concerned with the extent to which individuals may pursue excellence in the future. For instance, lacking confidence, low self-esteem individuals might be less likely to search for additional information to help reduce the difficulty of the task. However, high self-esteem individuals might see task difficulty as a challenge, resulting in more determination to succeed.

Generalizing even further, it would appear that top management has a special responsibility to interact with managers who have recently been less than successful in their R&D efforts. These actions should endeavor to determine if the managers involved perceive the demands upon them (i.e., task difficulty) to be overly burdensome. If this is the case, at least among those with relatively lower self-esteem, adjustments might be made in order to mitigate a period of suboptimal effort due to the effects of prior performance problems. The nature of such managerial adjustments is purely speculative but could include the provision of additional resources, a clarification of goals and expectations, or a temporary transfer to a position more amenable to short-term success. In any event, given the continued importance of the R&D process to organizational competitiveness, the issues raised in this paper augur for additional study.

REFERENCES


