A Study of the Effectiveness of Training
Proactive Thinking

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Recent studies have consistently demonstrated the significant positive impact that proactive thinking has on job performance, while assuming proactivity to be a relatively stable, dispositional trait (cf. Ashford & Black, 1996; Crant, 1995; Morrison, 1993; Seibert, Crant, & Krammer, 1999). This study, on the other hand, seeks to determine if proactivity can be increased in participants through training. This study uses a 4-month long longitudinal pretest-posttest design to assess the relationship between proactive thinking and performance in the classroom. In the study, 177 subjects were split into 2 treatment groups. One group received training in proactive thinking skills, while the other did not. The results of the study confirm that proactive thinking does have a significant impact on student performance over and above other personality and performance variables. Most importantly, this study also demonstrates that proactivity is not stable over time, but can be increased through training.

Benjamin Franklin once said, “God helps them who help themselves” (Bartlett, 1953, p. 134). The message of this statement that many of us have heard since childhood is clear: Those who show initiative and take action are more likely to succeed. Ben Franklin was speaking on the virtues of being proactive. Proactivity is defined as the willingness and ability to take action to change a situation to one’s advantage. Recently, scholars have begun to examine the relationship between an individual’s proactivity and the outcomes of their efforts (cf. Ashford & Black, 1996; Crant, 1995; Morrison, 1993; Seibert, Crant, & Krammer, 1999). In short, the relationship conveyed by Ben Franklin has been found to exist in organizational settings.

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Theoretical Development and Hypotheses

Proactivity and Performance

The underlying philosophy driving this study is one of interactionism. Interactionism posits that an individual's behavior is controlled both internally and externally. Individuals both react to their environment and take actions to change their surroundings. In other words, individuals create their environments (Schneider, 1983). As a result, individuals can deliberately change their circumstances, thereby increasing the likelihood of their actions leading to desirable outcomes (Crant, 1995).

Drawing on interactionism, the basis of the present study is that, in general, people can take and sustain actions that directly alter their surrounding environment. However, individuals differ in this proactivity, with some being more adept at it than others. These differences in personality have been found to correspond with one's general orientation toward external situations (Snyder & Ickes, 1985). One aspect of such differences would be an individual's orientation toward altering situations. Buss (1987), for example, found strong differences in people's use of manipulation tactics across contexts, and considered the use of such tactics a type of individual difference. Proactivity, a propensity toward manipulating situations to one's advantage, is another such individual difference.

The prototypical proactive personality is someone who is relatively unconstrained by situational forces and who effects change in his or her external environment (Bateman & Crant, 1993). Passive personalities, on the other hand, tend to be more reactive in their responses. They tend to be shaped by their environment, rather than shape it. Proactive people scan for opportunities, show initiative, take action, and persevere until they reach closure by bringing about change. They are pathfinders who find and solve problems (Leavitt, 1988). They take it upon themselves to have an impact on the world around them. People who are not proactive exhibit the opposite behaviors; they fail to identify, let alone seize opportunities to change things. They show little initiative and rely on others to be forces for change. They passively adapt to and even endure their circumstances.

On the surface, proactivity appears to be similar to locus of control. Both are concerned with an individual's relationship to the external environment. However, at the behavioral level, these two constructs are quite different. The tendency toward proactive behavior is an instrumental trait, whereas locus of control is a cognitive trait. In other words, proactivity falls into the class of behaviors that have an impact on the environment. Locus of control, on the other hand, deals with an individual's thoughts and information processing (Buss & Finn, 1987). Bateman and Crant (1993) examined the relationship between proactivity and locus of control, finding the intercorrelation of the two variables to be statistically nonsignificant.
Previous studies have consistently demonstrated a significant relationship between proactivity and positive outcomes in a variety of situations (Ashford & Black, 1996; Crant, 1995; Morrison, 1993; Seibert et al., 1999). For example, Seibert et al. found that proactive personalities predicted career success across a diverse set of occupations and industries. Ashford and Black found that proactive behavior on the part of organizational newcomers related positively to job performance. Morrison found that organizational newcomers exhibiting proactive behaviors increased their socialization process and adjustment to their new environment. Finally, Crant found that proactivity was positively related to earnings among real estate agents.

Evidence suggests that personality might be more useful in predicting behavior when autonomy is high compared to when it is low (Barrick & Mount, 1993; Crant, 1995). Given the highly autonomous nature of the role of being a university student, it is probable that this phenomenon will also manifest itself in an educational setting. How might such proactivity manifest itself in the behavior of students so as to improve performance? One possibility is that proactive students select environments conducive to positively affecting their academic performance. For example, proactive students might make an effort to learn the good classes/sections, register as early as possible, selectively choose successful classmates for group projects or study partners, and study consistently throughout the course to keep up with their coursework. Passive students, on the other hand, might register at the last minute, get stuck in any available course/section, work in groups with whomever is sitting near them, and cram the night before an exam or project deadline. Therefore, we predict the following:

Hypothesis 1. A person's performance in an academic setting will be positively related to his or her level of proactivity, ceterus paribus.

Training Proactivity

Prior studies of proactivity, however, have assumed that an individual's proactive behavior is constant over time (Ashford & Black, 1996; Crant, 1995; Morrison, 1993; Seibert et al., 1999). That is, they have assumed that proactivity is dispositional. The assumption is that the tendencies to engage in proactive behaviors are manifestations of a general behavioral trend or dispositional tendency to behave in certain ways (Buss & Craik, 1980). As Bateman and Crant (1993) stated, "Proactive behavior . . . is a relatively stable behavioral tendency" (p. 104).

Training has been defined as "the systematic acquisition of attitudes, concepts, knowledge, rules, or skills that result in improved performance at work" (Goldstein, 1991, p. 508). Drawing on instructional theory (Gagne & Dick, 1983), the underlying assumption is that, with proper controls, people can be
trained to improve skills that impact task performance. As previously mentioned, proactivity represents a person’s willingness and ability to take actions to change a situation to his or her advantage. Proactive behavior involves tasks such as recognizing events, applying intellectual rules to classify these events, developing a cognitive strategy for dealing with the events, and taking some form of action to implement the chosen strategy. These are all trainable skills (Gagne & Briggs, 1979). While it is likely that a person’s proclivities toward engaging in these activities are, in part, determined by “relatively stable behavioral tendencies” (Batesman & Crant, 1993, p. 104), it is also equally likely that a person’s tendency toward proactive behavior is also impacted by the aforementioned trainable skills. Given this assumption, it is probable that a person’s level of proactivity can be increased through the use of training programs. Therefore, we predict the following:

Hypothesis 2. A person’s level of proactivity can be increased over time through training, ceterus paribus.

Method

Sample and Procedure

A sample of 184 undergraduate students from a large southwestern university was recruited for participation in this study. To control for possible variations as a result of instructional style, all participants were enrolled in one of the classes taught by the lead author. Of the students, 53% were enrolled in Strategic Management, while the remaining 47% were enrolled in Production and Operations Management (POM).

All data were gathered using questionnaires in a pretest/posttest field experimental design (Kerlinger, 1986). The pretest was administered at the beginning of the semester, and the posttest was administered at the end. Due to incomplete responses or failure to complete both pretest and posttest surveys, seven surveys had to be discarded. The overall response rate was 96%. Additionally, the completed surveys from 2 students were eliminated because they were concurrently enrolled in both of the author’s classes. In the end, 93 usable surveys were obtained from the Strategic Management students and 84 usable surveys were obtained from the POM students, for a total sample size of 177 students.

The lead author’s Strategic Management students served as the experimental group, receiving a semester’s worth of training on “the art of strategic thinking.” The training was designed to facilitate a student’s ability to recognize critical events, analyze the impact and implications of these events, develop strategies for dealing with these events, and generating recommendations for courses of action to implement the chosen strategies. This was accomplished by focusing on such
topics as recognizing and seizing opportunities, observing and defending against threats, leveraging core competencies into competitive advantage, and generally outmaneuvering competitors. In other words, the focus of the course was on thinking proactively.

In contrast to the experimental group, the lead author's POM students served as the control group and did not receive the proactive thinking training. (It was not appropriate or integral to the course.) The training in the POM classroom focused exclusively on the development of quantitative and theoretical skill associated with the design and management of manufacturing systems. These skills included topics such as forecasting models, assembly-line balancing, design-for-manufacturing techniques, emerging information technology tools, and the like. In other words, the focus of the training was on the development of context-specific knowledge and skills. (While the experimenter made a deliberate effort to refrain from making any explicit links to proactive thinking skills, it is possible that the more astute students implicitly developed proactive thinking skills by seeing how the aforementioned POM techniques could be leveraged into improved organizational performance.)

As previously mentioned, this investigation was conducted as a field experiment, "a research study in a realistic situation in which one or more independent variables are manipulated by the experimenter under as carefully controlled conditions as the situation will permit" (Kerlinger, 1986, p. 369). Although this methodology is frequently employed in educational research, control is not as tight as in a laboratory experiment. However, field experiments benefit from more realistic situations than laboratory experiments, which leads to stronger effects of the variables under study and greater external validity of the findings (Kerlinger, 1986).

Dependent Measure

The criterion measure for this study was academic performance. Because of construct validity issues inherent in any single operationalization of academic performance, two distinct measures of performance were gathered. The first was a measure of individual academic achievement: the student's average score across the course's three exams. The second measure of performance was determined by other students in the class (i.e., peer evaluations). This was the sum of five measures of student performance in group situations, with possible scores ranging from 5 (consistently failed to meet expectations) to 25 (consistently exceeded expectations). Both scores were calculated at the end of the semester.

Independent Measure

The predictor measure for this study was subject proactivity. Proactivity was measured using Bateman and Crant's shortened Proactive Personality Scale (PPS;
Seibert et al., 1999). This is a 7-point Likert scale assessing one's proactive personality. Sample items are "I am constantly on the lookout for new ways to improve my life" and "If I see something I don't like, I fix it." Responses are scaled from 1 (strongly disagree) to 7 (strongly agree). The items are summed to arrive at an individual's proactive personality score, with higher scores reflecting greater proactivity. Seibert et al. reported a reliability of .86 for the shortened version of their scale. Each student's PPS was gathered with both the pretest and the posttest surveys.

Control Measures

To assess the impact of proactivity on participant performance over and above other factors, a number of control variables were measured. These controls are consistent with those of other studies on proactivity (cf. Ashford & Black, 1996; Crant, 1995; Morrison, 1993; Seibert et al., 1999).

General mental ability (GMA). This measure has been shown repeatedly to be the single best predictor of job performance, particularly for entry-level jobs (Hunter & Hunter, 1984). Any study examining job-performance-related outcomes should include a measure of GMA (Schmidt & Hunter, 1992). This construct was operationalized using the Wonderlic Personnel Test (E. F. Wonderlic & Associates, 1999), a 12-min timed test of GMA with reported reliabilities ranging from .88 to .94. GMA was gathered as part of the pretest.

Experience. Prior studies examining the relationship between proactivity and performance have found significant correlations with an individual's experience in his or her role (Crant, 1995; Hunter & Hunter, 1984). Experience was operationalized as the number of credit hours earned by the student prior to the study semester.

Extraversion. Extraversion has been shown routinely to predict job performance in situations involving social interaction, an important part of being a successful business student (Crant, 1995). Extraversion was operationalized using Eysenck's (1958) six-item extraversion scale, with a reported reliability of .71. The greater the score, the greater the person's extraversion. Each participant's extraversion was measured as part of the pretest.

Socially desirable responses (SDRs). Social desirability should be considered a style of responding that contaminates and distorts measures of personality (Nicholson & Hogan, 1990). Therefore, SDRs must be controlled for in any study using personality-based predictor variables (Crant, 1995). SDR was assessed using Reynolds' (1982) 13-item social desirability scale, with a reported reliability of .76. SDR was measured during both the pretest and the posttest.

The present study also included two extra variables not controlled for in previous proactivity studies: prior performance and self-directed learning readiness.
Both of these variables are believed to be relevant to the context of predicting student performance in the classroom.

_Prior performance._ In almost any situation, one of the best predictors of future performance is past performance (Myers, 1993). Individuals who have been successful in the past are more likely to be successful in the future than are those who were less successful in the past. Given the context of this particular study, prior performance was operationalized as the student's overall grade point average (GPA) up to the study semester. Student GPAs were obtained from the university registrar.

_Self-directed learning readiness (SDLR)._ Before individuals can benefit from any form of training, they must be ready to learn (Goldstein, 1991). SDLR assesses a person's willingness to learn. Self-directed learners exhibit initiative, independence, and persistence in learning. They are capable of accepting responsibility for their own learning; they view problems as challenges, rather than obstacles; and they possess curiosity, self-discipline, confidence, and a strong desire to learn (Guglielmino, 1977). More importantly, they tend to perform well in relatively independent learning settings, such as university courses (Guglielmino, 1977). SDLR was assessed using a six-item rating, answered with 5-point Likert responses where higher scores indicate higher SDLR (Long & Agyekum, 1984).

**Analyses**

To test Hypothesis 1, it was necessary to confirm that a positive relationship existed between proactivity and performance, holding constant the effects of the control variables. Consistent with prior research (Crant, 1995; Seibert et al., 1999), this was tested using two sets of hierarchical regression models, one for each measure of performance. Subsequently, to test Hypothesis 2, we used a paired-sample _t_ test for repeated measures. A _t_ test was used to compare the difference in the pretest and posttest proactivity scores for the experimental group versus the control group.

**Results**

_Descriptives_

Table 1 presents means, standard deviations, and correlation coefficients for the variables under study. Multiple indicators of different facets of the same phenomenon are necessary for improved construct validity; however, they are often intercorrelated (Pedhazur & Schmelkin, 1991). However, an examination of the correlation matrix indicates that all of the correlation coefficients are less than 0.8 in absolute value, a threshold commonly used for the detection of multicollinearity (Kennedy, 1998).
<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<td></td>
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<td>2. Peer evaluations</td>
<td>21.11</td>
<td>2.26</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>3. Experience</td>
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<td>20.67</td>
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<td>.41*</td>
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<td>4. Social desirability</td>
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<td>.951</td>
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<td>5. General mental ability</td>
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<td>.305**</td>
<td>-0.94</td>
<td>.138*</td>
<td>.113</td>
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<td>6. Learning readiness</td>
<td>4.06</td>
<td>1.64</td>
<td>-1.02</td>
<td>.894</td>
<td>-2.23*</td>
<td>.094</td>
<td>.094</td>
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<td>7. Extraversion</td>
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<td>1.64</td>
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<td>.094</td>
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<td>8. Prior performance</td>
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<td>0.49</td>
<td>.357**</td>
<td>.357**</td>
<td>-0.037</td>
<td>-0.107</td>
<td>.214**</td>
<td>.368**</td>
<td>.296**</td>
<td>.142*</td>
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<td>9. Proactivity</td>
<td>53.56</td>
<td>7.25</td>
<td>.345**</td>
<td>.469**</td>
<td>.381*</td>
<td>.069</td>
<td>.171*</td>
<td>.142*</td>
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</table>

*p < .05 (one-tailed), **p < .01 (one-tailed)
Hierarchical Regression Models

To first assess the relationship between one’s proactivity and one’s performance, we used hierarchical regression analysis. This technique was used to assess the impact of proactivity on performance over and above the effects of the control variables, and is consistent with the methodology applied in other proactivity studies (Crant, 1995). Following the recommendations of Cohen and Cohen (1983), we entered the control variables into the equation prior to the proactive personality score. To replicate Crant’s study as closely as possible, we entered the control variables in the same order that he did; namely, experience, followed in turn by social desirability, GMA, self-directed learning readiness, extraversion, and prior performance. Finally, the proactive personality score was entered into the equation. This process was repeated for each of the two dependent measures of academic performance: exam scores and peer evaluations.

The results of the hierarchical regression equations are shown in Table 2. The results indicate that proactivity did account for a significant amount of variance in both of the dependent measures, even when controlling for the effects of the other variables. Thus, Hypothesis 1 was supported. Since, a significant positive relationship between proactivity and performance (holding constant the effects of other variables) was confirmed, it was then possible to assess the effects of the training intervention.

Test of Significance

Given the existence of a positive proactivity–performance relationship, an independent-sample t test was conducted to evaluate the hypothesis that a person’s level of proactivity can be increased over time through training. The test was significant, t(175) = 3.27, p = .001, thereby supporting Hypothesis 2. Participants receiving the proactivity training (ΔM = 2.78, SD = 4.96) increased their level of proactive thinking between the pretest and the posttest significantly more than did those not receiving the training (ΔM = 0.35, SD = 4.89).

Discussion

The results of the present study show that proactivity accounted for 5% of the variance in test performance and almost 12% in performance within a group setting. A student’s ability to take responsibility for his or her own learning was also a significant factor in predicting student performance. Finally, prior performance was a significant predictor of both exam and group performance, accounting for 24% and 9% of the variances, respectively. These results confirm prior studies of the impact of proactivity on performance.
Table 2

Results of Hierarchical Regression Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\Delta R^2$</th>
<th>$F$ of $\Delta$</th>
<th>Model $R^2$</th>
<th>Model $F$</th>
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<tbody>
<tr>
<td><strong>Dependent variable: Exam scores ($N = 177$)</strong></td>
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<td></td>
<td></td>
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<tr>
<td><strong>Step 1: Controls</strong></td>
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</tr>
<tr>
<td>Experience</td>
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<td>.006</td>
<td>1.11</td>
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<td>.034</td>
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<td>.051</td>
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<td>Learning readiness</td>
<td>.058</td>
<td>11.27**</td>
<td>.108</td>
<td>5.26**</td>
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<tr>
<td>Extraversion</td>
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<td>.109</td>
<td>4.22**</td>
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<tr>
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<td><strong>Step 2: Predictor</strong></td>
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<tr>
<td>Proactivity</td>
<td>.052</td>
<td>14.79**</td>
<td>.402</td>
<td>16.25**</td>
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<td><strong>Dependent variable: Peer evaluations ($N = 177$)</strong></td>
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<td>Prior performance</td>
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<td>.202</td>
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<td>.319</td>
<td>11.32**</td>
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$^*p < .05$ (one-tailed). $^**p < .01$ (one-tailed).

More importantly, the results of this study indicate that a person's proactivity can be increased through training. Given the aforementioned relationship between proactivity and performance, increased proactivity leads to improved performance. From the individual's standpoint, increased proactivity can lead to improvements in conditions and rewards associated with work. From an organizational standpoint, increased proactivity may lead to improvements in productivity, profitability, and competitive advantage. Further study of this phenomenon in a professional organizational setting, and an examination of the impact of proactivity training on firm performance could yield interesting results.
The results of this study indicate that proactivity is not a stable dispositional trait, as previously assumed, but can be improved with training. Following the training intervention, the experimental group experienced an average increase of nearly 3 points in their proactive personality scores, while the control group's average score remained virtually unchanged. In percentage terms, this is approximately a 4% improvement. While this increase is statistically significant, it does not, on the surface, appear to be a substantial increase. This seems to indicate that an individual's proactivity is probably impacted by both personality trait and trainable skills. Further study is necessary to tease apart the impact of these two facets of proactivity.

In sum, this study has demonstrated that proactivity is positively related to performance, holding constant other controls; and an individual's proactivity can be increased through training. Taken together, these findings demonstrate a successful application of applied psychology and training principles to improving individual performance. Properly harnessed, proactivity training could be an effective technique for organizations to improve employee productivity, and an important source of competitive advantage.

References


