

## Supervisors' Interactional Styles and Subordinates' Intrinsic and Extrinsic Motivation

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**ABSTRACT.** The effects of supervisory style on subordinates' intrinsic and extrinsic motivation were examined in two studies. In Study 1, Canadian graduate students reacted to hypothetical situations that involved three supervisory styles—autonomy supportive, non-punitive controlling, and punitive controlling. The results indicated that participants experienced the highest and lowest levels of intrinsic motivation in the autonomy-supportive and punitive-controlling conditions, respectively. A control group was incorporated in Study 2. Potential moderating effects of a high versus a low self-determined motivational profile (SDMP) on the relationship between supervisory style and intrinsic motivation were explored. Results indicated that the autonomy-supportive and punitive-controlling supervisory styles maintained and decreased participants' intrinsic and extrinsic motivation, respectively, compared with that of the control group. Also, in the autonomy-supportive condition, high-SDMP participants perceived the supervisor as more autonomy supportive and, consequently, felt more self-determined than low-SDMP participants, whereas in the controlling condition, high-SDMP participants perceived the supervisor as more controlling and felt less self-determined than low-SDMP participants.

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ACCORDING TO COGNITIVE EVALUATION THEORY (Deci & Ryan, 1985), factors that influence people's feelings of self-determination and competence also influence their intrinsic motivation. Supervisory style has been found to be one such factor. Deci, Nezlek, and Sheinman (1981) assessed how an autonomy-supportive teaching style versus a controlling teaching style influenced children's motivation and found that children in autonomy-supportive classrooms exhibited greater intrinsic motivation and higher self-esteem than children in controlling classrooms did. These findings, which have been replicated in

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other studies, indicate that when teachers (Ryan & Grolnick, 1986; Vallerand & Fortier, 1995), school principals (Vallerand et al., 1994), or parents (Deci, Driver, Hotchkiss, Robbins, & Wilson, 1993; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991; Vallerand & Fortier) were autonomy supportive—whether this judgment was determined objectively or perceived by the children—children's feelings of competence and intrinsic motivation were enhanced relative to those of children who were supervised by controlling adults. Similar findings involving adult subordinates in a work-related context have also been reported (Harackiewicz & Larson, 1986).

An assessment of the research conducted in this area yielded the following observations. First, most researchers have examined the effects of only one type of controlling style, the punitive-controlling style, on intrinsic motivation. (The punitive-controlling style involves the use of punishment or threats by the supervisor, with a goal of subordinate compliance.) Thus, our first goal in the present studies was to compare the effects of a punitive-controlling style with those of a non-punitive-controlling style on intrinsic motivation and feelings of competence and self-determination.

Second, most researchers have compared a controlling style with an autonomy-supportive style. An autonomy-supportive style has consistently been found to have more positive effects than a controlling style does on intrinsic motivation, but whether an autonomy-supportive style increases intrinsic motivation relative to a neutral supervisory style or to a control group has not yet been determined. In the present studies we tried to answer this question.

Third, researchers know little about how the interaction of supervisory style and subordinates' general motivation affects subordinates' intrinsic motivation concerning a given task. Are people who exhibit a self-determined motivational profile (SDMP) more susceptible to supervisors' influence, or are they impervious to any influence supervisors might have on their motivation? Our third purpose in performing these studies was to explore this issue.

Finally, to our knowledge, the effects of different supervisory styles on extrinsic motivation have not been compared. Does a controlling supervisor enhance subordinates' extrinsic motivation? Does an autonomy-supportive supervisor decrease it? We also addressed this issue.

### **Study 1**

In this study we compared the effects of three supervisory styles—autonomy supportive, non-punitive controlling, and punitive controlling—on subordinates' feelings of self-determination and competence and on their intrinsic and extrinsic motivation. We hypothesized that the three supervisory styles would have different effects on subordinates' intrinsic motivation and feelings of self-determination and competence. Our expectation was that an autonomy-supportive supervisor would promote subordinates' intrinsic motivation and feelings of self-determi-

nation and competence more than a non-punitive-controlling supervisor would, and that a punitive-controlling supervisor would have the most negative effects on these variables. Furthermore, we expected subordinates' extrinsic motivation to be lower in an autonomy-supportive situation than in a non-punitive-controlling situation, and lower in a non-punitive-controlling situation than in a punitive-controlling situation. Thus, we hypothesized that extrinsic motivation and intrinsic motivation would vary in opposite directions.

Finally, we explored the effects of the three supervisory styles in the context of two types of tasks, an interesting task and a boring task. Although it seemed plausible that the negative effects a controlling style typically has on motivation would be attenuated in the context of a boring task, it seemed just as plausible that the negative effects of a controlling style would be magnified in the context of a boring task. For this reason we did not formulate a hypothesis with respect to the nature of the task.

### *Method*

*Participants and design.* The participants were 125 French-speaking graduate students (94 women and 31 men, mean age = 32 years) who had a thesis supervisor at the time of the study. The participants were enrolled in education, psychology, and sexology programs. The design was a  $2 \times 2 \times 3$  (Sex of Participant  $\times$  Task: boring vs. interesting  $\times$  Style: autonomy supportive, non-punitive controlling, punitive controlling) factorial design. Task was a between-subjects factor, and supervisory style was a repeated factor. The results indicated that there was no gender effect, so we did not consider this variable in the analyses.

*Procedure and questionnaire.* During class time, the students completed a questionnaire that was administered by two trained experimenters, according to standardized instructions. Our purpose in administering this questionnaire was to gain a better understanding of graduate students' attitudes and behaviors in relation to various supervisory styles. The questionnaire could be completed in 20 min. All responses were anonymous and confidential.

The questionnaire included three hypothetical scenarios that contained 22 questions each. The three scenarios were presented in two random orders, but the results indicated that there was no presentation effect. All the scenarios began as follows:

In a graduate course taught by your thesis supervisor, it is now your turn to make a presentation before the group. The topic you have to discuss fascinates you [or doesn't interest you at all]. A few days before the presentation, your supervisor notices that you haven't begun to prepare your talk . . .

Each scenario contained an additional sentence(s) that served to distinguish between the various supervisory styles. In the autonomy-supportive condition

this sentence read: "Your supervisor underlines the importance of the presentation and asks you how you wish to proceed in order to choose the three texts, analyze them, and present them at the seminar." In the non-punitive-controlling situation this sentence read: "Your supervisor chooses three texts related to the topic and indicates the way in which he wants you to analyze them and how you should present them at the seminar." In the punitive-controlling situation the sentences were: "Your supervisor chooses three texts related to the topic and indicates the way in which he wants you to analyze them and how you should present them at the seminar. Your supervisor specifies that, if you don't meet his requirements, you will have to do another presentation the following week."

Five dependent variables—*intrinsic and extrinsic motivation, feelings of competence, feelings of self-determination, and perceptions of autonomy support from one's supervisor*—were assessed on a 7-point scale that ranged from *strongly disagree* (1) to *strongly agree* (7). So that we could evaluate intrinsic and extrinsic motivation, the participants completed the following phrase: "In this situation, I would prepare the presentation . . .," using items such as "in order to experience personal satisfaction in doing it right" (intrinsic motivation) and "in order to obtain a good mark" (extrinsic motivation). The participants also completed the following sentence: "In this situation, I would feel . . ." Possible answers included "free to prepare the presentation the way I want," "competent," and "that the supervisor asks for my opinions and considers them seriously," indicating, respectively, feelings of self-determination, feelings of competence, and perceptions of autonomy support from a supervisor. This last variable, which was measured on a dimension that ranged from *control* (1) to *autonomy support* (7), served as a manipulation check for scenarios.

Alphas for the five dependent variables ranged from 0.59 to 0.92, except for the alphas for the feelings of competence scale, which ranged from 0.35 to 0.55, depending on the condition. The mean alpha for the five dependent variables was 0.72.

### Results

The results indicated that the three styles of supervision were perceived as we expected: the autonomy-supportive supervisor was perceived as more supportive than the non-punitive-controlling supervisor,  $F(2, 120) = 207.64, p = .0001$ ; and the non-punitive-controlling supervisor was perceived as more supportive than the punitive-controlling supervisor,  $F(2, 120) = 318.46, p = .0001$ .

The results of a  $2 \times 3$  (Task  $\times$  Style) ANOVA, with repeated measures on the last factor, indicated that style had a main effect on intrinsic motivation,  $F(2, 236) = 106.31, p = .0001$ ; feelings of self-determination,  $F(2, 238) = 183.40, p = .0001$ ; feelings of competence,  $F(2, 242) = 96.26, p = .0001$ ; and perceptions of autonomy support from the supervisor,  $F(2, 242) = 245.49, p = .0001$ ; but no effect for extrinsic motivation,  $F(2, 236) = 1.26, p = .29$ . The results from the

simple main effects indicated that, compared with the use of non-punitive- and punitive-controlling styles, the use of an autonomy-supportive style increased subordinates' intrinsic motivation,  $F(2, 117) = 59.69, p = .0001$ ; feelings of self-determination,  $F(2, 118) = 143.09, p = .0001$ ; and feelings of competence,  $F(2, 120) = 87.41, p = .0001$ . The use of a non-punitive-controlling supervisory style resulted in higher levels of subordinates' feelings than the use of a punitive-controlling supervisory style did, for self-determination,  $F(2, 118) = 247.84, p = .0001$ ; competence,  $F(2, 120) = 106.22, p = .0001$ ; and intrinsic motivation,  $F(2, 117) = 142.12, p = .0001$  (see Table 1).

The results also indicated that task had a main effect. The interesting task increased subordinates' feelings of self-determination,  $F(1, 118) = 7.46, p = .007$ ; feelings of competence,  $F(1, 120) = 5.90, p = .017$ ; and intrinsic motivation,  $F(1, 117) = 7.24, p = .008$  (see Table 1). Task had no effect on extrinsic motivation, and there was no Style  $\times$  Task interaction on the different variables (all  $F_s < 1$ ).

### *Discussion*

The present findings underscore three major points. First, supervisory style appears to have influenced the subordinates' feelings of self-determination and competence and their intrinsic motivation. As predicted, the autonomy-supportive style had the most positive effects, whereas the punitive-controlling style had the most negative effects. This finding is consistent with previous research (Deci et al., 1993; Grolnick & Ryan, 1989; Ryan & Grolnick, 1986) indicating that an autonomy-supportive style leads to positive effects on subordinates' intrinsic motivation and perceptions of competence and self-determination.

The results demonstrated that, as hypothesized, the punitive-controlling style was perceived as more controlling than the non-punitive-controlling style and, consequently, led to lower levels of subordinates' feelings of self-determination and competence and intrinsic motivation. Thus, it appears that the degree of control exercised by the supervisor is what affected the level of subordinates' intrinsic motivation.

Extrinsic motivation seems to have been unaffected by supervisory style or type of task. In fact, extrinsic motivation remained almost constant, regardless of condition. Thus, contrary to our expectations, extrinsic motivation and intrinsic motivation did not vary in opposite directions (although the gap between intrinsic and extrinsic motivation did vary, depending on the situation). Intrinsic motivation was higher than extrinsic motivation in the autonomy-supportive conditions, but lower than extrinsic motivation in the punitive-controlling conditions. Thus, a more comprehensive analysis of the role of supervisory style should be focused on the balance between intrinsic and extrinsic motivation.

Finally, although an interesting task affected intrinsic motivation more positively than a boring task did, there was no interaction between supervisory style

**TABLE 1**  
**Subordinates' Motivation and Feelings as a Function of Interesting and Boring Task and Supervisory Style: Study 1**

Dependent variable	Interesting task			Boring task		
	Autonomy supportive	Non-punitive controlling	Punitive controlling	Autonomy supportive	Non-punitive controlling	Punitive controlling
Intrinsic motivation	6.278	5.385	4.333	5.779	4.836	3.968
Extrinsic motivation	4.664	4.683	4.563	4.872	4.747	4.686
Perception of supervisor	5.063	2.556	1.839	4.476	2.344	1.798
Feelings of competence	5.608	4.339	3.898	5.124	4.055	3.538
Feelings of self-determination	4.384	2.756	2.057	3.800	2.468	1.967

*Note.* Scores ranged from *strongly disagree* (1) to *strongly agree* (7).

and type of task: Controlling styles were perceived as such regardless of the amount of interest inherent in the task, and intrinsic motivation was affected accordingly.

## Study 2

Consistent with the results of previous studies (e.g., Deci et al., 1981), the results of Study 1 indicated that supervisory style influenced subordinates' intrinsic motivation in a predictable fashion. An autonomy-supportive supervisor affected intrinsic motivation more positively than a controlling supervisor did. Because we used previous studies as a guide in conducting Study 1 and, thus, did not include a control group, we were unable to determine whether an autonomy-supportive style increased the level of intrinsic motivation or merely maintained it. Our initial purpose in Study 2 was to address this issue, so we added a control group, in the form of a neutral supervisory style, to the design.

Our second purpose in conducting Study 2 was to further explore the impact of supervisory style on extrinsic motivation. The results of Study 1, which indicated that supervisory style did not influence extrinsic motivation, were somewhat surprising because, although controlling supervisory behavior may have specific effects on a person's behavior, motivation to behave is associated with compliance, not with self-determination (Deci & Ryan, 1985). Thus, extrinsic motivation should increase in controlling situations. Hence, we reexamined the relationship between supervisory style and subordinates' extrinsic motivation. Also of interest was the relative importance of intrinsic and extrinsic motivation as a function of condition. The results of Study 1 indicated that extrinsic motivation was stronger than intrinsic motivation in the punitive-controlling situation: When the supervisor was highly controlling, subordinates became more extrinsically motivated than intrinsically motivated. In Study 2 we assessed the generality of this finding.

Our third purpose in conducting Study 2 was to assess how participants' level of general motivation toward a given activity might moderate the relationship between supervisory style and intrinsic motivation. Thus, participants who exhibited a high self-determined motivational profile (SDMP) (i.e., who took part in an activity because they were interested and because they, personally, chose to, Deci & Ryan, 1985; O'Connor & Vallerand, 1994) were compared with participants who exhibited a low SDMP (i.e., who took part in an activity for external reasons, such as to please someone, to gain prestige, or to comply with internal pressure). Because we were concerned about external validity, we conducted Study 2 in a sports-related context. Low- and high-SDMP athletes completed questionnaires that concerned the supervisory behaviors—autonomy supportive, controlling, and neutral—of a new coach.

We predicted three basic results. First, we hypothesized that the high-SDMP participants would exhibit a level of intrinsic motivation that was, overall, high-

er than that of the low-SDMP participants. Second, we predicted similar results for feelings of competence and self-determination. Third, we predicted that the level of the participants' general motivation concerning athletic activity would moderate their perceptions of supervisory style and, consequently, their intrinsic motivation.

Because people who have a high SDMP value autonomy, they may be more attuned (McArthur & Baron, 1983) to its contextual manifestations, which can be classified as (a) events that promote autonomy or self-determination and (b) events that undermine it. According to the ecological theory of social perception (McArthur & Baron, 1983), autonomy-supportive and controlling events may represent affordances (or opportunities) that can be appreciated only by people who have certain attunements (or outlooks). Thus, we hypothesized that high-SDMP participants would be more likely than low-SDMP participants to perceive an autonomy-supportive supervisor as especially autonomy supportive and a controlling supervisor as especially controlling. We expected that high-SDMP participants would also exhibit this tendency for intrinsic motivation and perceptions of self-determination and competence.

### *Method*

*Participants and design.* The participants were 40 French-speaking athletes (26 women and 14 men, mean age = 17.7 years) who were members of a swim club in Montreal. We used a  $2 \times 2 \times 3$  (Sex of Participant  $\times$  Motivation Profile: high- vs. low-SDMP  $\times$  Style: autonomy supportive, controlling, and neutral) factorial design. Level of motivation was a between-subjects factor, and supervisory style was a repeated measures factor. Because there were no gender differences, we did not consider this factor in the following analyses.

*Procedure.* After practice, the athletes were asked to complete a questionnaire that was administered by a trained experimenter using standardized instructions. The participants were told that the purpose of the questionnaire was to provide information about athletes' attitudes and behaviors concerning competitive swimming, with respect to various supervisory styles. The questionnaire could be completed in about 30 min. All responses were anonymous and confidential.

*Questionnaire.* The first part of the questionnaire assessed the athletes' general level of motivation toward swimming. To measure this type of motivation, we used the Sport Motivation Scale (Brière, Vallerand, Blais, & Pelletier, in press), which has been shown to be a reliable and valid measure of seven types of motivation toward sport: three types of intrinsic motivation (toward accomplishment, knowledge, and stimulation), three types of extrinsic motivation (identified, introjected, external regulation), and amotivation. Each subscale consists of four items. The Sport Motivation Scale is based on self-determination theory (Deci &



Ryan, 1985), according to which different types of motivation reflect varying degrees of self-determination. Intrinsic motivation is considered to be the most self-determined type of motivation, followed by three types of extrinsic motivation: identified, introjected, and externally regulated. Amotivation is the least self-determined type of motivation.

We used a motivation index to assess the role of individual differences in motivation. Following the example of other researchers (e.g., Blais, Sabourin, Boucher, & Vallerand, 1990; Grolnick & Ryan, 1987; O'Connor & Vallerand, 1994; Ryan & Connell, 1989; Vallerand & Bissonnette, 1992; Vallerand & O'Connor, 1989), we obtained this index by weighting each type of motivation according to its position on the self-determination continuum (from intrinsic motivation to amotivation) and then summing these scores. Thus, the scores for the three types of intrinsic motivation were averaged and assigned the highest positive weight (+2) because intrinsic motivation is the highest self-determined form of motivation. Identified extrinsic motivation, a self-determined type of extrinsic motivation, was assigned a lower positive weight (+1), corresponding to its position on the self-determination continuum (Deci & Ryan, 1985). The scores for external regulation and introjection were averaged and assigned a negative weight (-1), and amotivation, which represents the absence of self-determination, was weighted highly negatively (-2).

Possible scores on the index ranged from -18 to +18; high positive scores reflected a high SDMP; and high negative scores, a low SDMP. The participants' scores were split at the median, yielding a group of high-SDMP participants and a group of low-SDMP participants ( $n_s = 20$ ). The mean alpha for motivational subscales was 0.74, and the alpha for the motivation index was 0.89.

The second part of the questionnaire included three scenarios, with 20 questions each. Each scenario began as follows:

Imagine yourself at the beginning of a season with a new coach. During a training session, while you are performing an 8 × 25 m swim, you have begun to reduce your speed after several repetitions. You can see that the coach has noticed that you have slowed down. His reaction is to come up to you . . .

In each scenario, an additional phrase indicated which type of supervisory style the coach was using. These phrases were (a) for the neutral situation, "in order to look at the situation more closely"; (b) for the autonomy-supportive situation, "and ask you if there's something wrong and to explain to you the importance of this type of training"; for the punitive-controlling situation, "and to point out that if you don't regain a higher speed you will have to redo this part of the training."

Five dependent variables were assessed in each scenario—intrinsic and extrinsic motivation, feelings of self-determination and competence, and perceptions of supervisory style. The items in Study 2 were similar to the ones we used

in Study 1, but they were adapted to the sport context. Alphas for the five dependent variables ranged from 0.62 to 0.92; the mean alpha was 0.79.

### *Results and Discussion*

The  $2 \times 3$  (Motivational Profile  $\times$  Style) ANOVA indicated that style had a main effect on intrinsic motivation,  $F(2, 38) = 22.55, p = .0001$ ; extrinsic motivation,  $F(2, 38) = 7.29, p = .002$ ; feelings of self-determination,  $F(2, 38) = 26.89, p = .0001$ ; feelings of competence,  $F(2, 38) = 30.98, p = .0001$ ; and perceptions of supervisory style,  $F(2, 38) = 21.04, p = .0001$ . The results indicated that, in the neutral and autonomy-supportive conditions, the participants were more intrinsically motivated,  $F(2, 38) = 45.39, p = .0001$ ; more extrinsically motivated,  $F(2, 38) = 12.13, p = .001$ , felt more competent,  $F(2, 38) = 63.40, p = .0001$ ; felt more self-determined,  $F(2, 38) = 53.41, p = .0001$ ; and perceived the supervisor as more autonomy supportive,  $F(2, 38) = 42.62, p = .0001$ ; than they did in the punitive-controlling condition (see Table 2). There was no difference between the autonomy-supportive and the neutral conditions (all  $F_s < 1$ ). Thus, our hypothesis seems to have been partially supported. Consistent with our hypothesis, intrinsic motivation and associated feelings of competence and self-determination were lower in a punitive-controlling situation than in a neutral situation. Intrinsic motivation was no higher in the autonomy-supportive condition than in the neutral condition, however.

Our second purpose in Study 2 was to determine how supervisory style would affect extrinsic motivation. As we reported previously, extrinsic motivation was lower in the punitive-controlling condition. It is possible that highly controlling conditions reduce both intrinsic and extrinsic motivation, promoting learned helplessness or amotivation (Boggiano & Katz, 1991).

Our final purpose in Study 2 was to explore the relationship between the athletes' motivational profile and the variables that were being examined. The results indicated that the high-SDMP participants were more intrinsically motivated than the low-SDMP participants, regardless of supervisory style,  $F(1, 38) = 16.75, p = .0001$  (see Table 2), although there was a Level of Motivation  $\times$  Supervisory Style interaction on athletes' perceptions of the supervisor and feelings of self-determination. As expected, the high-SDMP participants perceived the supervisor as more autonomy-supportive in the neutral and autonomy-supportive conditions and more controlling in the punitive-controlling condition, respectively, than the low-SDMP participants did,  $F(2, 37) = 12.25, p = .001$ . These results suggest that people who have a high SDMP are more sensitive to information and react more easily to control or support than people who have a low SDMP do. Thus, our hypothesis that high-SDMP participants would be more attuned (McArthur & Baron, 1983) to information that was pertinent to the control–autonomy continuum was supported. Also as expected, the high-SDMP participants felt more self-determined than the low-SDMP participants did in the

TABLE 2  
 Subordinates' Motivation and Feelings as a Function of Self-Determined Motivational Profile and Supervisory Style: Study 2

Dependent variable	High self-determined motivational profile			Low self-determined motivational profile		
	Autonomy supportive	Neutral	Punitive controlling	Autonomy supportive	Neutral	Punitive controlling
Intrinsic motivation	6.075	5.987	4.425	4.712	4.737	2.912
Extrinsic motivation	4.462	4.787	4.125	5.096	4.912	3.912
Perception of supervisor	5.013	5.200	2.125	4.525	4.488	3.300
Feelings of competence	4.850	4.650	3.350	4.404	4.509	3.263
Feelings of self-determination	4.780	4.790	2.470	4.177	4.140	3.217

Note. Scores ranged from *strongly disagree* (1) to *strongly agree* (7).

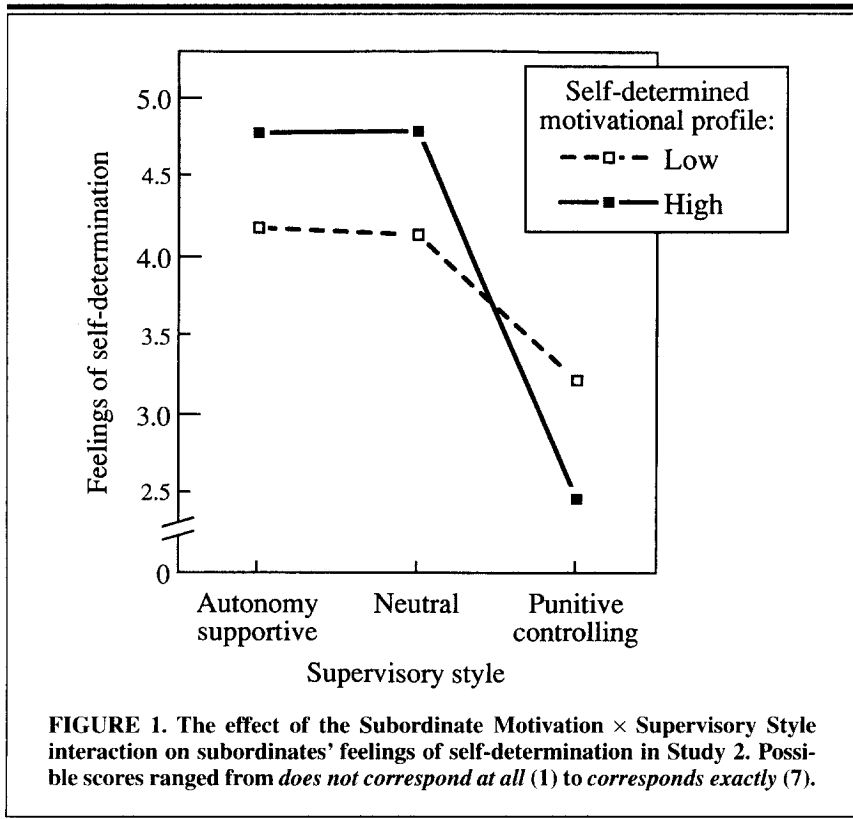
neutral and autonomy-supportive conditions, but less self-determined than the low-SDMP participants did in the punitive-controlling situation,  $F(2, 37) = 9.28$ ,  $p = .004$  (see Figure 1). The differences between these two groups for intrinsic motivation and feelings of competence were not significant ( $F_s < 1$ ).

### General Discussion

Our purpose in conducting these studies was to assess the effects of supervisory style on subordinates' intrinsic and extrinsic motivation. The present findings contribute to the literature in at least five areas.

#### *Autonomy Support Maintains Rather Than Increases Subordinates' Intrinsic Motivation*

The results of previous research have indicated that supervisory style can affect subordinates' intrinsic motivation. Researchers have found that, generally,



subordinates are more intrinsically motivated and feel more competent in autonomy-supportive conditions than in controlling conditions (Deci et al., 1993; Grolnick & Ryan, 1989; Ryan & Grolnick, 1986). However, because previous studies have not contained a control group, researchers have been unable to determine whether autonomy support increases subordinates' intrinsic motivation or whether controlling behavior decreases subordinates' intrinsic motivation. The inclusion of a control group in Study 2 demonstrated that an autonomy-supportive supervisory style did not increase subordinates' intrinsic motivation, but that a controlling supervisory style decreased subordinates' intrinsic motivation. Thus, differences that have been reported between the effects of an autonomy-supportive supervisory style and the effects of a controlling supervisory style may be attributable mainly to the effect of controlling supervisory behavior on subordinates' intrinsic motivation.

#### *Control, as Well as Punitiveness, Decreases Intrinsic Motivation*

Research on the effects of various supervisory styles on students', athletes', or employees' intrinsic motivation have typically demonstrated that a controlling supervisor affects subordinates' intrinsic motivation negatively (e.g., Deci et al., 1981). However, researchers have not usually distinguished between controlling behavior that includes punitive elements and controlling behavior that does not. Although subordinates in a controlling situation experience pressure to behave in a particular way, subordinates in a punitive-controlling situation experience, in addition, the threat of punishment if they do not conform. Thus, logically, in the latter type of situation, the supervisor's controlling behavior would carry more weight and would influence subordinates' intrinsic motivation accordingly.

The results of the comparison between the effects of punitive- and non-punitive-controlling supervisory styles, in Study 1, indicated that the punitive-controlling style had a more detrimental effect than the non-punitive-controlling style did on subordinates' intrinsic motivation. The non-punitive-controlling style also affected intrinsic motivation negatively, however. Consistent with cognitive evaluation theory (Deci & Ryan, 1985), we found that subordinates' perceptions of self-determination and competence followed the same pattern their intrinsic motivation did. Thus, the use of a punitive supervisory style resulted in a greater reduction in intrinsic motivation, probably because this type of supervisory style had a more negative effect on subordinates' perceptions of competence and self-determination.

#### *Individual Differences in Motivation as a Moderator of Influence of Supervisory Style*

The influence of subordinates' motivation for a life domain on their perceptions of their supervisor and their intrinsic motivation toward a related activity

was explored in Study 2. The results indicated that, regardless of supervisory style, the high-SDMP participants were generally more intrinsically motivated than the low-SDMP participants were. There was an interaction between the subordinates' perceptions of the supervisor and their feelings of self-determination, however. The high-SDMP participants perceived a punitive-controlling supervisor as more controlling and an autonomy-supportive supervisor as more supportive than the low-SDMP participants did. Our findings for feelings of self-determination were parallel. There was no interaction between supervisory style and intrinsic motivation.

This pattern of findings suggests that people who have a high SDMP are more attuned than people who have a lower SDMP to behavior that may affect their sense of autonomy, and is consistent with research and theories (e.g., Higgins & Sorrentino, 1990; Sorrentino & Higgins, 1986; Weary, Gleicher, & Marsh, 1993) indicating that motivation can influence people's perceptions of their environment.

These divergent perceptions of the environment (or of the supervisor) affected the participants' feelings of self-determination; the high-SDMP participants felt less self-determined with a punitive-controlling supervisor, but more self-determined with an autonomy-supportive supervisor, than the low-SDMP participants did. The results for feelings of competence were not consistent with this pattern because only supervisory style had a main effect. Thus, feelings of self-determination seem to more closely related than perceptions of one's own competence to the assessment of supervisory behavior. It seems probable that the initial effect of controlling supervisory behavior is experienced as a loss of autonomy and ensuing frustration, and that the loss of a sense of competence occurs later, when the subordinate realizes that the supervisor doubts his or her ability to complete the task alone. An exploration of this hypothesis might be worthwhile.

#### *Perceptions of Competence and Self-Determination as Mediators of the Relationship Between Supervisory Behavior and Subordinates' Intrinsic Motivation*

In Studies 1 and 2, the participants reported higher perceptions of competence and self-determination in the autonomy-supportive conditions than in the controlling conditions, providing support for cognitive evaluation theory (Deci & Ryan, 1985). The role of perceived competence in mediating the effects of feedback on intrinsic motivation has been explored by various researchers (e.g., Harackiewicz & Larson, 1986; Vallerand & Reid, 1984, 1988), but, to our knowledge, the mediating role of self-determination on intrinsic motivation and the roles of competence and self-determination in the supervisor-subordinate relationship have not. Our findings in the present studies suggest that both perceptions of competence and self-determination may be important mediators of supervisory influence on subordinates' intrinsic motivation.

### *Supervisory Behavior and Extrinsic Motivation*

Because researchers studying the effects of supervisory style on subordinates' motivation have focused on intrinsic motivation, we explored the impact of supervisory behavior on extrinsic motivation. The results of Study 1 indicated that supervisory style did not influence subordinates' extrinsic motivation, but the results of Study 2 (participants' extrinsic motivation was lower in the punitive-controlling condition than in the autonomy-supportive condition) indicated exactly the opposite. This discrepancy could be attributable to a variety of factors that differed between the two studies, including design, task (presentation vs. sport), and participant age.

The results of both studies indicated that, with the exception of the punitive-controlling conditions that involved a boring task (Study 1) and the cases that involved low-SDMP participants (Study 2), subordinates' intrinsic motivation was higher than or equivalent to their extrinsic motivation, in all conditions. These findings are consistent with the research of Boggiano et al. (1992), which indicates that controlling behaviors can cause learned helplessness (the absence of both intrinsic and extrinsic motivation), especially in people whose motivational orientation is extrinsic. Although the findings of Study 2 were basically consistent with those of Boggiano et al., the results of Study 1 extend the implication of individual differences and suggest that a controlling supervisory style is capable of reducing both intrinsic and extrinsic motivation, depending on how limited a person's interest is, whether this is because of personal, task, or contextual factors.

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