DOES TASK-RELATED IDENTIFIED REGULATION MODERATE THE SOCIOMETER EFFECT? A STUDY OF PERFORMANCE FEEDBACK, PERCEIVED INCLUSION, AND STATE SELF-ESTEEM

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The aim of this study was to understand the processes explaining the effects of private performance feedback (success vs. failure) on state self-esteem from the stance of sociometer theory and self-determination theory. We investigated whether or not the effect of private performance feedback on state self-esteem was mediated by perceived inclusion as a function of participants' level of task-related identified regulation (i.e., importance of the activity for oneself). Ninety participants were randomly assigned to one of the following three conditions: failure, success, or control. Our regression analyses based on both original and bootstrap samples indicate that perceived inclusion does not mediate the effect of feedback on state self-esteem for individuals high in task-related identified regulation. Such an effect only operates for individuals low in task-related identified regulation. In sum, our results show that the perceived inclusion process proposed by sociometer theory applies more when individuals find that the activity is less important for them (i.e., identified regulation).

Keywords: self-esteem, perceived inclusion, performance feedback, sociometer theory, self-determination theory.

It is commonly argued that self-esteem may be influenced by three sources of self-knowledge: reflected appraisal, social comparison, and self-perception.

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Studies focusing on self-perception mechanisms show that failure feedback has a negative effect on state self-esteem (i.e., self-esteem in a given situation) whereas success feedback has a positive one (e.g., Greenberg & Pyszczynski, 1985). Some researchers have interpreted such results from the perspective of the privately held standards hypothesis, in that people experience low state self-esteem because they have fallen short of their personal standards. However, recent theories have begun to challenge this hypothesis. Specifically, some theories proposed that self-esteem is not affected by our own internal standards but rather by standards imposed by others (Leary & Baumeister, 2000). In this study, we compare two different theories to understand which processes (internal vs. social standards) better explain the effect of performance feedback on state self-esteem, namely sociometer theory (ST; Leary & Baumeister) and self-determination theory (SDT; Deci & Ryan, 1985).

SELF-ESTEEM AND SOCIAL INCLUSION CONCERNS: THE SOCIOMETER THEORY PERSPECTIVE

Advocates of sociometer theory conceptualize self-esteem as an affective state that evaluates the quality of individuals' relationships. Briefly, this theory posits that fluctuations of state self-esteem are contingent upon individuals' actual or anticipated level of social inclusion in a situation (Leary, 2004). In line with sociometer theory, Leary and Baumeister (2000) have argued that if state self-esteem is simply a self-evaluation mechanism of privately held standards, then a failure known about only by the individual (private) and a failure known about by others (public) should have the same detrimental effect on state self-esteem. Yet, Leary and Baumeister have argued that many studies have found that public failures have more deleterious effects on state self-esteem than private ones, a finding that provides greater support for their sociometer perspective than for the privately held standards hypothesis.

Even if public events have a stronger impact on state self-esteem than private events, it is important to keep in mind that private feedback has an effect on state self-esteem (e.g., Greenberg & Pyszczynski, 1985). In other words, the loss of self-esteem in a private situation may stem from the fact that the person has fallen short of his or her personal standards. Proponents of sociometer theory, however, disregard the privately held standards hypothesis and offer a "sociometer" explanation for this effect. First, they argue that the self-esteem monitor has an anticipatory function that reacts to the immediate risk of social exclusion and to the potential for devaluation in the future (Leary, 2004). Thus, a private behavior that conveys a loss in state self-esteem may indicate that this behavior may be devalued by others in the future. Second, they maintain that private events may lower state self-esteem in experimental studies because participants fear being criticized by the experimenter. As pointed out by M. R. Leary (1999):

"the experimental context of research on self-esteem is typically an interpersonal one, often despite the researcher's best efforts to render the participants' responses as private and anonymous as possible" (p. 214).

In sum, sociometer theory posits that self-esteem of all individuals is affected by their inclusion status even in a private situation. However, this strong position on the antecedent of self-esteem is debatable. In the following, we present an alternative view positing that self-esteem may not be reduced solely to a social meter function.

SELF-ESTEEM AND INTERNAL CRITERION: THE SELF-DETERMINATION THEORY PERSPECTIVE

Proponents of perspectives other than the sociometer view have argued that self-esteem may be affected by some internal states and goals that have nothing to do with concerns about how accepted one would feel by others. For example, self-determination theory argues that acting in congruence with our own internal criteria could have a profound impact on how we feel and think about ourselves, an interpretation that is quite similar to the privately held standards hypothesis. However, self-determination theory posits that the capacity to use our internal criterion depends on how we value a given activity. Based on self-determination theory, we propose that the mediating process of perceived inclusion between performance feedback and state self-esteem posited by sociometer theory differs as a function of the degree to which individuals value the activity performed in a given situation. Specifically, we posit that when individuals feel that an activity is personally important for them, regulated by identified reasons, they will feel less concerned about their inclusion status after performance feedback. Moreover, their levels of self-esteem are less contingent on approval from others because identified regulation leads individuals to be more attuned to their own internal standards (Deci & Ryan, 1995). We hypothesized that experiencing identified regulation toward a given activity helps individuals to focus on the personal goals they want to achieve in the situation rather than on imposed or imagined standards that come from others.

Identified regulation has been evaluated at different levels of the self hierarchy ranging from state to personality levels (Vallerand, 1997). In the present study, we evaluated identified regulation at the state level because we believe that the utility of a moderating variable, as is the case for an independent variable, is maximized when it is operationalized at the same level as the dependent variable of interest (state self-esteem in the present study). In other words, it is not because a person finds that most significant activities in his/her life are important (the trait level) that he/she will consider the experimental task as important. Conversely, it is not because an individual feels that the task is personally meaningful that he/she will necessarily have a trait of identified regulation.

Indeed, Vallerand, Guay, Blanchard, Mageau, and Cadorette (2006) have shown that there is a weak relation (around .10) between identified regulation at the state and the trait levels. Previous studies (e.g., Guay, Vallerand, & Blanchard, 2000) indicate that identified regulation at the state level is associated with a host of positive outcomes including better concentration, enjoyment, and feelings of self-worth. However, its potential to moderate the effect of feedback remains to be discovered though such a moderating role would be consistent with self-determination theory.

Hypothesized Model to be Tested

Based on self-determination theory, we posit a moderated-mediation model. Moderated mediation occurs (see Muller, Judd, & Yzerbyt, 2005) when the mediating process (perceived inclusion in this study) that explains the effect of the treatment (performance feedback) on the outcome variable (state self-esteem) depends on the levels of the moderator (task-related identified regulation).

The model tested is presented in Figure 1 and posits that self-esteem for individuals with high and low levels of identified regulation towards a given activity is affected to the same degree by the private performance feedback, but that the mechanism explaining such an effect would appear to differ across groups. For those with high levels of task-related identified regulation, the impact of the feedback should not be mediated by perceived inclusion. Indeed, people high in task-related identified regulation experience low state self-esteem in the face of failure because they have fallen short of their personal standards or goals (i.e., privately held standards would be the mediation mechanism). However, for those with low levels of task-related identified regulation, the impact of feedback should be mediated by these concerns. Specifically, we proposed that task-related
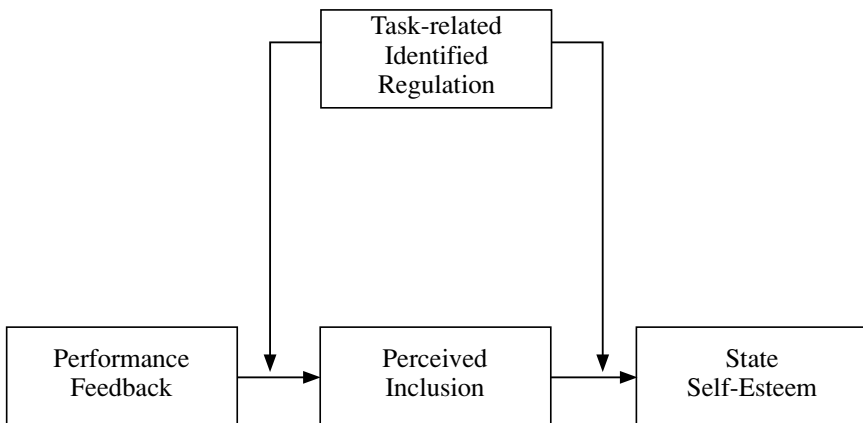

Figure 1. The Hypothesized Moderated-Mediational Model.

identified regulation would moderate: a) the effect of the feedback on perceived inclusion (i.e., no effect of the feedback on perceived inclusion at high levels of task-related identified regulation) and b) the effect of perceived inclusion on state self-esteem (i.e., no effect of perceived inclusion on state self-esteem at high levels of task-related identified regulation).

It is important to note that according to sociometer theory, this moderating role of task-related identified regulation should not prevail. Indeed, sociometer theory posits that changes in self-esteem are solely due to perceived inclusion so that self-esteem is purely contingent on approval from others. Thus greater support for sociometer theory would be observed in the present study if there was no moderating effect of task-related identified regulation.

METHOD

PARTICIPANTS

Participants were 90 French Canadian university students (32 males and 58 females). Their mean age was 22. We randomly assigned participants to one of the three following conditions: control ($n = 30$), failure ($n = 30$), and success ($n = 30$).

EXPERIMENTAL TASK AND PROCEDURE

An experimenter recruited the participants in the university cafeteria. Students were invited to collaborate on a research project conducted by a large American university that was given a fictitious name. The experimenter explicitly said that he/she was not involved in this project and was simply carrying out the recruitment task on behalf of American researchers. The experimenter used this procedure and the following ones in order to render the feedback as private as possible.

Participants signed a consent form specifying that their performance on the task and their answers would be anonymous. The experimenter started the Internet, opened the Web page of the fictitious university and clicked on the Web link to begin the experiment. The experimenter asked participants to follow the written directions that would appear on the computer screen and left them alone in the laboratory. The instructions explained that a group of American researchers were conducting an important study in five countries, including Canada, and that the goal of the study was to obtain people's reactions to a new activity called "NINA." The NINA activity consisted of hidden-figure puzzles, that is, cartoon-style drawings (Hirschfeld, 1998) in which the name NINA is embedded several times. Instructions specified how to carry out the task and told participants that they had to circle the embedded words in drawings, using the mouse. Instructions also explained that they had 60 seconds to find the embedded words "NINA"

in each drawing. Participants had to complete a practice drawing and 5 official drawings.

After completing the drawings, the computer randomly assigned participants to a success, failure, or control condition. Participants in the failure condition received the following feedback on the computer screen: "The number of embedded words that you have found is below the number of words that other participants have found." Participants in the success condition received the feedback: "The number of embedded words that you have found is above the number of words that other participants have found." Participants in the control condition received no feedback.

The computer then instructed participants to complete a questionnaire containing self-report scales. Following completion of the questionnaire, written instructions asked participants to place the questionnaire in a stamped envelope addressed to the fictitious university and hand it to the experimenter who was waiting outside the experimental room. The experimenter then asked participants to provide their perceptions of the experiment, and finally he/she debriefed and thanked them. No compensation was offered to the participants.

MEASURES

State self-esteem   This scale was drawn from Leary, Tambor, Terdal, and Downs (1995). It included 15 items rated on a 7-point scale (*strongly disagree* to *strongly agree*). Although Leary et al. used this scale to assess state self-esteem in a unidimensional way, we suspected that some items assessed the social and performance factors of state self-esteem proposed by Heatherton and Polivy (1991). A factor analysis was carried out to assess the structure of this scale. Results indicated that the items could be grouped into three factors with Eigenvalues over 1, explaining 55.08% of the variance.

The first factor included four items: socially desirable, likable, attractive, and popular. The following five items loaded on the second factor: competent, confident, adequate, good, and superior. Two items (proud and valuable) loaded on both the first and the second factors. Finally, the following four items loaded on the third factor: inferior, ashamed, bad, and worthless. Interestingly, the first and second factors corresponded, respectively, to the social and performance factors of state self-esteem. In this study, we used only the social and performance factors which have, respectively, internal consistency values of .82 and .87. The items "proud" and "valuable" were not used to compute these scale scores. We did not use the third factor because it is not consistent with the Heatherton and Polivy (1991) typology.

Perceived inclusion   This scale was developed for this study and measures expectations of being accepted by others, including the experimenter. The general question was: "Following this experiment, I thought that the experimenter or

another person could 1) be impressed by my performance, 2) treat me with consideration, 3) show him or herself to be proud of me, 4) overestimate my skills, 5) be agreeably surprised by my answers." Each item was rated on a 7-point scale (*strongly disagree* to *strongly agree*). Factor analysis results indicated that the items could be grouped into one factor that explained 61.63% of the variance. This scale is internally consistent ($\alpha = .84$).

Identified regulation The Identified Regulation subscale of the Situational Motivation Scale (SIMS; Guay, Vallerand, & Blanchard, 2000) was used. This subscale is composed of four items (e.g., Because I believe that this activity is important for me). Each item represents a possible reason for doing the NINA activity. Items were scored on a 7-point Likert scale (*not at all in agreement* to *completely in agreement*). In the present study, the Cronbach alpha for this subscale was .72. In five field and experimental studies, Guay et al. showed that the SIMS has adequate psychometric properties and the identified regulation subscales presented a pattern of correlations consistent with SDT predictions.

RESULTS

MEAN DIFFERENCES

MANOVA reveals some mean differences across the three feedback conditions ($F(8, 166) = 6.37$ $p < .001$). Table 1 presents the means and univariate F-tests based on one-way analyses of variance. Significant differences among all feedback conditions were found on the performance state self-esteem dimension. Furthermore, the success and failure groups differed on perceived inclusion. As expected, task-related identified regulation did not vary as a function of the three conditions. These preliminary results provide some support for ST. Indeed, feedback has an effect on performance state self-esteem and on perceived inclusion. The absence of feedback effect on social self-esteem may not be regarded as problematic for sociometer theory because this theory does not posit that social acceptance in the immediate situation would be affected. Rather this theory capitalizes on the anticipated inclusion that is assessed in the perceived inclusion variable.

TABLE 1
RESULTS OF ONEWAY ANALYSES OF VARIANCE

Factors	Control	Failure	Success	F
Social state self-esteem	3.57	4.07	3.89	1.20
Performance state self-esteem	3.81[a]	3.01[b]	4.69[c]	18.57**
Perceived inclusion	1.95[ab]	1.73[a]	2.40[b]	3.25*
Task-related identified regulation	3.22	2.98	3.44	1.13

Note: *p < 0.05, **p < 0.01, different letters indicate significant differences among experimental conditions.

MODERATED MEDIATION

We examined the feedback $\rightarrow$ perceived inclusion $\rightarrow$ performance self-esteem model as a function of task-related identified regulation. Because there is no effect of the experimental manipulation on social self-esteem, these analyses were only conducted with performance state self-esteem. Muller et al. (2005) have proposed three regression equations to test moderated mediation. In equation 1 (overall effect), the outcome (Y) was regressed on the treatment ($\beta_{11}X$), the moderator ($\beta_{12}Mo$), and the interaction between the moderator and the treatment ($\beta_{13}Xmo$):

$$Y = \beta_{11}X + \beta_{12}Mo + \beta_{13}XMo + \varepsilon_1 \,(1)$$

In equation 1, an overall effect of β_{11X} was expected but the magnitude of this effect did not depend on the moderator ($\beta_{13}XMo = 0$). In equation 2, the mediator (Me) was regressed on the treatment ($\beta_{21}X$), the moderator ($\beta_{22}Mo$), and the interaction between the moderator and the treatment ($\beta_{23}Xmo$):

$$Me = \beta_{21}X + \beta_{22}Mo + \beta_{23}XMo + \varepsilon_2 \,(2)$$

In equation 3, the outcome was regressed on the treatment ($\beta_{31}X$), the mediator ($\beta_{34}Me$), the moderator ($\beta_{32}Mo$) and the two interaction terms, a) moderator by treatment ($\beta_{33}XMo$) and b) moderator by mediator ($\beta_{35}MeMo$):

$$Y = \beta_{31}X + \beta_{32}Mo + \beta_{33}XMo + \beta_{34}Me + \beta_{35}MeMo + \varepsilon_3 \,(3)$$

In equations 2 and 3, we expected that either of the following patterns (or both) should have existed: 1) $\beta_{23}XMo \neq 0$ and $\beta_{34}Me \neq 0$ or 2) $\beta_{21}X \neq 0$ and $\beta_{35}MeMo \neq 0$ to support moderated mediation. Note that Muller et al. have argued that $\beta_{33}XMo$ need not necessarily be significant to establish moderated mediation.

Moderated mediation implies that the indirect effect of the treatment on the outcome depends on the moderator, that is to say either the effect of the treatment on the mediator depends on the moderator ($\beta_{23} \neq 0$, and the average partial effect of the mediator on the outcome $\beta_{34} \neq 0$), and/or the partial effect of the mediator on the outcome depends on the moderator ($\beta_{35} \neq 0$, and the average effect of the treatment on the mediator $\beta_{21} \neq 0$).

We tested these three equations with EQS (version 6.1). We used EQS because 1) it generated bootstrap samples and 2) it allowed for the estimation of two missing observations via EM imputation (i.e., we have two missing values in the data file). In the regression equations, we did not use the control group because participants from this group did not differ from those in the success or failure groups on perceived inclusion. If we used the control group in a set of two dummy variables (i.e., a) failure vs. control and success, b) success vs. control and failure), then no significant effects of the dummy on perceived inclusion would have been observed. Regression equations were thus performed while contrasting only the success and the failure group.

The values for the feedback treatment variable were the following: Failure = -1 and Success = 1. Because the mediator perceived inclusion presented a distribution

that was positively skewed, we performed a logarithmic transformation on this variable and centered it. We also centered the moderator and included age and sex as control variables in each equation. Age and sex were included because women and younger students were perceived to be more concerned with their levels of potential inclusion (Jiang & Cillessen, 2005; Leary et al., 1995). Results are presented in Table 2.

Equation 1 showed two significant effects: participants in the success group and those who had high levels of task-related identified regulation displayed higher levels of performance state self-esteem. As hypothesized, there was no significant interaction effect between the feedback condition and task-related identified regulation.

TABLE 2
UNSTANDARDIZED ESTIMATES FOR THE THREE EQUATIONS TESTING THE
MODERATED MEDIATION MODEL

Criterion	Equation 1		Equation 2		Equation 3	
	Performance State Self-Esteem		Perceived Inclusion		Performance State Self-Esteem	
	b	z	b	z	b	z
Predictor						
1. Age	-.02	-.31	-.11	-2.71*	.03	.56
2. Gender	.01	.05	-.30	-1.25	.16	.58
3. Feedback	.75 (β_{11})	5.34** *	.13 (β_{21})	1.09	.68 (β_{31})	5.05*
4. Task-Related Identified Regulation	.36 (β_{12})	2.54*	.42 (β_{22})	3.52*	.20 (β_{32})	1.35
5. Feedback by Task-Related Identified Regulation	-.13 (β_{13})	-.89	-.26 (β_{23})	-2.06*	.04 (β_{33})	.27
6. Perceived inclusion					.39 (β_{34})	2.69*
7. Task-Related Identified Regulation by Perceived Inclusion					-.17 (β_{35})	-1.19

Note: *$p < .05$.

Equation 2 demonstrated three significant effects: age, task-related identified regulation, and the interaction effect of task-related identified regulation and feedback. Specifically, older participants reported lower levels of perceived inclusion and those with high task-related identified regulation reported higher levels of perceived inclusion. In order to interpret the interaction effect involving a continuous variable, we derived simple slopes for high (+1 *SD*), and low (-1 *SD*) levels of task-related identified regulation (Aiken & West, 1991). As expected, the feedback was not significantly related to perceived inclusion at high levels of the moderator ($b = .07$, *ns*) but was significantly related at low levels ($b = .37$, $p < .05$).

Equation 3 revealed only two significant effects: 1) participants who received a success feedback reported higher levels of self-esteem than did those who received a failure feedback, and 2) those who had higher levels of perceived inclusion reported higher levels of performance state self-esteem. Note that the interaction term involving task-related identified regulation and perceived inclusion was in the expected direction (i.e., no effect of perceived inclusion on state self-esteem at high levels of task-related identified regulation) but it was not significant.

Our results provided relatively good support for our hypotheses; the effect of the treatment on the mediator depends on the moderator ($\beta_{23} \neq 0$).

We used the bootstrap technique to determine whether or not the results are replicable. Bootstrap is useful in examining sampling variability and the accuracy of regression estimates with small samples. In this study, we used EQS to generate 1000 bootstrap samples of 60 participants. In each of these 1000 samples, regression estimates were provided with standard errors (*SE*) for each equation. Results of the bootstrap analyses are presented in Table 3 as a function of the three equations. All estimates were unstandardized and 100% of the bootstrap samples converged. In each equation, we compare results from the traditional method with the bootstrap method. To facilitate the interpretation of results, we did not discuss age and sex effects.

TABLE 3
UNSTANDARDIZED REGRESSION ESTIMATES BASED ON THE ORIGINAL AND BOOTSTRAP SAMPLES
FOR THE THREE REGRESSION EQUATIONS

Original Sample Values			95% Confidence Interval		Bootstrap Values	
Effect	Estimate	*SE*	Standard	Bootstrap	*M*	*SD*
Equation 1						
β_{11}	0.75	0.14	(0.47, 1.03)	(0.41, 1.05)	0.74	0.14
β_{12}	0.36	0.14	(0.06, 0.64)	(0.04, 0.68)	0.35	0.14
β_{13}	-0.13	0.15	(-0.43, 0.17)	(-0.45, 0.17)	-0.14	0.15
Equation 2						
β_{21}	0.13	0.12	(-0.11, 0.37)	(-0.12, 0.39)	0.13	0.12
β_{22}	0.42	0.12	(0.18, 0.66)	(0.19, 0.68)	0.43	0.12
β_{23}	-0.26	0.12	(-0.50, -0.02)	(-0.53, -0.02)	-0.26	0.13
Equation 3						
β_{31}	0.68	0.13	(0.33, 0.93)	(0.33, 0.99)	0.68	0.13
β_{32}	0.20	0.15	(-0.08, 0.52)	(-0.16, 0.54)	0.19	0.15
β_{33}	0.04	0.16	(-0.22, 0.42)	(-0.37, 0.42)	0.03	0.16
β_{34}	0.39	0.15	(0.11, 0.82)	(0.07, 0.71)	0.39	0.15
β_{35}	-0.17	0.14	(-0.52, 0.08)	(-0.52, 0.18)	-0.17	0.15

Note: Normal 95% CIs are computed using estimate ±2 x SE. Percentile 95% CI for bootstrap is defined using the values that mark the upper and lower 2.5% of the bootstrap distribution. CI = confidence interval.

In equation 1, β_{11} is the effect of the feedback manipulation on potential inclusion. The .75 regression estimate of path β_{11} is similar to those observed with the bootstrap samples where the mean of estimates across the 1000 samples is .74. Both the normal theory confidence intervals (CI) and the bootstrap percentiles show that β_{11} is significant (0 is not included in the CI). Path β_{12} represents the effect of the moderator on potential inclusion. The original regression estimate (.36) is comparable to the mean estimates of the bootstrap samples (.35). Both the normal CI and the bootstrap percentile indicate that β_{12} is significant. Path β_{13} represents the interaction effect of the feedback manipulation and task-related identified regulation. Again, the regression estimates and CI are similar from one method to another. In equation 2 and 3, results observed with the original sample are reproduced with the bootstrap samples. Overall, results attest to the robustness of the effects observed.

DISCUSSION

In this study we contrasted two theoretical perspectives that explain why private performance feedback has an effect on state self-esteem. The first perspective, based on sociometer theory, posited that private performance feedback has an effect on state self-esteem because people perceive that they are at risk of being rejected. Thus, according to this perspective self-esteem is purely a gauge of people's inclusion status. In contrast, the second perspective, based on self-determination theory, postulated that the effect of private performance feedback could be funneled by both social inclusion concerns and internal standards depending on the degree to which people value the activity (i.e., identified regulation). Results of this study based on regression analyses performed on the original and bootstrap samples indicated the following: a) the performance feedback has the same effect on performance state self-esteem for individuals high and low in task-related identified regulation; b) for individuals high in task-related identified regulation, the feedback has no effect on perceived inclusion, whereas individuals low in task-related identified regulation experience greater levels of perceived inclusion after success; c) in contrast to our hypothesis, perceived inclusion is as much associated with performance state self-esteem for individuals low and high in task-related identified regulation though the direction of the nonsignificant interaction effect was in the hypothesized direction. Indeed, it appears that there is no effect of perceived inclusion on performance state self-esteem for individuals high in task-related identified regulation whereas for individuals low in task-related identified regulation this effect is significant. Nevertheless, it is important to be careful in the interpretation of this last finding because the interaction term is nonsignificant.

Based on the fact that there is no interaction effect between perceived inclusion and task-related identified regulation to predict performance self-esteem, one may suggest that our moderated mediation model is untenable. However, Muller et al. (2005) have argued that this effect need not necessarily be significant to establish moderated mediation. Indeed, if there is only one of the two indirect effects that is not significant, at a given level of the moderator, then mediation could not be plausible at this level of the moderator.

Taken together, these results indicate that perceived inclusion does not mediate the effect of feedback manipulation on performance state self-esteem for all participants. Although manipulation feedback has the same effect on performance state self-esteem of both groups (high and low task-related identified regulation), it appears this feedback is associated with different concerns for each group. The self-esteem level of the group with low levels of task-related identified regulation seems to be related to perceived inclusion whereas that of the group with high levels of task-related identified regulation appears to be related to internalized standards. In the following section, we discuss why these results represent a potential limit to the sociometer point of view and point out the shortcomings of the present study.

SELF-ESTEEM AS A METER OF RELATIONSHIPS QUALITY

Results of the present study suggest a potential limit to the sociometer perspective. Indeed, this perspective posits that changes in self-esteem are due solely to the inclusion-exclusion process so that self-esteem is purely contingent on approval from others. If this perspective was indeed correct than we should have observed a mediating effect of perceived inclusion between performance feedback and self-esteem for all participants regardless of their task-related identified regulation levels. Obviously, this was not the case. It thus appears that self-esteem could grow from two types of concerns: social or personal. Personal concerns are elicited when people value the activity whereas social concerns operate when the activity is less valued. Of course, we have to be careful with this kind of interpretation because although we have identified a mediator of the effect of feedback on performance state self-esteem for participants low in task-related identified regulation, we have not assessed per se the internal standard mediator for people high in task-related identified regulation. Consequently, we do not know exactly how the feedback is affecting people high in task-related identified regulation although we speculate that they have fallen short of their own personal standards. Hence, future research should verify explicitly whether or not personal standards mediate the effect of feedback on state self-esteem for people high in task-related identified regulation.

In contrast to self-determination theory, sociometer theory suggests that people with low identified regulation have the most functional form of self-

esteem because it allows people to assess accurately and efficiently their social inclusion status. Specifically, being able to target efficiently our own relational status may elicit appropriate behaviors that would increase one's relational status in the future. However, self-determination theory and some recent studies suggest that a focus on social inclusion to build self-esteem is associated with increased levels of defensiveness and costs to relationships, self-regulation, and mental and physical health (Crocker & Knight, 2005; Kernis, 2003; Schimel, Arndt, Pyszczynski, & Greenberg, 2001). In addition, other theoretical frameworks emphasize that a healthier sense of self-esteem does not stem from approval or disapproval from others but rather from integrated goals or values. James (1890), for example, proposed that self-esteem depends on the extent to which individuals are able to achieve the goals that they value. In addition, Csikszentmihalyi and Rathunde (1993) posited that individuals can develop a healthier sense of self-esteem when doing an activity for its own sake and not to obtain approval from others.

Based on the present results and those of past research, it could be fruitful to evaluate the consequences of state self-esteem for individuals high and low in task-related identified regulation. Indeed, it is possible that after failure individuals high in task-related identified regulation could be more persistent at an activity than are those who have low levels of task-related identified regulation despite the fact that both groups report equivalent levels of state self-esteem. More precisely, we hypothesized that individuals who value the activity may have developed the most functional form of state self-esteem that is more genuine whereas state self-esteem of individuals who value the activity less could be less than optimal. Indeed, building state self-esteem on continual validation from others could lead to some psychological costs (Crocker & Knight, 2005). In doing so, this would contribute to actual literature positing that some types of self-esteem are more optimal than others (Baumeister, Campbell, Krueger, & Vohs, 2003).

LIMITATIONS OF THE STUDY AND FUTURE RESEARCH DIRECTIONS

Even though the present results provide some challenges for the sociometer hypothesis, it is important to acknowledge some limitations. First, although most results are in line with our hypotheses others appear paradoxical. Indeed, both individuals with high and low task-related identified regulation base their performance state self-esteem to some extent on their feelings of acceptance. How may we reconcile these apparently paradoxical results? We speculate that individuals high in task-related identified regulation may already feel more socially accepted in a given situation. Indeed, it is possible that because they value the activity, they have developed feelings that others will be happy about their performance regardless of the feedback they receive. In addition, because

they feel more socially accepted, their perceived inclusion is related to their levels of state self-esteem. Consequently, those who already feel accepted in the situation may be less preoccupied with their inclusion status. Future research on this issue could prove fruitful.

Second, in future studies, instead of using only the identified regulation, it could be useful to assess other dimensions of autonomy (Ryan & Connell, 1989) such as intrinsic, introjected, and external regulations. It is quite possible that individuals who have high levels of feelings of introjection such as guilt and anxiety about performing a task, would be the most concerned with social inclusion.

Third, one may argue that self-esteem and perceived inclusion are two separate constructs that do not influence each other (no mediation). Although this alternative model could be plausible, it is important to keep in mind that it is not theoretically grounded in any perspective, which substantially reduced its potential implications.

CONCLUSION

The present research contributes to the existing literature by comparing self-determination theory (Deci & Ryan, 1985) with sociometer theory (Leary & Baumeister, 2000) and showing stronger support for the first theory. Thus, the answer to our initial question in the title "Does Task-Related Identified Regulation Moderate the Sociometer Effect?" is "Yes". For individuals low in task-related identified regulation the sociometer effect is prevalent. However, individuals high in task-related identified regulation seem to use internal values or goals to build their feelings of self-esteem. This study contributes to the current debate on the nature and functions of self-esteem and could generate exciting new lines of inquiry. The present study may also lead to some practical implications. Indeed, task-related identified regulation is associated with higher levels of state self-esteem but also conversely with fewer inclusion concerns after failure. Because task-related identified regulation is a state, rather than a trait, this psychological construct may be more easily changed. Indeed, interventions could target the utility of the task, acknowledge negative feelings of the participants, and support their autonomy in order to raise their levels of task-related identified regulation. In doing so, this may lead to a more genuine type of state self-esteem that is less contingent on approval from others and more focused on internal standards. This kind of genuine state self-esteem could, in turn, foster psychological well-being and adaptation in a given situation (Deci & Ryan, 1995).

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, **4**, 1-44.

Crocker, J., & Knight, K. M. (2005). Contingencies of self-worth. *Current Directions in Psychological Science*, **14**, 200-203.

Csikszentmihalyi, M., & Rathunde, K. (1993). The measurement of flow in everyday life: Toward a theory of emergent motivation. In J. E. Jacobs (Ed.), *Developmental perspectives on motivation: Current theory and research in motivation* (pp. 57-97). Lincoln: University of Nebraska Press.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Deci, E. L., & Ryan, R. M. (1995). Human autonomy: The basis for true self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31-49). New York: Plenum Press.

Greenberg, J., & Pyszczynski, T. (1985). Compensatory self-inflation: A response to the threat to self-regard of public failure. *Journal of Personality and Social Psychology*, **49**, 273-280.

Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion*, **24**, 175-213.

Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology*, **60**, 895-910.

Hirschfeld, A. (1998). *Hirschfeld on line*. New York: Applause Theatre Book Publishers.

James, W. (1890). *The principles of psychology*. New York: Henry Holt and Company.

Jiang, L. X., & Cillessen, A. H. N. (2005). Stability of continuous measures of sociometric status: A meta-analysis. *Developmental Review*, **25**, 1-25.

Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry*, **14**, 1-26.

Leary, M. (1999). The social and psychological importance of self-esteem. In R. M. Kowalski & M. R. Leary (Eds.), *The social psychology of emotional and behavioral problems: Interfaces of social and clinical psychology* (pp. 197-221). Washington: American Psychological Association.

Leary, M. (2004). The function of self-esteem in terror management theory and sociometer theory: Comment on Pyszczynski et al. (2004). *Psychological Bulletin*, **130**, 478-482.

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1-62). San Diego: Academic Press.

Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*, **68**, 518-530.

Muller, D., Judd, C. M., & Yzerbyt, V. (2005). When moderation is mediated and mediation moderated. *Journal of Personality and Social Psychology*, **85**, 852-863.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, **57**, 749-761.

Schimel, J., Arndt, J., Pyszczynski, T., & Greenberg, J. (2001). Being accepted for who we are: Evidence that social validation of the intrinsic self reduces general defensiveness. *Journal of Personality and Social Psychology*, **80**, 35-52.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Social Psychology*, **29**, 271-361.

Vallerand, R. J., Guay, F., Blanchard, C. M., Mageau, G., & Cadorette, I. (2006). A confirmatory test of some elements of the hierarchical model of intrinsic and extrinsic motivation. Manuscript in preparation.