The Effects of Self-Presentation on Perceived Exertion

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This study was designed to examine the audience-pleasing and self-constructional aspects of self-presentation on perceived exertion. Subjects performed two 18-min sessions on a cycle ergometer at light, moderate, and heavy workloads, during which perceived exertion and heart rate were collected. Each subject participated in a male and female experimenter condition. Males reported significantly lower perceived exertion in the female experimenter condition at the heavy load, compared to the same load in the male experimenter condition. There were no other significant differences for males or females at any of the workloads in either condition. Responses on the Self-Monitoring Inventory were used to assign subjects to either a high or low self-construction group. Results indicated that high self-constructors recorded significantly lower perceived exertion, compared to low self-constructors, at the low and moderate workloads.

Rating of perceived exertion (RPE) during exercise represents an individual's subjective assessment of work intensity. Borg (1962) suggests that RPE is a "gestalt" formed from an overall perception of effort. The manner in which this gestalt is established, however, is not clearly understood (Mihevic, 1981). Although RPE has traditionally been viewed as the direct result of physiological cues (e.g., muscle strain, lactic acid accumulation, cardiopulmonary feedback), several researchers suggest that psychological variables play an important role in RPE (Mihevic, 1981; Pandolf, 1983; Rejeski, 1985).

Rejeski (1985), for example, has outlined a parallel-processing model of RPE suggesting that RPE can be influenced by psychological processes. The one tenet of this model is that processing of sensory information can be influenced by affective schema. Consequently, these schema may be responsible for altering perceptions or making distress cues available to conscious awareness, thereby influencing RPE. Furthermore, Rejeski (1985) suggests that when individuals

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are working at near maximal capacity, physiological cues will function as the most salient source of input. When work is performed at less intensity, however, psychological information becomes more relevant.

Evidence supporting the influence of psychological factors on RPE has been provided by manipulating motivational strategies (Rejeski & Ribisl, 1980), verbal interaction (Franks & Myers, 1984), augmenting and reducing receivers (Robertson, Hiatt, Gillespie, & Rose, 1975), Type-A individuals (Carver, Coleman, & Glass, 1976), and social influence (Hardy, Hall, & Prestholdt, 1986). For instance, Rejeski and Ribisl (1980) found that subjects reported lower RPEs when led to believe they would be exercising for 30 minutes as compared to 20 minutes. However, this effect was not present toward the end of the exercise bout when internal physiological cues were most intense, and therefore increasingly salient. The authors concluded that psychological influences on RPE may be limited to submaximal work.

Hardy et al. (1986) conducted two experiments examining the role of social influence on RPE. In the first experiment, subjects exercised at different workloads on a cycle ergometer alone and in the presence of another exerciser. The findings suggested that subjects reported lower RPEs when performing with another exerciser during the moderate workload. In the second experiment, the accompanying exerciser exhibited nonverbal cues indicating that the work was either extremely hard or extremely easy. Results indicated that at moderate work intensities subjects exposed to "easy" cue information reported lower RPEs, as compared to performing alone. Hardy et al. suggest that psychological factors can play a significant role in RPE at moderate exercise intensities.

Collectively, these findings suggest that both environmental information (e.g., motivational strategies, talk, coactors) and subject characteristics (e.g., Type-A individuals, reducers) can influence RPE. A framework to explain many of these results is provided by self-presentation theory (Baumeister, 1982; Schlenker & Leary, 1982). Self-presentation is used by individuals to generate positive self-images of themselves to others (Baumeister, 1982). In social situations, individuals typically attempt to present themselves in a socially desirable manner by appearing attractive, competent, and honest (Baumeister, 1982). Data regarding conformity (Braver, Linder, Corwin, & Cialdini, 1977), attitude expression (Worchel & Cooper, 1979), responses to evaluation (Schlenker, 1975), aggressive behaviors (Schwartz & Gottlieb, 1980), attributional statements (Bradley, 1978), and task performance (Baumeister, Cooper, & Skib, 1979) have been used to provide support for self-presentational theory. Baumeister (1982) describes two main aspects of self-presentation: the motive to please the audience (audience-pleasing) and the motive to maintain the consistency of one's public self with one's desired self (self-construction).

The defining characteristics of audience-pleasing self-presentation is that individuals attempt to present themselves favorably in accordance with the values of the audience (Schlenker & Leary, 1982). In turn, this aspect of self-presentation is specific to a particular audience and is generated by the motive to obtain rewards controlled by the audience. Self-construction, on the other hand, is the motive to impress others in general (i.e., the qualities of the desired self are defined by the individual rather than by the audience). Baumeister (1982) suggests that self-construction is less susceptible to variation than audience-pleasing self-presentation. Therefore the differences in cross-situational consistency between
these two aspects of self-presentation is brought about by the stable, unchanging nature of the desired self as compared to the changing self-presentation demands of different audiences.

Audience-pleasing self-presentation is important in winning the affection of others and can be used to influence other persons concerning the attractiveness of one's personal qualities (Jones & Wortman, 1973). The influence of the interpersonal attraction aspect of self-presentation on RPE, however, has yet to be examined.

Research examining sex roles (Kane, 1982; Snyder & Spreitzer, 1979) suggests that marked attitudinal differences exist between the sexes. Males consistently demonstrate greater achievement orientations in their attitudes toward competition, whereas females exhibit fairness as the most important value (Kane, 1982). Therefore it is plausible that males may find exercise situations to be more evaluative and competitive than their female counterparts. A procedure for testing this self-presentational motive would be to involve male and female subjects in exercise situations that are identical in all respects except for the gender of the experimenter.

The purpose of this study, therefore, was to examine the effects of experimenter gender (audience-pleasing) on RPE. It was hypothesized that male subjects would report lower RPEs at low and moderate exercise loads in the presence of a female experimenter. It was further predicted that, regardless of gender, subjects who possessed stronger self-constructional tendencies would report lower RPEs at low and moderate work levels.

Method

Subjects

Untrained male \((n = 20)\) and female \((n = 20)\) undergraduates were recruited from physical education activity classes under the guise that they would be participating in a fitness evaluation study. Biometric data are presented in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Males</th>
<th>Females</th>
</tr>
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<tbody>
<tr>
<td>Age (yrs)</td>
<td>20.8</td>
<td>18.85</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>69.83</td>
<td>64.76</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>161.31</td>
<td>129.10</td>
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<tr>
<td>Estimated max (\text{VO}_2) (ml/kg/min)</td>
<td>42.21</td>
<td>35.34</td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>12.8</td>
<td>11.75</td>
</tr>
</tbody>
</table>

Table 1
Biometric Data
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Instrumentation

Performance. Subjects exercised on a cycle ergometer (Monark), calibrated before and during the study. A Franz electronic, audiovisual metronome (Model LM-FB-4) was employed to regulate subjects' pedaling revolutions per minute (60 rpm).

Physiological. Heart rate was recorded by a Cambridge electrocardiogram (Model VS4). Electrodes were placed at the sternum, the fourth interspace at the right sternal margin, and to the left of the fifth thoracic vertebrae. An ECG strip was recorded for the last 10 seconds of each minute of the testing period, and a minute rate was calculated from seven interbeat intervals.

Perception of Exertion. RPE was measured using the 15-point Borg scale (Borg, 1962), which has been found a valid and reliable measure of perceived exertion during exercise (Borg, 1982). Numerous studies have demonstrated the suitability of this instrument for assessing perceived effort during physical work (see Borg & Noble, 1974).

Self-Presentation. The self-constructional aspect of self-presentation was measured by the Self-Monitoring scale (Snyder, 1972). This scale is a set of 25 true–false self-descriptive statements that describe (a) concern with social appropriateness, (b) attention to social comparison information, (c) the ability to control and modify one's self-presentation, and (d) the extent to which one's self-presentation is tailored to fit the social situation. The reliability of the scale and the validity of assessing self-presentation tendencies are documented by Snyder (1979).

Procedures

Subjects participated in three experimental sessions distributed over a 4-week period. Each session lasted approximately 35 minutes, and every subject had a minimum of 2 days rest between sessions. Subjects were asked to refrain from eating for 3 hours prior to testing, and each session was conducted at a similar time of day.

Workloads. The initial session involved completing an informed consent form and a personal health/exercise inventory, and undergoing a submaximal fitness test. A secondary purpose of the initial session was to acclimate subjects to the laboratory setting, instrumentation, and testing protocol. The submaximal fitness test consisted of three consecutive 6-min ergometer rides in which the workloads were selected to produce heart rates of approximately 120, 150, and 170 bpm. The working capacity was calculated by plotting HR against the workload at the end of each trial (deVries, 1980). From each subject's working capacity, loads corresponding to 60% (light), 75% (moderate), and 85% (heavy) of maximal HR were determined. In the remaining two sessions each subject performed one session with the female experimenter and one with the male experimenter. Order of sessions was counterbalanced.

Sessions. Upon arriving for Sessions 2 and 3, subjects were fitted with electrodes and were told they would be performing at three different work intensities that would increase in difficulty throughout the test period. Each session consisted of a 3-min warm-up at 50 watts (60 rpm), three successive 6-min trials
at workloads equal to 60%, 75%, and 85% of maximal HR, followed by a 3-min warm-down at 60 rpm. The experimenter sat in full view of the subjects during testing. The Borg scale was positioned on a table at eye level 2 m directly in front of the cycle ergometer. RPE was assessed every 1, 2 1/2, 4, and 5 1/2 minutes of each trial.

At the completion of Session 3, subjects were requested to complete the self-monitoring scale prior to departure. Following completion of testing, subjects were informed of an upcoming debriefing session during which the results of the study would be discussed.

Results

Audience-Pleasing Effects

A 2 (Experimenter Gender: male, female) × 3 (Work Intensity: light, moderate, heavy) × 2 (Subject Gender: male, female) within-subject design was used to examine the hypotheses of interest for RPE and HR. The analysis revealed a significant three-way interaction, $F(2, 76)=4.46, p<.01$, and a significant main effect for load, $F(2, 76)=858.13, p<.01$. Bonferroni t statistics were used to examine the mean comparisons at each workload. Male subjects’ responses in the female experimenter condition ($M= 16.89, SD=1.22$) were significantly lower than responses in the male experimenter condition ($M= 17.79, SD=1.23$) at the high load intensity, $t(19)=8.25, p<.01$. No significant differences existed for male RPE responses in the female ($M= 13.31, SD=1.28$) and male experimenter conditions ($M=13.03, SD=1.43$) at the medium load intensity. Similarly, no significant differences existed in the female ($M=9.10, SD=1.63$) and male experimenter conditions ($M=8.29, SD=1.41$) at the light load intensity. Figure 1 indicates the RPE means for each workload for male subjects in the male and female experimenter condition.

No significant comparisons existed for females at the heavy work intensity in the female ($M= 16.84, SD=2.18$) and male experimenter conditions ($M= 17.00, SD=2.71$), for moderate work intensity in the female ($M=12.93, SD=2.09$) and male experimenter conditions ($M=13.09, SD=2.43$), and for the light work intensity in the female ($M=9.06, SD=1.87$) and male experimenter conditions ($M=8.96, SD=1.88$). These results indicate that the only significant changes in RPE between experimenter conditions were for males in the female experimenter condition at the heavy workload (see Figure 1).

Self-Constructional Effects

To examine the effects of self-construction on RPE, males and females were divided into high and low self-constructors based on the self-monitoring scale. A median split resulted in a high self-constructor group ($n=20, M=15.30, SD=2.05$) consisting of 11 males and 9 females, and a low self-constructor group ($n=20, M=9.25, SD=2.26$) consisting of 9 males and 11 females. As there were no significant differences between the RPE responses of these two groups in the male and female experimenter conditions, these data were collapsed across experimenter gender.

A 2 (Self-Construction: high, low) × 3 (Work Intensity: light, moderate,
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heavy) within-subject design was used to examine the effects of self-construction on RPE. The analysis revealed a significant main effect for self-construction, $F(1, 38)=4.23, p<.05$. Bonferroni comparisons on the simple means indicated that high self-constructors ($M=8.60, SD=1.82$) recorded significantly lower RPE, $t(38)=1.66, p<.05$, than low self-constructors ($M=9.43, SD=1.29$) at the low intensity level. No significant differences existed, $t(38)=1.66, p>.05$, between high self-constructors ($M=12.52, SD=2.03$) and low self-constructors ($M=13.66, SD=1.31$) at the moderate intensity level, although the trend was in the predicted direction ($p=.053$). Similarly, there were no significant differences, $t(38)=0.98, p>.05$, between high ($M=16.84, SD=2.03$) and low self-constructors ($M=17.42, SD=1.68$) at the high intensity level. Figure 2 describes the RPE means of each workload for high and low self-constructors.

Figure 1 — RPE responses for males in the female and male experimenter conditions.
Heart Rate

Analysis of the heart rate data failed to produce any significant differences for any group among any of the workloads. These results are presented in Figure 3.

Discussion

The results of this study indicate that both audience-pleasing and self-constructional aspects of self-presentation affect RPE. In addition to sensory information, male subjects appeared to take into account the gender of the experimenter in forming their perception of exertion at heavy work intensities. Furthermore, regardless of sex or experimenter gender, subjects who possessed greater self-constructional tendencies reported lower RPEs at moderate work intensities. These data further support previous studies demonstrating that perceived exertion consists of both psychological and physiological input.
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Figure 3 — Heart rate responses of males and females in the different experimenter conditions and heart rate response of high and low self-constructors for the different workloads.
That the male subjects' RPE was influenced at the heavy intensity supports Rejeski and Ribisl's (1980) study which demonstrated that RPE can be influenced by psychological variables at relatively intensive workloads (85% of maximal oxygen uptake). In the present study, however, RPE was only influenced at high intensity loads in the presence of the female experimenter and was not observed at the light or moderate workloads. Consequently, males may have lowered RPEs in an attempt to look good in the presence of the female experimenter when the effects of exercise (increased sweating and breathing) were the most severe. Therefore it is plausible that male subjects perceived the heavy work condition to be a situation of high social evaluation. Thus the lack of audience-pleasing effects for the females in the male experimenter condition may be related to the tendency for males, much more than for females, to receive strong socialization for competitive success. Generally, females are socialized to be less competitive and less motivated to achieve (Zoble, 1972).

These results support Worringham and Messick's (1983) naturalistic study examining the effect of a female observer on the behavior of male joggers. Male runners were inconspicuously timed while running on a jogging trail in the presence of a female observer. The results demonstrated that runners in the female observation condition significantly accelerated their pace compared to those running alone. The authors explained this change in behavior as reflecting the male runner's desire to look good in the presence of a female.

The tendency of high self-constructors to report lower RPEs at the moderate workload supports the notion that psychological variables can also influence RPE at lower intensity levels. It appears that high self-constructors possessed greater concern over self-image. Their lower RPEs, compared to the low self-constructors, may represent an attempt to match behavior with a perception of desired self. However, it appears that as the workload intensity increased, the self-construction tendency became less salient. It should be noted, however, that as self-constructional tendencies were assessed post hoc, the possibility of demand characteristics exist. This limitation was deemed to be preferable to administering the questionnaire before testing, which may have altered subjects to the true purpose of the study.

These results suggest that both audience and self-constructional aspects of self-presentation can affect RPE. Therefore the social environment in which male subjects worked at high work intensities in the presence of the female experimenter may have initiated the reporting of lower RPEs, regardless of self-constructional tendencies. Conversely, the self-constructional factor appeared to be most prevalent at moderate workloads when physiological stimuli were less intense.

These data support previous studies (Barnes & Rosenthal, 1985) suggesting that experimenters can influence laboratory environments generally regarded as socially uncontaminated. Furthermore, several researchers (Franks & Myers, 1984; Mason, 1975) have indicated that psychological variables have generally not been considered as confounding variables in the exercise testing setting. Consequently, much of the response to exercise stimuli may actually be a response to motivational and emotional factors associated with the exercise environment.

Collectively, these findings support and extend recent conceptualizations of RPE which have incorporated a role for psychological influences in the determination of RPE (Pandolf, 1983; Rejeski, 1985). The tendency of high self-constructors to report lower RPEs at moderate work levels supports previous
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In summary, these results suggest that physiological variables do- heating effects of exercise on female, Journal of Psychology

Research (Hardy et al., 1986). The lowering of RPEs by males performing heavy

Research can also influence RPE, even for heavy workouts.

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