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Antecedents of Self-Related Affects in Sport: Preliminary Evidence on the Intuitive-Reflective Appraisal Model

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In line with various cognitive theories of emotion, Vallerand (1983, 1984) has proposed an intuitive-reflective appraisal model for self-related affects in achievement situations. A fundamental postulate of the model states that it is the cognitive evaluation of events and not events per se that produces emotions. Such cognitive evaluation can be seen as intuitive (almost automatic) and reflective (deliberate) in nature. Whereas the intuitive appraisal is akin to one's almost automatic subjective assessment of performance, the reflective appraisal is hypothesized to include several forms: (a) intellectualization, (b) comparison (self, outcome, and social) processes, (c) mastery-related cognitions, (d) information processing functions, and (e) causal attributions. Two studies tested some of the model's postulates in field (Study 1) and laboratory (Study 2) settings. Results showed support for some of the model's postulates in that both the intuitive and reflective attributional appraisals were found to have important effects on self- and general-type affects. In addition, perceptions of success/failure (the intuitive appraisal of performance) had more potent effects on affects than did objective success/failure. On the other hand, the intellectualization reflective appraisal (task importance) did not have appreciable effects on affects. Results are discussed in light of the intuitive-reflective appraisal model, and implications for future studies on emotion in sport are underscored.

Affect or emotion pervades the lives of individuals. Present in various forms, it may have very different effects on behavior. Some authors (e.g., Arnold, 1960, 1970; Leeper, 1948; Weiner, 1985a) even suggest that affect may be the most important motivational factor in behavior, yet others recognize its fundamental role in personality adjustment (e.g., Harter, 1986). Thus it is not surprising that a call has recently been voiced for more research on this impor-

tant concept in the context of sport (Harter, 1981; Silva & Hardy, 1984; Vallerand, 1983, 1984).

One topic that appears important to study in the affective realm deals with the antecedents of discrete emotions. Research on this topic has generally adopted one of three approaches: the physiological (e.g., Cannon, 1927; James, 1884; Tomkins, 1981), the behavioral (e.g., Dollard, Doob, Miller, Mowrer, & Sears, 1939; Watson & Rayner, 1920), and the cognitive (e.g., Arnold, 1960; Lazarus, 1984; Schachter, 1964; Weiner, 1985a). Although much research has been conducted from the first two perspectives, a considerable amount of research has accumulated over the past 25 years indicating that cognitions play a causal role in the experience of emotion (see London & Nisbett, 1974; Mandler, 1984; Strongman, 1978 for reviews). Due especially to the theoretical work of Schachter (1964), Lazarus (1966, 1984), Arnold (1960), and more recently Mandler (1975, 1984) and Weiner (1981, 1985a), it is now accepted that the emotion experienced in a given situation depends upon how the individual appraises the event.

Elaborating on the above theories and recent social-psychological research, Vallerand (1983, 1984, 1986) has recently proposed a cognitive model for self-related affects in achievement situations. Vallerand's model posits that emotion is the result of cognitive appraisals, that is, it is the subjective appraisal of events and not events per se that produces emotions. In addition, cognitive appraisals can be intuitive (almost automatic) and reflective (deliberate) in nature. The distinction between intuitive and reflective forms of appraisal is well documented (see Buck, 1985; Vallerand, 1986) and allows for the meaningful explanation and prediction of self-related affects.

Intuitive appraisal involves minimal cognitive processing and mainly involves left-brain activity. For instance, knowledge that one has not played well is often immediate following (or during) a match without the need of more elaborate forms of cognitions. While several forms of intuitive appraisals may exist (see Kassin & Baron, 1986; Vallerand, 1986) it will suffice here to underscore that with respect to sport performance, the mere understanding that one has (or has not) performed well represents the most important form of intuitive appraisal of performance. This is supported by much research in education (e.g., Arkin & Maruyama, 1979; Bailey, Helm, & Gladstone, 1975; Forsyth & McMillan, 1981; Frieze, Fontaine, & Snyder, 1977; McMillan & Forsyth, 1983; McMillan & Spratt, 1983) that has shown that perceptions of performance are related to self-related affects. Unfortunately, the link between self-related affects and the subjective appraisal of one's performance has not been studied in sport.

Reflective appraisal processes, on the other hand, involve deliberate cognitive processing of information dealing with the external or the internal (e.g., memory) environment. Such processes deal mainly with right-brain cognitive activity. The reflective appraisal can take several forms, all of which may be used in various sport situations. The postulated reflective appraisal processes are: (a) intellectualization (Lazarus, 1966), (b) self, outcome, and social comparison processes (Suls & Mullen, 1983), (c) various information processing functions (Markus & Zajonc, 1985), (d) mastery-related cognitions (Taylor, 1981), and (e) causal attributions (Weiner, 1979, 1985a). Because the studies reported deal mainly with the attributional reflective appraisal, its relationship with self-related affects will be discussed. (See Vallerand, 1986, for a discussion on the other types of reflective appraisals.)

Attributions deal with the explanation of events. Attributions can be regrouped under the dimensions of locus of causality (internal vs. external), stability (stable vs. unstable), and control (controllable vs. uncontrollable) (Weiner, 1979, 1985a). According to Weiner (1985a), the locus of causality dimension is the crucial determinant of self-related affects. Thus, making internal attributions such as ability and effort for one's success should have a positive impact on self-related affects whereas external attributions for the same event should minimize positive effects on self-related affects. Opposite relations are hypothesized in failure situations. Research in laboratory (McFarland & Ross, 1982; Reimer, 1975; Vallerand & Blais, 1986, Exp. 2) and educational settings (e.g., Forsyth & McMillan, 1981; Sobol & Earn, in press) is generally supportive of these relationships between attributions and self-related affects. However, though attributions have been studied in the context of sports and physical activity (e.g., McAuley, Russell, & Gross, 1983; Rejeski & Lowe, 1980), the link between internal attributions and self-related affects has yet to be firmly established.

An important postulate of the present model is that the intuitive appraisal (perception of performance) is always implicated in the formation of emotion. Although there is no direct evidence for this assumption, indirect evidence indicates that affect appears to be experienced in the absence of reflective appraisals (see Buck, 1985; Lazarus, 1982, 1984), and that subjective assessment of performance often is a more important determinant of affect than reflective appraisals such as attributions (e.g., Forsyth & McMillan, 1981; McMillan & Spratt, 1983).

Another postulate of the model is that the reflective, and thus the attributional, appraisal is not necessary for self-related affects to take place and serves only to modify, minimize, or augment the effects of the intuitive (or performance) appraisal on affects. Although no direct evidence can be mustered for this postulate, it is nevertheless consistent with research that shows people make use of reflective appraisals only in certain situations (see Weiner, 1985b), and that reflective appraisals such as attributions are not always related to affects (see Coyne, 1982).

If the reflective appraisal is not always involved in the affect-generation process, then it becomes important to indicate when it is operative. In order to answer this question one must deal with the roles and functions of cognitive appraisals. The role of cognitive appraisals is to treat incoming information from the environment in a coherent and meaningful way. It is the individual's self-concept structures that enable incoming information to achieve meaning and to be coherently organized (e.g., Epstein, 1973). Incoming information is appraised first through the intuitive appraisal. When such appraisal reveals that outcomes or goals are consistent with the basic self-structures, no further cognitive activity would be necessary as the fit between existing structures and the event is sufficient to lead to affective experiences (Fiske, 1981, 1982; Mandler, 1984). In such instances, task importance (Brown & Weiner, 1984; Weiner & Brown, 1984) or meaning (e.g., Maehr & Braskamp, 1986) plays an important role in the intensity (arousal) of the affect experienced.

However, if the incoming information is perceived as being inconsistent with some important self-structures, then arousal is experienced. This arousal leads to further cognitive activity, the reflective appraisal, in an attempt to assimilate the information into existing structures or to accommodate the information in new structures and thus reduce the arousal. In addition, novel situations

for which no self-structures exist are also arousing (Berlyne, 1970) and may lead to additional cognitive work to reduce arousal and make full sense of the new information such situations contain (see Oatley & Bolton, 1985, for a related theory of depression).

Research consistent with the above postulate reveals that novelty (e.g., Berlyne, 1970), uncertainty (e.g., Schachter & Singer, 1962), unexpected events (i.e., inconsistent with the self) (Wong & Weiner, 1981), the nonattainment of goals (e.g., Weiner, 1985b; Wong & Weiner, 1981), and the importance of the task (e.g., Brown & Weiner, 1984; McMillan & Spratt, 1983; Weiner, 1985b), lead the individual to engage in further cognitive work beyond the intuitive appraisal.

Finally, a few words are in order concerning the model's originality. The model is similar to those of Arnold, Lazarus, and Weiner in that it postulates that cognitive appraisals produce emotions. It is different from the Schachter model which posits that cognitions serve *only* a labeling function on already preexisting levels of arousal. However, in partial agreement with Schachter, it acknowledges that in limited instances arousal may trigger cognitions (the reflective appraisal) that in turn will generate affect. The present model also agrees with Arnold and Lazarus to the effect that cognitive appraisals can be either intuitive or reflective in nature. However, it distinguishes itself from other cognitive theories on several accounts. For instance, the present model does not deal exclusively with negative emotions as does the Lazarus model. Also, contrary to Arnold, who does not specify which types of appraisal processes are involved in the production of affect, the intuitive-reflective appraisal model postulates that several types of reflective appraisal processes may be operative at various times.

Finally, the present model is in partial agreement with Weiner's (1985a) theory of emotion with respect to the role of the intuitive and reflective (attributional) appraisal processes in the production of self-related and general-type (e.g., sad/happy) affects. Weiner proposes that in achievement situations the outcome produces general-type affects whereas attributions have an impact on self-related affects. On the other hand, the present model posits that the intuitive appraisal of performance has important effects on both general and self-related affects. Furthermore, attributional processes may not always be involved in the emotion process. When operative, however, attributions may affect both types of emotions. In further contrast to the Weiner model, the intuitive-reflective appraisal model proposes that several types of reflective appraisals in addition to attributional processes may have causal effects on affects.

In sum, the intuitive-reflective appraisal affect model generates several interesting and important testable hypotheses with respect to the antecedents of affect in achievement situations. The results of two studies that tested some of the postulates of the model are reported in the following sections. Study 1 was conducted in the field with basketball athletes and Study 2 was carried out in the laboratory. It will be seen that both studies yielded similar findings, lending support for the intuitive-reflective appraisal affect model.

Study 1

The purpose of Study 1 was to test hypotheses derived from the model as applied to sport. Specifically, one purpose was to test the potential role of the

intuitive performance and the reflective attributional appraisals in the production of general and self-related affects in both success and failure conditions. The second purpose was to test the relative contribution of the two types of appraisals in the production of general and self-related affects in such situations. The study was performed with basketball players who filled out scales assessing intuitive personal performance and attributional reflective appraisals, and general and self-related affects. It was hypothesized that the intuitive performance appraisal would be implicated in the production of both types of affects in both success and failure situations.

On the other hand, in line with assumptions of the model to the effect that inconsistencies between self-structures and events generate much reflective appraisal activity, attributions were expected to be involved in the generation of negative affects much more than in that of positive affects. When involved, internal attributions were expected to augment the effects of the intuitive appraisal. Yet, external attributions were hypothesized to minimize the effects of the intuitive performance appraisal. Thus, although the intuitive performance appraisal was expected to be positively related to affects, internal attributions were hypothesized to be positively and negatively related to both types of affects in success and failure situations, respectively. Conversely, external attributions were hypothesized to be negatively and positively related to both types of affects in success and failure situations, respectively.¹

Method

Subjects. Subjects were 93 male and female French-Canadian basketball players of the province of Québec. These athletes were members of 10 high school basketball teams who were participating in provincial tournaments. Subjects' ages varied from 14 to 17 years with a mean age of 15.9 years. The only data considered came from players who played in the particular game in which data were collected.

Questionnaire. The questionnaire used in this study was made up of four scales assessing the subjective performance appraisal, attributions, affects, and sociodemographic variables. On the first page subjects were asked to subjectively evaluate their performance. The question was, "To what extent have you had a good or bad game as a player today?" The question was meant to reflect the concept of intuitive appraisal as applied to personal performance evaluation. It was presented on a scale ranging from -4 (very bad game) to +4 (very good game). This was later transformed to a 9-point scale.

In line with the intuitive-reflective appraisal model, subjects were asked to report on their reflective appraisal (attributional) processes and to "indicate to what extent the following factors caused your good (bad) personal game": luck (bad luck), support (lack of) from the coach, help (lack of) from teammates, mood, ability (lack of), discipline (lack of), effort (lack of), and the basketball court. Attributions were scored on scales ranging from 1 (not at all) to 9 (entirely). These 8 attributions were selected from a series of 17 obtained by Blais et al. (1982) in their study on open-ended attributions of basketball players. The attributions were judged by three experts in sport psychology to reflect Weiner's (1979) three-dimensional taxonomy of locus (internal/external), stability (stable/instable), and control (controllable/uncontrollable). The 8 attributions were presented in a randomly determined order.

Subjects were also asked to "indicate how you feel presently following this game." There were six affects. Four were self-related: incompetence/competence, shame/pride, insecure/confident, and discouraged/encouraged. Two were general-type affects: dissatisfied/satisfied and sad/happy. Affects were scored on scales ranging from -4 (e.g., very incompetent) to +4 (e.g., very competent). Scales were later transformed to 9-point scales. Finally, on the last page of the questionnaire, subjects responded to questions regarding gender, age, and other information not discussed in the present study.

Procedure. Immediately following their first game of a tournament, players were brought to a classroom adjacent to the gymnasium. Because of game schedules, players responded to the questionnaire in groups of from one to four teams. They were seated on comfortable chairs and placed about three at a table. Once in the classroom, they were told the purpose of the "survey" was to learn more about what basketball players think after games. The experimenter emphasized that there were no right or wrong answers. Subjects were told not to put their names on the questionnaire. Anonymity was assured and subjects were asked to give honest answers. Following these instructions they were given the questionnaire, which took 10 to 15 minutes to complete. Afterward subjects were told the purpose and hypotheses of the study, thanked for their cooperation, and dismissed.

Results

Preliminary Analyses. No significant gender differences were found on the variables assessed in this study (all $t_s < .13$). Therefore gender will not be considered further in the analyses reported below.

In order to reduce the variables to interpretable factors to be used in the regression analyses, we performed a factor analysis (Rao) on the eight attributions. A first analysis performed revealed the presence of three factors with eigenvalues greater than 1. The goodness-of-fit index was $\chi^2(7) = 7.97$, n.s. While this index revealed that the fit was adequate, factors were not clearly interpretable.² Therefore a second analysis was conducted, this time specifying only two factors in the solution. Results from this analysis revealed an acceptable goodness-of-fit index, $\chi^2(13) = 14.02$, n.s. and two factors that were clearly interpretable. The first factor explained 42.7% of the variance and was composed of the following variables: ability (.55), discipline (.63), effort (.82), and mood (.45). This factor represents an internal attribution factor. The second factor explained 13% of the variance and was composed of support from the coach (.69) and help from teammates (.76). This factor represents an external attribution factor.

Internal consistency analyses also revealed that the internal factor was very reliable ($\alpha = .83$) and that the support from the coach and help from teammates variables were moderately correlated ($r = .58, p < .001$). In sum, the two-factor solution appears adequate for the present set of data. It is important to note that the luck and basketball court attributions did not load ($< .30$) on either of the two factors. They were therefore discarded.³ Scores on the two attribution factors were obtained by summing the variables on the respective factors (McFarland & Ross, 1982). Finally, internal consistency analyses were conducted on the variables forming self- and general-type affects. Alpha indices of .88 and .87, respectively, were obtained for these two scales.

Affects as a Function of Perceived Personal Success/Failure and Attributions. Subjects who indicated on the questionnaire having experienced a positive personal performance (5 to 9) were separated from those who experienced a negative personal performance (1 to 4). In line with Frieze, Francis, and Hanusa (1983), these two conditions are referred to as perceived success and failure conditions. Initially we intended to carry out analyses of variance including perceived success/failure and high and low degrees of internal and external attributions. However, this proved to be impossible as the correlations between internal attributions and subjects' performance appraisal produced some empty cells. Thus the effects of perceived success/failure and internal attributions were tested through t tests within conditions. In order to perform such analyses, subjects' responses on the internal attributions were split at the median within the perceived success and failure conditions. ANOVAs could be performed with external attributions, however.

To test the effects of perceived success/failure and internal attributions, we performed t tests. Means for self- and general-type affects as a function of perceived success and failure are presented in Table 1. Results from the t -test analy-

Table 1
Self- and General-Type Affects
as a Function of Perceived Success/Failure
and High and Low Degrees of Internal Attributions

	Perceived success Internal attributions		Perceived failure Internal attributions	
	High	Low	High	Low
Self-related affects	28.50	21.96	14.94	16.67
General-type affects	14.29	10.69	5.50	5.67
<i>n</i>	34	26	18	15

n: number of subjects per cell. Note: Because of empty cells, different medians were used for the perceived success and failure conditions. Scores can vary from 4 to 36 for self-related affects and from 2 to 18 for general-type affects. Higher scores are indicative of more positive affects.

ses revealed that subjects in the perceived success condition reported experiencing significantly more self- ($M = 27.22$) and general-type affects ($M = 16.32$) than subjects in the perceived failure condition (16.32 and 5.74, respectively; $t_s(91) = 8.74$ and $10.11, p < .0001$, respectively). Results of the t tests performed on affects as a function of internal attributions in the perceived success and failure conditions revealed that subjects in the perceived success condition who made high levels of internal attributions reported experiencing significantly more self- and general-type affects than did subjects who made low levels of internal attributions ($t_s(58) = 3.82$ and $3.85, p < .0001$, respectively). On the other hand,

no significant effects due to internal attributions were obtained in the perceived failure condition. It is worth noting, however, that there was a nonsignificant tendency for subjects who made low levels of internal attributions (16.67) to experience somewhat more self-related affects than subjects who made high levels of internal attributions (14.94). This trend was not evident for general-type affects.

Analyses of variance involving perceived success/failure and external attributions were performed and no empty cells were obtained. Mean affects as a function of perceived success/failure and external attributions are presented in Table 2. Results of the ANOVAs revealed that all main effects and the interaction were significant. More specifically, subjects who perceived their performance to be a success experienced significantly more self- ($M = 25.67$), $F(1, 89) = 23.70$, $p < .001$, and general- ($M = 12.73$), $F(1, 89) = 46.52$, $p < .001$, type affects than subjects who perceived their performance as a failure ($M_s = 15.72$ and 5.57 for self- and general-type affects, respectively).

Table 2
Self- and General-Type Affects
as a Function of Perceived Success/Failure
and High and Low Degrees of External Attributions

	Perceived success External attributions		Perceived failure External attributions	
	High	Low	High	Low
Self-related affects	28.07	20.85	14.17	16.07
General-type affects	14.13	9.95	6.00	5.48
<i>n</i>	40	20	6	27

n: number of subjects per cell. Note: The same median was used to subdivide subjects into high and low degrees of external attributions. Scores can vary from 4 to 36 for self-related affects and 2 to 18 for general-type affects. Higher scores are indicative of more positive affects.

Similarly, subjects who made high relative to low levels of external attributions experienced more self- ($M = 26.26$), $F(1, 89) = 10.11$, $p < .002$, and general- ($M = 13.07$), $F(1, 89) = 16.43$, $p < .001$, type affects than subjects in the perceived failure condition ($M_s = 18.10$ and 7.38 for self- and general-type affects, respectively). These main effects were qualified by the significant perceived success/failure \times external attributions interaction, $F(1, 89) = 7.30$, $p < .01$, for self-affects, and $F(1, 89) = 4.24$, $p < .05$, for general-type affects. It can be observed from Table 2 that the findings in the perceived success condition are similar to those obtained with internal attributions. Subjects who made high levels of external attributions experienced more self- $t(51) = 3.58$, $p < .001$, and general-type affects, $t(52) = 3.47$, $p < .001$, than subjects who made

low levels of external attributions. In the perceived failure condition the effects of external attributions on both types of affects vanished ($p_s > .30$).

Regression Analyses. Based on answers to the personal performance appraisal question, subjects were divided into the perceived success and failure conditions (see Table 2). Regression analyses were performed separately within these two conditions because, in line with the hypotheses stated previously, the relationship between attributions and affect was hypothesized to vary as a function of conditions. Results of the regression analyses conducted on self- and general-type affects in the perceived success condition appear in Table 3. As can be seen, regression equations incorporating variables of the model are highly significant ($p < .001$) and an important portion of the variance is explained (56 and 43%, respectively, for self- and general-type affects). Intuitive performance appraisal is shown to be an important predictor of both types of affects and, as predicted, internal attributions played an important and significant augmenting function. Surprisingly, external attributions also played such a role.

Table 3
Results of the Regression Analyses
Performed for Affects in the Perceived Success Condition

Affect	Predictor	Beta	<i>t</i>	<i>p</i>
Self-related affects	Intuitive appraisal	.27	2.3	.03
	Internal attributions	.35	3.1	.005
	External attributions	.32	2.7	.01
	Total: $F(3, 48) = 20.01$, $p < .001$, $R = .75$, $R^2 = .56$			
	General-type affects	Intuitive appraisal	.26	1.9
General-type affects	Internal attributions	.23	1.8	.07
	External attributions	.34	2.5	.02
	Total: $F(3, 48) = 21.73$, $p < .0001$, $R = .66$, $R^2 = .43$			

Note: Affects are scored toward the positive.

Results of the regression analyses conducted on self- and general-type affects in the perceived failure condition appear in Table 4. In general, the amounts of explained variance are lower than those in the perceived success condition (22 and 16% for self- and general-type affects, respectively). Furthermore, only the regression equation for self-related affects approached significance ($p < .07$). Results from the two regression analyses yielded quite different patterns. With respect to self-related affects, the intuitive performance appraisal had important effects (Beta = .50) whereas the effects of the other variables were nonsignificant. It should be noted, however, that there was a tendency for internal attribu-

Table 4
Results of the Regression Analyses
Performed for Affects in the Perceived Failure Condition

Affect	Predictor	Beta	t	p
Self-related affects	Intuitive appraisal	.50	2.7	.01
	Internal attributions	-.13	0.7	.48
	External attributions	.01	0	—
	Total: $F(3, 28) = 2.61, p < .07, R = .47, R^2 = .22$			
General-type affects	Intuitive appraisal	.18	.9	.35
	Internal attributions	.15	.8	.41
	External attributions	.28	1.6	.12
	Total: $F(3, 28) = 1.84, p < .16, R = .41, R^2 = .17$			

Note: Affects are scored toward the positive.

tions to augment the effects of the intuitive appraisal and thus to have a negative impact on self-related affects (Beta = $-.13$). Finally, although the intuitive performance appraisal was involved in the generation of general-type affects, such contribution was not statistically significant. The effects of internal attributions were also nonsignificant. On the other hand, external attributions contributed to these general-type affects where they played an important minimizing function. This effect approached significance ($p < .12$).

Discussion

The present set of results provides preliminary evidence for the proposed intuitive-reflective appraisal model of self-related affects. Results of the ANOVAs and *t*-test analyses showed that both the intuitive and reflective (attributional) performance appraisal had important effects on self-related and general-type affects, especially in the perceived success condition. Results of the regression analyses also revealed that the model had heuristic properties as three of the four equations were significant ($p < .10$).

The present results underscore the fundamental importance of the intuitive performance appraisal for both positive and negative self-related affects. These results are directly in line with recent research conducted in the realm of education (e.g., Arkin & Maruyama, 1979; Bailey et al., 1975; Forsyth & McMillan, 1981; Frieze et al., 1977; McMillan & Forsyth, 1983; McMillan & Spratt, 1983) which reveals that the intuitive performance appraisal in the form of perceived outcome is the main predictor of affect.

The proposition emanating from the intuitive-reflective affect model—that reflective appraisals such as internal attributions serve the purpose of augmenting the effects of the intuitive performance appraisal—received support only in

the perceived success condition. These findings on the role of internal attributions in the generation of self-related affects in the perceived success condition are congruent with Weiner's (1979, 1985a) theory of motivation and emotion, and laboratory (McFarland & Ross, 1982; Reimer, 1975; Vallerand & Blais, 1986, Exp. 2) and education (Forsyth & McMillan, 1981; Sobol & Earn, in press) research.

The lack of effect of internal attributions in the perceived failure condition is puzzling. Although these findings agree with the postulate that internal attributions need not be involved in the emotion process because reflective appraisals are seen in the model as sufficient (but nonnecessary) causes of self-related affects, such findings are nevertheless surprising in light of the research on the role of reflective appraisal in inconsistent, unexpected, and surprising outcomes. It might be that most athletes expected to experience personal failure in a provincial tournament. Holding such expectations may explain the lack of conflict between existing self-structures and outcomes, thus the useless role of the attributional reflective appraisal.

External attributions were hypothesized to minimize the effects of the intuitive appraisal on self-related affects following success and failure. This pattern was not obtained, as external attributions showed a pattern of results similar to that of internal attributions (augmenting effects). Although these findings would appear contrary to the present model, it should be kept in mind that external attributions used in this study were attributions made to the *team* (coach and teammates). These attributions may play a different function than those external to the athlete and his or her team. It is interesting to note the parallel between findings of this study on the positive effects of external (but team) attributions on self-related affects, and findings from other studies (e.g., Gill, 1980; Scanlan, 1977; Scanlan & Passer, 1978) that show that sport participants may at times make external (group) attributions for success. Gill (1980) explained these results in terms of an "exception to an egocentric bias." However, in light of the positive impact of these external attributions on self-related affects, this term would appear inappropriate.

Results with the general-type affects were similar to those of self-related affects in the perceived success condition. Specifically, the intuitive performance appraisal was always involved in the emotion process, especially in the perceived success condition. Internal attributions also contributed and played an augmenting role. Finally, it appears that external attributions were also used in an augmenting fashion. Results in the perceived failure condition were quite different, as the intuitive and the internal attributional appraisal had limited effects on affects. External attributions, on the other hand, played a minimizing function. Thus, with respect to general-type affects, external attributions are used selectively to facilitate positive affects in the perceived success condition but to decrease negative affects in the perceived failure condition.

These findings are consistent with the present model and with previous attribution research in physical activity settings (Rejeski & Lowe, 1980) to the effect that attributions can generate a host of affects other than those self-related in nature. However, these findings run contrary to Weiner's (1979, 1982, 1985a) model which posits that general-type affects are produced only by the outcome. In sum, there seem to be some similarities and differences between processes

involved in the generation of self- and general-type affects. Further research is definitely needed in order to assess the usefulness of the present model in dealing with general-type affects.

Study 2

Results from Study 1 provided some support for the intuitive-reflective appraisal model. Indeed, it was shown that both the intuitive and the reflective (attributional) appraisals were involved in the generation of affect, especially in the perceived success condition. Whereas results were generally supportive of the model, it should be noted that Study 1 contained some methodological weaknesses. First, the intuitive performance appraisal was measured by only one item. In order to ensure adequate reliability, more than one item should be used. Second, affects used in Study 1 were limited to six. A large number of affects would better capture the entire scope of self- and general-type affects. And third, the reflective appraisal used in Study 1 pertained to attributions and not to causal dimensions as such. These attributions yielded only an internal/external factor. Recent research suggests that causal dimensions should be rated by subjects and not inferred by the researcher or obtained via data reduction techniques (see McAuley & Gross, 1983; Rejeski & Brawley, 1983; Russell, 1982).

In light of the promising results of Study 1, and at the same time to correct the inelegancies it contained, a second experiment was conducted to further test the model. This was done using several items to assess the intuitive performance appraisal and self- and general-type affects and by using the Causal Dimension Scale (CDS; Russell, 1982) to tap subjects' perceptions of the causal dimensions of locus, stability, and control inherent in the reflective performance appraisal. In addition, other features were included in Study 2 in order to test other aspects of the intuitive-reflective appraisal model.

First, Study 2 was conducted in the controlled environment of the laboratory. Subjects were randomly assigned to conditions of *objective* success and failure so that the effects of these variables on affect could be assessed. Second, an important postulate of the model was tested—that the subjective outcome (the intuitive performance appraisal) has more potent effects on affect than does the objective outcome. A final assessment tested the effect of intellectualization on affect. Much research indicates that intellectualization processes influence affective experiences (see Lazarus, 1966). Reduction or augmentation of task importance (Brown & Weiner, 1984) appears to represent an important form of intellectualization, especially when the task is centrally related to the self (Vallerand, 1986).

In light of the above, the following hypotheses were formulated. First, the intuitive performance appraisal will be implicated in the generation of self- and general-type affects and will be positively related to both types of affects in success and failure conditions. Second, objective success and failure will have a significant effect on both types of affect, with success producing increases and failure leading to decreases of self- and general-type affects. However, it was hypothesized that the effects of the intuitive performance appraisal would be significantly more important than those of objective outcome. Third, all three causal dimensions of locus, stability, and control (internal, stable, and controllable attributions) were hypothesized to play an augmenting function in both success and

failure conditions on both types of affects. Fourth, task importance was also expected to play an augmenting function in success and failure conditions.

Method

Subjects and Design. Subjects were 50 male undergraduate psychology students with a mean age of 19.6 years. They were randomly assigned to conditions of success ($n = 20$), failure ($n = 20$), and control ($n = 10$). However, 4 subjects were dropped because (a) they did not believe the success/failure manipulations, (b) they did not follow the instructions, and (c) there were too many missing data. Thus, 46 subjects were kept for statistical analyses: success ($n = 17$), failure ($n = 19$), and control ($n = 10$).

Task. The task used in this study was the Labyrinth task, a commercial game requiring motor and visual-motor coordination. The purpose of the task is to roll a ball up through a maze by controlling the horizontal and vertical planes of the maze. The trial ends when the ball falls in one of the several holes along the maze. Score on a given trial depends on the location of the hole into which the ball dropped. The farther along the maze the hole is located, the higher the score. Subjects were provided 1 practice trial and performed 15 test trials. The task was presented to students as the Weber Hand-Eye Coordination Test.

Questionnaire. The questionnaire included four types of questions, all scored on a 9-point scale ranging from 1 (not at all) to 9 (extremely so). The first questions dealt with the intuitive performance appraisal and were assessed by the following items: "How would you evaluate your performance on the Weber test?" and "How well do you think you did on the Weber test?" The following question assessed task importance: "How important was it for you to do well on the Weber test?" The third scale was the CDS (Russell, 1982), which comprises three subscales measuring the causal dimensions of locus, stability, and control (Weiner, 1979). Each scale contains three items. The CDS is thus composed of nine items. Finally, the last questions dealt with affective experiences following performance on the Weber test. Subjects were asked to "indicate how you feel presently following your performance on the Weber test." There were 14 affects, 7 of which were self-related in nature: incompetent/competent, ashamed/proud, insecure/confident, stupid/smart, unskillful/skillful, ineffective/effective, and inadequate/efficient. The other 7 affects reflected general-type: dissatisfied/satisfied, displeased/pleased, sad/happy, discontented/contented, bad/good, pessimistic/optimistic, and blue/joyful.

Procedures. The experimenter greeted the subjects at the laboratory and explained that the purpose of the study was to assess the level of hand-eye coordination of psychology students on the Weber Hand-Eye Coordination Test (the Labyrinth). Subjects were also told they would be asked to answer some questions relating to the test following their performance. They were informed they would perform 1 practice trial and then would have 15 trials to do their best on the Weber test. Their scores would be recorded by the experimenter. Subjects in the success and failure conditions were told there were norms on the Weber test and that the experimenter would let them know from time to time how they were doing relative to other subjects their age.

Thus, subjects in both conditions were provided with three instances of positive (success condition) or negative (failure condition) performance feedback

in the same form as that used by Vallerand and Reid (1984). In addition, following their performance subjects were told they would find out how well they did relative to norms already gathered on a similar population. In line with Weinberg and Ragan (1979), subjects in the success condition were told they had scored in the 82nd percentile whereas subjects in the failure condition were told they had scored in the 18th percentile. No comments related to performance were made to subjects in the control condition.

Following performance (and reception of performance feedback relative to norms, if applicable), subjects were asked to fill out the questionnaire described above. Upon completion of the questionnaire, they were probed for suspicion, debriefed, and thanked for their participation.

Results

Preliminary Analyses. Before proceeding with the analyses of variance, the investigators conducted correlational and internal consistency analyses in order to assess the reliability of the various scales used in this study. First, a Pearson correlation was conducted between the two items assessing the intuitive performance appraisal. A correlation of .93 ($p < .001$) was obtained. In light of this correlation, the two items were summed yielding a composite score reflecting the intuitive performance appraisal. Second, Cronbach alphas were conducted on the items forming the CDS. Results showed that the stability and control subscales were relatively homogeneous in content, with values of .90 and .62, respectively. On the other hand, the alpha value of the locus subscale was rather low ($\alpha = .40$). Third, Cronbach alphas were calculated for the self- and general-type affects. Alpha values of .93 and .95, respectively, were obtained for these two scales. Scores on all of the above five scales were obtained by summing items forming the respective scale.

Effects of Objective Success/Failure. In order to assess the effects of objective success/failure on self- and general-type affects, we performed a one-way analysis of variance with condition (success, failure, and control) serving as the independent variable, and self- and general-type affects as the dependent variable. Both analyses were remarkably similar. A significant main effect was obtained for condition: $F(2, 43) = 4.66, p < .02$ for self-related affects, and $F(2, 43) = 4.96, p < .02$ for general-type affects. These findings showed that subjects in the success condition experienced significantly more self-related ($M = 41.82$) and general-type ($M = 41.18$) affects than subjects in the failure condition ($M_s = 33.42$ and 31.47 , respectively). These two conditions were not significantly different from the control group, however ($M_s = 36.20$ and 34.80 , respectively).

Effects of Perceived Success/Failure, Causal Dimensions and Task Importance. In line with procedures outlined in Study 1, in order to assess the effects of the intuitive performance appraisal on affects, we divided subjects into two groups. Subjects who scored at the midpoint (10) or higher on the intuitive performance score formed the perceived success condition whereas subjects who scored below the midpoint (9 or below) formed the perceived failure condition. Similarly, the effects of causal dimensions were obtained by dichotomizing subjects at the median. Thus it became possible to test the effects of perceived success/failure

and causal dimensions in three 2×2 ANOVAs, that is, one for each causal dimension.⁴ Finally, the effect of task importance on affect was assessed in the same way as were causal dimensions.

Results of the ANOVA involving the locus dimension yielded only a main effect for subjective outcome: $F(1, 42) = 18.19, p < .001$, for self-related affects, and $F(1, 42) = 27.15, p < .001$, for general-type affects. Subjects in the perceived success condition experienced significantly more self-related ($M = 41.74$) and general-type ($M = 41.44$) affects than subjects in the perceived failure condition ($M_s = 30.58$, and 27.74 , respectively). No other effects were significant (F_s lower than 1.13).

Results of the ANOVA assessing the effects of the control dimension on self-related affects yielded a significant main effect for perceived success/failure, $F(1, 42) = 32.05, p < .001$, but no main effect for control, $F < 1$. A significant control \times perceived success/failure interaction was obtained, however, $F(1, 42) = 8.43, p < .006$. This interaction is displayed in the left portion of Figure 1.

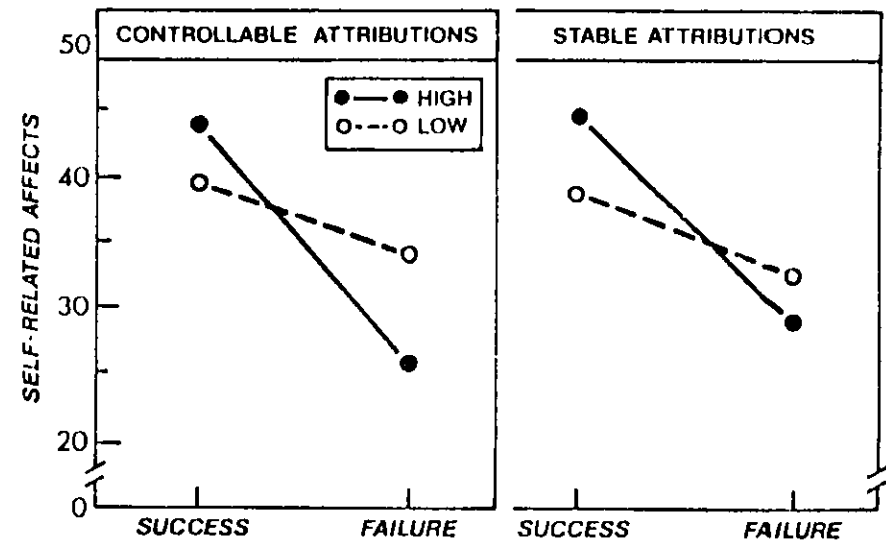


Figure 1 — Self-related affects as a function of perceived success/failure (the intuitive appraisal) and controllable and stable attributions. Affects can vary from 7 to 63.

It can be seen that subjects making more controllable attributions in the perceived success condition experienced more positive self-related affects than subjects making less controllable attributions. On the other hand, subjects making less controllable attributions in the perceived failure condition experienced more positive self-related affects than subjects making more controllable attributions. It should be noted, however, that the difference between controllable and uncontrollable attributions was only significant in the perceived failure condition, $t(17) = 2.40$,

$p < .03$. Results with general-type affects, although tending toward the same direction, did not show this pattern as only a main effect for perceived outcome was obtained (other $F_s < 1$).

Results of the ANOVA assessing the effects of the stability dimension on self-related affects presented a picture similar to that obtained with the control dimension. Specifically, no main effect was obtained for stability ($F < 1$) though the usual main effect for perceived outcome was obtained, $F(1, 42) = 29.24$, $p < .001$. This main effect was qualified by a significant stability \times perceived outcome interaction, $F(1, 42) = 4.83$, $p < .034$. This interaction is displayed in the right portion of Figure 1. It can be seen that subjects making more stable attributions in the perceived success condition experienced more positive self-related affects than subjects making less stable attributions. On the other hand, subjects making less stable attributions in the perceived failure condition experienced more positive self-related affects than subjects making more stable attributions. It should be noted that stable and unstable attributions were only significantly different in the perceived success condition, $t(25) = 2.54$, $p < .02$. Again, results with general-type affects, although in the same direction, did not show this pattern as only a significant main effect for perceived outcome was obtained. Finally, results of the ANOVA on the effects of task importance on self- and general-type affects yielded only the usual perceived outcome main effects (all other $F_s < 1$).

Discussion

Results from Study 2 provide additional support for the intuitive-reflective appraisal model of affective experiences. As hypothesized, the intuitive performance appraisal was implicated in the generation of self- and general-type affects in both success and failure conditions. Furthermore, not only was the intuitive performance appraisal involved in the emotion generation process but it also proved to be the most important source of affective experiences over the influence of objective success/failure. These findings support an important postulate of the model—that it is the subjective appraisal of performance and not objective performance per se that dictates which affect will be experienced by the individual. Results also underscored the fundamental importance of the intuitive appraisal over that of the reflective appraisal in the generation of self- and general-type affect in achievement settings.

Results also showed support for the augmenting function of the reflective attributional processes in success and failure conditions. However, these effects were found only for the stability and control dimensions and only with self-related affects. It is not entirely clear why the locus dimension did not yield effects similar to those of stability and control. However, the present findings are consistent with a recent nucleus of studies showing that when dimensions of stability and control are assessed, the often-reported self-serving bias (making more personal attributions in success than in failure conditions) is obtained with the stability and control dimensions but not with the locus dimension (Mark, Mutrie, Brooks, & Harris, 1984; McAuley & Gross, 1983; Russell, 1982; Vallerand & Richer, 1986). Although these findings run contrary to Weiner's position on the role of internal attributions on self-related affects, they are nevertheless consistent with results from other studies indicating that stability (e.g., Golin, Sweeney, &

Shaeffer, 1981) and control (e.g., Forsyth & McMillan, 1981; McAuley, Russell, & Gross, 1983) can have powerful effects on self-related affects.

Findings from the ANOVAs indicating the augmenting function of the reflective attributional appraisal was only operative for self-related affects are particularly interesting. Possibly the purpose of such a process is to enhance and preserve a positive view of the self and existing structures. Indeed, the present results do reveal a form of self-serving bias that seems rooted in a motivated concern to experience positive self-related affects in success and to alleviate negative self-related affects in failure conditions (see also McFarland & Ross, 1982). It should be noted that these findings, coupled with the results showing that the effects of perceived outcome were more important on general-type affects than on self-related affects, are consistent with Weiner's (1979; Weiner, Russell, & Lerman, 1978, 1979) distinction between outcome-dependent affects and attribution-dependent affects.

In addition, an interesting distinction should be noted between the effects of the stability and control dimensions. The effect of the perceived outcome \times stability interaction took place mainly in the perceived success condition, whereas the effect of the interaction involving the control dimension operated mainly in the perceived failure condition. It might be that certain causal dimensions (e.g., stability) play a larger role in some situations than in others (i.e., success/failure).

Finally, the lack of effect of the intellectualization reflective appraisal (task importance) is somewhat surprising. It is possible that a visuomotor coordination test does not have any bearing on important self-structures for psychology students, and thus the task importance variable may not be a useful type of reflective appraisal for this population. On the other hand, task importance should be likely to be used by athletes since sport represents an important part of their self-structures.

Conclusions

In sum, results from the present two studies provide preliminary evidence for some of the postulates derived from the intuitive-reflective appraisal model of affects. First, the intuitive appraisal appears to be a sufficient and necessary determinant of self-related affects in both success and failure conditions. Although some support was also found for this postulate with respect to general-type affects, additional research seems warranted before this can be confirmed. Second, while objective outcome does have an impact on affect, such effects are considerably less important than those of the intuitive appraisal. Thus it appears it is largely the perception of the event and not the event per se that dictates which emotion will be experienced. Third, the attributional reflective appraisal plays an important role in the generation of emotion, although its role seems limited relative to that of the intuitive appraisal. More specifically, attributions may not always be involved in the emotion process. As such they seem to represent sufficient but nonnecessary causes of both self- and general-type affects.

In addition, contrary to what is generally believed, *internal* attributions may not play a crucial role in the emotion process, especially if other causal dimensions such as stability and control are assessed. Possibly certain attributional dimensions are used in certain circumstances (e.g., success vs. failure) and not in others.

Future research is deemed necessary in order to determine which types of attributional reflective appraisals are generally used in certain types of situations, and when such appraisals are likely to be discarded in favor of other types of reflective appraisals. For conducting such research, the use of the CDS (Russell, 1982) is recommended as it should lead to more reliable findings than raw attributions. Finally, the role of the intellectualization reflective appraisal in the emotion process remains unclear. Although it proved unrelated to both self- and general-type affects, it is possible that the operationalization (task importance) was inappropriate for the population at hand. It might be that this type of reflective appraisal makes sense only for individuals invested in a given task or activity. Future field research in sport is warranted in order to assess the potential role of intellectualization in the emotion process.

Although findings from the present studies point to very specific types of research, additional research seems needed in order to assess the validity of untested postulates of the intuitive-reflective appraisal model. For instance, what is the role in the emotion process of the other types of reflective appraisals proposed by the model? When are they operative? Why are they chosen above other types of appraisals? What is the role of individual differences in determining whether the intuitive appraisal alone will generate affects? In addition, more should be known about the role of arousal in triggering the process of reflective appraisal. Because it is an inherent part of sport, arousal may play an unsuspected and important role in determining which types of reflective appraisals may be used in certain situations. Research on the misattribution of arousal paradigm clearly indicates that arousal represents a labile variable that may be tied to a host of perceptions about the social environment. Such perceptions may lead to affects as diverse as liking (Dutton & Aron, 1974) and anger (Zillman, Johnson, & Day, 1974). Research on arousal may thus yield important theoretical and applied insights.

Finally, future research should assess the validity of the present model with respect to general-type affects. Whereas Study 1 showed that the postulated model was applicable to general-type affects, results from Study 2 revealed that the attributional-reflective appraisal was only operative for self-related affects. On the other hand, the intuitive appraisal was found to be implicated in the emotion process for both types of affects in both studies. Research along these lines should help circumscribe the boundaries of application of the intuitive-reflective appraisal model.

Sport psychologists have recently recognized the importance of the study of affect. It is hoped that the present model and the research it may engender will enable us to advance our understanding of this pervasive and complex phenomenon.

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Notes

¹The minimizing and augmenting functions of the reflective appraisal are based on the relationship with the intuitive appraisal and not on affects per se. Specifically, internal attributions are hypothesized to have augmenting functions in success and failure conditions because they are expected to act upon affects in the same direction as the intuitive appraisal, whereas external attributions are hypothesized to play a minimizing function because they are expected to have effects opposing to that of the intuitive appraisal on affects.

²The three-factor solution was not optimal because factors were not readily interpretable. Further, only one variable loaded strongly ($< .30$) on the third factor. In light of the above, it was deemed preferable to assess the viability of the two-factor solution. For procedures in line with the present approach see Kim and Mueller (1978).

³In order to test for potential effects of these two variables on affect, the various analyses reported (i.e., *t* tests and regression analyses) were conducted with these variables. Results revealed that these variables were not significantly related to the various affects assessed in this study.

⁴The ANOVAs involving the CDS were performed with the intuitive appraisal of performance and not objective success/failure for two reasons: (a) such analyses allow a testing of the augmenting/minimizing function of the attributional reflective appraisal; (b) the CDS is worded such that the causal dimensions are assessed in line with perceptions of performance and not objective performance.

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COMMENTS

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The Home Field Disadvantage in Sports Championships: Does it Exist in Hockey?

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Popular belief in "a home field advantage" has persisted for many years in organized sports (Koppet, 1972). Recently this belief has received empirical support. Schwartz and Barsky (1977) found the home team winning 53% of the time in professional baseball, 60% in professional football, 64% in professional ice hockey, and 64% in college basketball. Edwards (1979) found the home team winning 54.4% of the time in professional football, 58.6% in college football, and 55.6% in professional baseball. Varca (1980) found the home team winning 70% of the time in college basketball. Thus, through statistical analysis, all of these studies confirm the popular belief in the home court advantage.

Although these studies consistently support a home field advantage, Baumeister and Steinhilber (1984) have recently reported that under certain conditions the home field may be disadvantageous. Specifically, they hypothesized that the imminent opportunity of winning a major championship in front of a supportive audience would lead to a paradoxical decrement in performance. This was expected to be the result of self-presentational concerns that interfere with the execution of skillful responses. An analysis of archival data from championship playoffs in professional baseball and basketball supported their reasoning.

Comparing home-win percentages of the first 2 games of the baseball world series with the last game during the period 1924 to 1982, Baumeister and Steinhilber found the home team winning 60% of the time in games 1 and 2 but only 40% of the time in the last game, whether the last game was game 5, 6, or 7. When the analysis was restricted to defining game 7 as the decisive game, a similar reversal of the home team advantage was apparent. Similarly, using National Basketball Association championship series between 1967 and 1982, they found the home team winning 70% of the time in games 1 through 4 but only 46% of the time in the last game, whether it was game 5, 6, or 7. When the analysis was restricted to the 13 series that lasted all seven games, a similar reversal of the home team advantage was apparent.

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