Self-Efficacy Beliefs and Tennis Performance

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Theoretical and methodological aspects of self-efficacy theory are assessed in this study, and the tennis performance of 40 active players (M age = 26.6 years) serves as the criterion variable. On a theoretical level, only self-efficacy beliefs, and not response-outcome expectations or the valence thereof, were consistently and significantly related to 12 dimensions of tennis performance. This phenomenon pertained to the relationship of the self-rating of performance as well as to the average of two judges' external ratings of performance and efficacy beliefs, even though the 12 behavioral criteria used were different from the items on the self-efficacy scale. Although Pearson correlations rather than microanalyses were computed to assess the relationship between self-efficacy and performance, the correlations were all positive and significant. Theoretical and empirical implications are suggested.

Self-efficacy theory has generated much conceptual (e.g., Advances in Behaviour Research and Therapy, 1978) and methodological (e.g., Bandura, 1980; Kirsch, 1980; Kazdin, 1978) scrutiny, while the amount of empirical research involving self-efficacy beliefs is increasing (e.g., Bandura & Adams, 1977; Bandura, Adams, & Bayer, 1977; Bandura, Adams, Hardy, & Howells, 1980; Kazdin, 1979, 1980; Keyser & Barling, 1981; Barling & Beattie, in press; Patz & Barling, Note 1). Nonetheless, some conceptual and methodological issues relevant to self-efficacy theory remain.

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On a conceptual level, efficacy expectations are held to be distinct from other performance-related expectations, for example, response-outcome or valence expectancies (Bandura, 1977). Consequently, research has focused almost exclusively on efficacy expectations, and it remains for research to assess the relative effects of these different expectations in a single study. Second, self-efficacy beliefs have been assessed primarily in terms of their influence on phobic behavior in highly controlled laboratory-type situations. Consequently, the generality of these findings to nonpathological behavior remains somewhat equivocal (Kazdin & Rogers, 1978).

On a methodological level, the internal validity of findings from self-efficacy research may be restricted. First, support for self-efficacy postulates derives primarily from high correlations between the self-report of performance and the self-report of efficacy expectations. Yet this ignores the potential problem of autocorrelations and may artificially inflate such relationships (Kazdin, 1978). Related to this is the fact that similar items are used in assessing self-efficacy beliefs and performance, which may further inflate relationships artificially.

Consequently, this study assesses the relationship between efficacy, response-outcome, and valence expectancies and tennis performance. Tennis was selected as the criterion since (a) it is a nonpathological variable, (b) there is an increasing trend in applying cognitive behavior modification to sports performance (Gravel, Lemieux, & Ledoucuer, 1980; Mahoney, 1979), (c) sports performance is well suited to quantitative research because of the outcome measures readily available, (d) global tennis performance may be broken down into diverse behaviors (for example, concentration, footwork), thereby facilitating an assessment of the generality of self-efficacy theory, and (e) it is a sport that is amenable to external rating and observation.

METHOD

Subjects

Forty active tennis players (M = 26.6 years, SD = 10.8) participated voluntarily in this study. They had been playing tennis for an average of 12.9 years (SD = 8.29, M number of times per week = 3.53, SD = 1.8). Of these 40 subjects, 32 were league and the remaining 8 nonleague yet active tennis players.

Instruments

As there is a lack of any standardized self-efficacy measure because such expectancies are task-specific, an appropriate questionnaire had to be
constructed anew (Kendall & Korgeski, 1979). Three 10-item scales, assessing either self-efficacy strength ("I can play most of my shots correctly"), response-outcome ("Improving my strokes will win me more points"), or valence ("Winning more points is very important to me") expectancies, were constructed similar in format to Keyser and Barling's (1981) children's scholastic self-efficacy scale. In this instance, however, a 5-point rating scale was used. However, identical behaviors were evaluated in terms of efficacy, response-outcome, and valence expectations for each item to minimize uncontrolled error as a result of the response outcomes and their valence not being directly relevant to the efficacy expectations.

The scale used to assess tennis performance was based on the National Tennis Rating Program (1979). This 37-item scale defines 12 behavioral categories relevant to tennis performance—i.e., knowledge, experience, dependability, accuracy, consistency, variation, power and spin, footwork, anticipation, style, concentration, and competition. Some of the items are rated in a negative format to reduce the influence of response-set, and the items in this scale were different from that on the efficacy, response-outcome, and valence expectancy scales to avoid artificially inflated correlations.

Procedure

Each subject first completed the self-rating scale, while the external ratings were completed. At least 3 hours elapsed before the self-efficacy information was obtained to minimize any possible influence of the self-rating of various aspects of behavior. The external raters—the first a 1st-year postgraduate psychology student, the second a final-year undergraduate psychology major, both of whom served as the professional coaches to the 40 players—were both blind to each other's ratings as well as to the self-ratings of the subjects. The reliability of their ratings was most satisfactory: Across the 12 behavioral measures, the mean interrater reliability coefficient was .91 (SD = .05, minimum = .8, maximum = .97, p < .001, in all 12 cases). In addition, the self-efficacy strength (KR20 = .77), response-outcome expectations (KR20 = .78), and valence (KR20 = .93) scales were also reliable.

RESULTS

As may have been predicted on the basis of previous research, self-efficacy beliefs were significantly related to the self-rating of all 12 behavioral criteria. (Only the strength of self-efficacy beliefs was assessed,
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<tr>
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<th>Knowledge</th>
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<th>Dependability</th>
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<th>Variation</th>
<th>Power and Spin</th>
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<td>.57b</td>
<td>.62b</td>
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<td>.54b</td>
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<td>.40*</td>
<td>.29</td>
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<td>.29</td>
<td>.35</td>
<td>.14</td>
<td>.21</td>
<td>.40b</td>
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*p < .01.

* *p < .001.
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<sup>a</sup>p < .01.<br><sup>b</sup>p < .001.
since the strength and level of such efficacy expectations are substantially related (Patz & Barling, Note 1). On the other hand, only two of these criteria (power and spin, and competition) were related to response-outcome expectations, and two (concentration and competition) to valence beliefs (see Table I).³

In assessing the relationship between external ratings of performance and the self-rating of efficacy, response-outcome, and valence expectations, the average of the external ratings of performance was taken as this increases its reliability and validity (Horowitz, Inouye, & Siegelman, 1979). Again, efficacy expectations were correlated significantly with all 12 behavioral criteria (p < .01), while the same invariable phenomenon did not emerge across response-outcome and valence beliefs (see Table II).

**DISCUSSION**

These results extend the generality of self-efficacy theory to nonpathological behaviors. Specifically, self-efficacy beliefs were related consistently to different aspects of tennis performance. This is important, as the generality of self-efficacy theory has been questioned previously (Kazdin & Rogers, 1978; Woolfolk & Lazarus, 1979). Self-efficacy postulates were further supported, as only efficacy beliefs were invariably related to behavior, while response-outcome and valence expectancies were not. This is consistent with self-efficacy theory: Bandura (1977) maintains that it is perceived success experiences that are the principal motivators of behavior. This accords with findings in this study that individuals rated by two external judges as more skillful had higher efficacy expectancies. In addition, those who had participated in representative (league) tennis (an indication of skill) had higher efficacy expectations (M = 22.09, SD = 4.61) than their counterparts who had not (M = 16.5, SD = 4.78) (t(38) = 3.05, p < .01, two-tailed), although there were no corresponding differences between these two groups in terms of response-outcome or valence expectancies (p > .10, two-tailed). These findings accord with research where self-efficacy beliefs—the expectation of successful mastery experiences—rather than response outcomes or valence beliefs were related to children's scholastic performance (Patz & Barling, Note 1). The crucial role of the expectation of personal mastery is therefore supported.

On a methodological level, concern regarding the internal validity of findings from previous research may not be valid. First, both self- and

³The alpha level p < .01 was used throughout this study as the basic significance level: Using the p < .05 level and computing 72 correlations as was required would have resulted in a number of false-positive results.
external ratings of all 12 behavioral dimensions were significantly correlated with self-efficacy beliefs. Consequently, the possibility of artificially inflated autocorrelations may not be relevant in this instance. Second, the present findings were obtained even though the behavioral criteria assessed different aspects from those of the self-efficacy scale. Consequently, the possibility that positive relationships between self-efficacy and the self-rating of behavior are a function of assessing similar items and behavior can also be discounted in this instance. Moreover, the possibility of artificially inflated relationships as a function of microanalyses (cf. Kirsch, 1980) can be negated as Pearson correlations were computed in all instances.

Nonetheless, these results are based on correlational data, and no cause-effect assumption is valid. It remains for future research to utilize appropriate causal analyses in assessing the influence of efficacy expectations on diverse behaviors. This suggestion is especially cogent since research utilizing a longitudinal causal analysis suggests that children's scholastic self-efficacy beliefs may be a function of their scholastic performance, with no relationship whatsoever between response-outcome expectancies and academic performance (Barling & Bresgi, Note 2).

REFERENCE NOTES


REFERENCES


