Time Perspective and Causal Attributions for Achievement

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This study examines the relation between adolescents' time perspective and attributions for achievement. Temporal aspects of attributions were conceptually linked to individual differences in time perspective. Measures of time perspective (continuity, optimism, pessimism, and utilization) and attributions (ability, effort, context, and luck) independently assessed for success and failure were administered to 215 tenth graders. A canonical analysis extracted one significant canonical root that related the two sets of measured variables and indicated that the two variates shared 25% of their variance. Interpretation of the structural relation between time perspective and attributions suggests that more adaptive time perspective relates to (a) attributing achievement success to one's own effort and ability and not to the characteristics of the task or luck and (b) minimizing the attributional role of luck, lack of ability, and task characteristics for achievement failure while acknowledging the role of lack of effort. Implications for motivation enhancement programs are discussed, and recommendations for future research are proposed.

Recently Weiner (1979, 1980, 1983) has presented a temporal theory of motivation that links achievement outcomes, causal attributions, and causal dimensions to expectancy, expectancy change, and affect in explaining the initiation and persistence of behavior. Two features characterize the temporal aspects of Weiner's theory. The first temporal aspect deals with outcome expectancy and uses a historical sequence approach (Weiner, 1983) to examine the factors that determine expectancy. As people consider their activities, they infer which behaviors produce success and failure. Their expectations for future outcomes (i.e., success or failure) in part depend on their causal attributions for prior outcomes. For example, if a student attributes success on a test to effort in studying, then the student

may expect success on similar tests for which he or she studies.

The second temporal aspect of Weiner's theory deals with expectancy change, that is, increases or decreases in expectancy of success as a function of the causal ascriptions for an outcome. Weiner (1980) postulated that expectancy change is determined primarily by a dimension of causes called *temporal stability*. Using the stability dimension, causes such as ability, effort, luck, and context/task difficulty can be classified as either fixed or variable. Ability[1] and context/task difficulty are relatively fixed causes, whereas effort and luck are more variable causes. Fixed causes provide a more stable basis for expectancy change than do variable causes. Thus, attributing the outcome to a fixed cause (ability or context/task difficulty) leads to a greater shift in expectancy (i.e., increase after success and decrease after failure) than attributing the outcome to a more variable cause (effort or luck). For example, if a student attributes success on a test to high ability, then the increase in expectancy of success on future tests should

[1] Herein, *ability* connotes the more fixed aspects of aptitude and intelligence and not the more variable and learnable aspects, such as skill.

be greater than if the student attributes the success to great effort or good luck.

Weiner uses a second dimension of causes, locus, to differentiate the degree of expectancy change associated with effort attributions from that associated with luck attributions. Although effort and luck are classified similarly within the stability dimension (i.e., variable stability), they are classified differently within the locus dimension. Effort is considered internal, or residing in the actor, whereas luck is considered external. Weiner uses this locus distinction to reason that people probably consider effort to be more stable than luck and to hypothesize, therefore, that effort attributions produce greater expectancy change than do luck attributions. The locus dimension itself does not relate to expectancy change but functions only as a secondary construct to indirectly explain expectancy change. As a primary construct, the locus dimension is theorized to be a key determinant of affective reactions to achievement outcomes (Weiner, Graham, Taylor, & Meyer, 1983).

When considered together, the stability and locus dimensions can explain links between causes and cognitions about the future. Attributing outcomes to variable and external causes (luck) only allows one to hope for good future outcomes. Attributing outcomes to stable causes (ability and context/task difficulty) allows one to predict future outcomes. Attributing outcomes to variable and internal causes (effort) allows one to control future outcomes. This sense of control emerges because attributing achievement failure to lack of effort allows the actor to believe that increasing effort expenditure can improve future performance and lead to greater success. Control has been conceptualized as a third dimension of causes, in addition to locus and stability.

The control dimension has important implications that have been broadly applied to education (Bar-Tal, 1978). For example, differentiating ability from effort and encouraging effort attributions are cornerstones of motivation change training, deliberate psychological education curricula, and career education programs. Increasing effort attributions among students who

formerly attributed performance difficulties to noncontrollable causes (i.e., ability, luck, and context/task difficulty) reportedly improves performance and motivation and reduces learned helplessness (Anderson & Jennings, 1980; Andrews & Debus, 1978; Dweck & Goetz, 1978).

Most research on attribution theory has directly manipulated causal perceptions by means of experimental instructions or feedback to determine the effect that situational characteristics have on the attribution process. The emphasis on situational characteristics instead of dispositional characteristics does not mean that individual differences in causal preference do not influence attribution decision making. In fact, Weiner (1980) hypothesized that individual differences also systematically affect the attribution process. In support of this hypothesis, Marsh, Cairns, Relich, Barnes, and Debus (1984) reported that individual differences in self-concept related to attributional preferences. The present study examined another individual disposition, time perspective, that is conceptually related to Weiner's temporal theory of attribution.

Whereas Weiner focuses on the temporal characteristics of causes (outcome expectancy and expectancy change) in analyzing motivation, one can also focus on temporal characteristics of students. For example, Bandura (1977, p. 193) posited that "the capacity to represent future consequences in thought provides one cognitively based source of motivation." Anticipating valued future outcomes facilitates task initiation and persistence (Schunk, 1983). Students differ in the degree to which they think about and value the future.[2] Individual differences or dispositional response tendencies in time perspective are influenced by maturation and socialization experiences (Friedman, 1982). Time perspective is related to socioeconomic status and gender type (Cottle & Klineberg, 1974) but not to intelligence (Doob, 1971). In addition, time

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[2] Time *perspective* refers to the subjective experience and use of time. This is to be distinguished from time *perception*, which refers to the perception and estimation of objective time, rather than the personal meaning that individuals have for time (Wallace & Rabin, 1960).

perspective has been empirically related to locus of control (Platt & Eisenman, 1968; Thayer, Gorman, Wessman, Schmeidler, & Mannucci, 1975); achievement motivation (Epley & Ricks, 1963; Heckhausen, 1967; Nisan, 1972; Raynor & Rubin, 1971); delay of gratification (Klineberg, 1968); study persistence (DeVolder & Lens, 1982); and career decision making (Savickas, Silling, & Schwartz, 1984). The studies cited above support the hypothesis that a time perspective that is future oriented facilitates achievement in education. Characteristically, a future-oriented time perspective includes inclinations to structure the future with events and goals (temporal continuity), to evaluate the achievability of goals with positive affect (optimism), and to use present time in working toward goals (efficient time utilization). Henceforth, this group of dispositional response tendencies will be called *integrated time perspective*.

Although dispositional differences in time perspective would seem to relate to causal attribution for achievement outcomes, there is little research that examines this association. The present study explored this relation with regard to attributional causes by examining the link between time perspective and the four most prevalent achievement-related causal attributions (Weiner, 1983) for success and failure (ability, effort, luck, and context/task difficulty). An integrated time perspective should facilitate preference for causal attributions that enhance a sense of control over the future (i.e., effort attributions) and that maintain optimism (i.e., ability attributions for success, but not failure). Thus, it was hypothesized that integrated time perspective (continuity, optimism, and time utilization) is positively associated with effort attributions for success and failure and with ability attributions for success but negatively associated with ability attributions for failure, as well as luck and context/task difficulty attributions for success and failure.

With regard to causal dimensions, the study tested two hypotheses. If locus relates to affective reactions to achievement outcomes (Weiner et al., 1983), then the locus dimension should relate to time perspective because time perspective includes an affective reaction to the future. Specif-

ically, it was hypothesized that attributions to internal causes are positively associated with optimism. Because stability is theorized to relate to expectancy change and not expectancy per se (Weiner, 1983), the stability dimension should be unrelated to time perspective. Accordingly, it was hypothesized that attributions to stable or fixed causes are not significantly associated with time perspective.

Method

Measurement of Variables

Time perspective. The present study used four self-report scales to multiply operationalize (Cook & Campbell, 1979) time perspective: the Long-Term Personal Direction and the Time Utilization scales (Wessman, 1973), the Achievability of Future Goals scale (Heimberg, 1961), and the Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974). The selection of these measures was based on the results of a factor analytic study of 31 time perspective measures conducted by Madison (1984). These measures were the greatest contributors to the major factor obtained in that study, which Madison labeled *temporal integration*. All four scales assess the major latent dimension underlying the construct of time perspective. Inspection of the items and validity evidence suggests that each scale also measures a slightly different manifest variable.

The Long-Term Personal Direction (LTPD) scale measures the inclination to structure or map the future with events (continuity). Positive items of the LTPD reflect a sense of continuity of past, present, and future as well as motivation for and commitment to long-term goals. Negative items reflect an unstructured and fragmented conception of time with an absence of aims and direction. Sample LTPD items are "I move in an orderly way towards goals set long ahead of time," "I am aware of a sense of continuity in my life" (both positive), "I feel my life is a series of starts and stops—stuck, moving, then stuck again," and "I shy away from long term responsibilities" (both negative).

The Time Utilization (TU) scale measures the efficiency of time use with regard to planning, scheduling, and organizing. Positive items of the TU reflect efficient scheduling, organizing, and planning of time. Negative items reflect procrastination, inefficiency, and disorganization. Sample TU items are "I work fast and efficiently according to schedule," "I meet my own deadlines by beginning and finishing tasks on time" (both positive), "I put things off so long that a lot of work must be crowded into a short space of time," and "I waste a lot of time before I finally settle down to business" (both negative). The LTPD and TU measures are each composed of 20 items. Each item is rated on a 7-point Likert scale ranging from *not at all descriptive* to *perfectly descriptive* of the respondent. Scores on the LTPD and TU scales each have a possible range from 0 to 120. Each scale is balanced equally with positive and negative items. Wessman (1973) provided

evidence of the concurrent validity of the LTPD and TU scales in a 6-week mood study and of the construct validity with the Sixteen Personality Factor Questionnaire and Rorschach and Q-sort measures. Coefficient alpha indexes of reliability were .80 and .83 for LTPD and TU, respectively, for the sample of adolescents in the present study.

The Achievability of Future Goals (AFG) scale measures affective evaluation of the future (optimism). The measure consists of eight items rated on a 7-point Likert scale identical to that used for the LTPD and TU scales. Thus, total AFG scores have a possible range from 0 to 48. Sample items are "I look forward to the future with hope and enthusiasm," "It is foolish to be ambitious," "I am afraid of getting older," and "In the future, I expect to succeed in what concerns me most." Heimberg (1961) reported a coefficient alpha of .76 for a homogeneous sample of college undergraduates; coefficient alpha was .73 for the sample in the present study.

The Hopelessness Scale (HS) also measures affective reactions to the future (pessimism). Four of the 20 items in the HS are identical to those in the AFG, with the exception that they are presented in a true/false format and keyed negatively. Thus, higher scores indicate higher levels of hopelessness or pessimism. Scores can range from 0 to 20. Sample items are "The future seems vague and uncertain to me," "The future seems dark to me," and "I can look forward to more good times than bad times." Beck et al. (1974) reported a coefficient alpha of .93 for the HS and relatively high correlations with clinical ratings of hopelessness. Coefficient alpha was .81 for the sample in the present study.

Causal attributions. Each of the 24 items of the Achievement subscale of the Multidimensional–Multiattributional Causality Scale (MMCS) is rated on a 5-point Likert scale indicating the respondent's degree of agreement or disagreement with the item. The MMCS is balanced for ability (internal–stable), effort (internal–unstable), context (external–stable), and luck (external–unstable) attributions, and for success and failure outcomes. This balancing procedure results in two 3-item scales for each attribution, one for success and another for failure. Thus, the MMCS comprises eight independent subscales, with possible subscale scores ranging from 0 to 12. Sample items are "When I receive a poor grade, I usually feel that the main reason is that I haven't studied enough for that course" (effort–failure), "Some of my lower grades have seemed to be partially due to bad breaks" (luck–failure), "Some of my good grades may simply reflect that these were easier courses than most" (context–success), "I feel that my good grades reflect directly on my academic ability" (ability–success), and "When I receive good grades, it is because I have studied hard for that course" (effort–success).

Lefcourt, Von Baeyer, Ware, and Cox (1979) reported coefficient alphas ranging from .58 to .88 for the success and failure subscales and the total scale. Test–retest reliability coefficients ranged from .51 to .62 for 1-week to 4-month intervals. Evidence of the discriminant and predictive validity of the MMCS has been reported (Lefcourt, 1979; Lefcourt et al., 1979). Coefficient alphas for the eight 3-item subscales ranged from .47 to .71 for the sample in the present study.

Table 1
Means and Standard Deviations for the Time Perspective and Attribution Scales

Scale	M	SD
Time perspective		
Continuity (LTPD)	74.23	12.14
Utilization (TU)	67.59	11.85
Optimism (AFG)	35.31	6.78
Hopelessness (HS)	2.67	3.15
Achievement attributions (MMCS)		
Ability–success	8.93	1.99
Ability–failure	5.63	2.62
Effort–success	9.44	2.06
Effort–failure	9.49	2.30
Context–success	6.24	2.34
Context–failure	7.23	2.35
Luck–success	6.61	5.03
Luck–failure	5.03	2.61
Attributional dimensions (MMCS)		
Internality–success	5.59	5.63
Internality–failure	2.84	4.85
Stability–success	−0.82	3.19
Stability–failure	−1.68	3.64

Note. LTPD = Long-Term Personal Direction scale; TU = Time Utilization scale; AFG = Achievability of Future Goals scale; HS = Hopelessness Scale; MMCS = Multidimensional–Multiattributional Causality scale.

In addition, composite scores were derived by the investigators in order to test the hypotheses concerning the locus and stability dimensions. Internality composites were computed by summing the scores for ability and effort and subtracting scores for context (task difficulty) and luck. Stability composites were computed by summing the scores for ability and task difficulty and subtracting scores for effort and luck. Thus, negative composite scores indicate either external or variable attributional patterns, and positive composite scores indicate either internal or fixed attributional patterns. Means and standard deviations for all of the measures used in the study are reported in Table 1.

Subjects

The sample of subjects for this study consisted of 215 high school students (114 women and 101 men) and represented the entire 10th-grade class of a suburban, typically middle-class school in northeastern Ohio. Subjects ranged in age from 15 to 17 years, with mean and modal ages of 15.6 and 16 years, respectively. This sample was selected to provide a socioeconomically homogeneous group of subjects well beyond the age when the adult concept of time typically emerges (Wallace & Rabin, 1960).

Procedure and Data Collection

Because several of the measures used in this study have previously been used only with college students or

adults, some items were reworded slightly to make them more readable to 10th graders.[3] None of the changes substantially altered the meaning of an item. Internal consistency reliabilities of the measures for the present sample compare favorably with those previously reported in the literature for older subjects. Subjects, in groups of 30, responded to all instruments on 2 consecutive days under standard conditions. The time perspective measures were administered the first day; the attribution measure was administered on the second day.

Data Analysis

In view of the possible influence of gender type on an individual's scores on the time perspective and attribution measures (Chandler, Shama, & Wolf, 1983), preliminary analyses were conducted to determine whether there were significant differential responses as a function of sex. To maintain an overall familywise alpha level of .05, Bonferroni simultaneous t tests (Miller, 1981) were performed for sex differences on the four time scales and the eight attribution scales. The only significant ($p < .05$) difference was that women ($M = 6.15, SD = 2.59$) attributed their achievement failures significantly more to lack of ability than males ($M = 4.97, SD = 2.57$).

Taking a conservative approach, all analyses were replicated with sex statistically controlled through the use of partial correlation coefficients. Results controlling for sex were then compared with results obtained when sex was not statistically controlled.

A canonical analysis was conducted to multivariately test the hypotheses concerning the relations between the four time perspective scales (LTPD, TU, AFG, and HS) and the eight attribution scales of the MMCS. All of the scales were included in one analysis to obtain the most parsimonious explanation of the underlying commonality between time perspective and achievement attribution. The correlations of the original variables with the canonical variate composites were calculated to facilitate interpretation of significant canonical roots (Levine, 1977).

Because the dimension composite scores for internality and stability include different combinations of the same items, separate prediction equations were determined by regressing the scores for the four dimensions (internality–success, internality–failure, stability–success, and stability–failure) on scores for the four time perspective variables using all possible subsets regression analyses (Frane, 1981). Following the recommendation of Wainer and Thissen (1981, p. 213), this all possible subsets regression procedure, using Mallows's C_p, was used to identify the best prediction models. The R^2s and adjusted R^2s are reported for each model.

When correlations are based on samples rather than populations, these correlations contain sampling error; hence, the multiple correlation typically shrinks when these same measures are obtained for a new sample. Lord and Novick (1968) and Kerlinger and Pedhazur (1973) recommend cross-validation to address this shrinkage problem. Cross-validation necessitates obtaining data for two samples. The first sample is referred to as the screening sample and is used to develop

the regression equation and R^2. To obtain predicted scores, the predictor variable measures obtained from the second sample, referred to as the calibration sample, are then applied to the regression equation obtained from the screening sample. The observed criterion scores (y) for the calibration sample are then correlated with the predicted criterion scores (y'). This Pearson $r_{yy'}$ is analogous to a multiple correlation between the observed and predicted scores. In the present study, subjects were randomly assigned to one of two subsamples, and this cross-validation procedure was applied twice to allow each subsample to constitute the screening (and calibration) sample. This "double cross-validation procedure is strongly recommended as the most rigorous approach to the validation of results from regression analysis in a predictive framework" (Kerlinger & Pedhazur, 1973, p. 284). Results of the two regression equations, R^2s, and $r_{yy'}$s obtained from alternate samples were then compared.

Results

The assumption of normality underlying the statistical procedures was tenable for these data based on measures of skewness and kurtosis for each variable, with the exception of the Hopelessness Scale, which was positively skewed. The positively skewed distribution of HS scores indicated a preponderance of low hopelessness scores.

The findings pertaining to the analyses statistically controlling for sex differences through the use of first-order partial correlation coefficients were virtually identical to the findings obtained from analyses using the zero-order correlation coefficients. Because of the very small differences in canonical variable loadings and beta weights in the canonical and regression analyses, respectively, between the two sets of analyses, only the zero-order findings are reported.

The canonical analysis extracted one significant root that linked the time perspective variate to the attribution variate. This root accounted for 25% of the variance between canonical variates, $R_c = .50$, $\chi^2(32, N = 192) = 75.6$, $p < .001$. Table 2 reports the correlation of each of the original variables with the variates for this canonical root. This root is bipolar: One pole is characterized by large positive loadings of optimism, continuity, time utilization, and effort attributions for success, with somewhat smaller

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[3] A copy of the questionnaires used in the study is available from the authors on request.

Table 2

*Correlations of the Time and Causal
Attribution Variables With the Canonical
Variates for the Significant Canonical Root
(Canonical Variable Loadings)*

Variate	Loading
Attribution	
Ability–success	.48
Ability–failure	−.43
Effort–success	.69
Effort–failure	.41
Context–success	−.52
Context–failure	−.37
Luck–success	−.51
Luck–failure	−.71
Time	
Continuity	.80
Utilization	.73
Optimism	.85
Pessimism	−.62

Note. $R_c = .50$, $\chi^2(32, N = 192) = 75.6$, $p < .001$.

positive loadings for effort attributions for failure and ability attributions for success; the other pole is characterized by negative loadings of pessimism and luck and context attributions for both success and failure, as well as for ability attributions for failure. In other words, this one dimension of commonality is represented by integrated time

perspective and attributions for success to one's own effort and ability and not to luck or the characteristics of the task or context. For achievement failure, minimizing the attributional roles of lack of ability and of luck and chance, and to a lesser degree, of the context, characterizes more integrated time perspective, as do making attributions to lack of effort.

Results of all possible subset regression analyses for the attribution dimensions of internality and stability are summarized in Table 3. These analyses were conducted to identify the most parsimonious set of time perspective variables to predict each dimension. The cross-validated composite correlations ($r_{yy'}$) that estimate the true multiple correlation after shrinkage ranged from .19 to .32 for the internality dimension. This finding suggests that the time perspective variables share between 3.6% and 10.2% of the variance with internality. Cohen (1977) provided guidelines for interpreting the magnitude of the effects of multiple correlations: In general, .14 and .36 can be considered as suggestive of small and medium effect sizes, respectively. The following standardized regression models were obtained for the sample comprising all subjects: Internality–success = 0.30 opti-

Table 3

*Mallows's C_p, R^2s and Adjusted R^2s, and Cross-Validated Composite Correlations ($r_{yy'}$)
From All Possible Subset Regression Analyses*

Attribution dimension	n	C_p	R	R^2	Adjusted R^2	$r_{yy'}$
Internality–success						
Sample 1	99	3.78	.39	.15	.13	.26
Sample 2	94	4.62	.57	.33	.32	.32
All subjects	193	1.92	.44	.19	.18	—
Internality–failure						
Sample 1	100	3.83	.30	.09	.07	.30
Sample 2	94	2.84	.24	.06	.04	.19
All subjects	194	4.30	.26	.07	.06	—
Stability–success						
Sample 1	99	−0.96	.10	.01	.00	.00
Sample 2	94	1.13	.22	.05	.03	.05
All subjects	193	0.90	.10	.01	.01	—
Stability–failure						
Sample 1	100	0.95	.28	.08	.07	.15
Sample 2	94	0.81	.10	.01	.00	.07
All subjects	194	0.97	.14	.02	.02	—

Note. $r_{yy'}$ is the Pearson r "between the observed criterion scores (y) in the calibration sample and the predicted criterion scores (y'). This $r_{yy'}$ is analogous to a multiple correlation in which the equation used is the one obtained in the screening sample" (Kerlinger & Pedhazur, 1973, p. 284).

mism + 0.24 time utilization − 2.73, and internality–failure = 0.22 optimism + 0.09 time utilization − 1.52.

The cross-validated composite correlations for the stability dimension ranged from .00 to .15. This suggests that there is essentially no systematic relation or shared variance (0%–2%) between time perspective and the attributional dimension of stability as measured in this study.

Discussion

The present study provides evidence that time perspective relates to causal attributions for achievement outcomes. Individual differences in the time perspective variables of continuity, optimism, and time utilization associate systematically with causal attributions for achievement success and failure to ability, effort, context/task difficulty, and luck. A canonical analysis of the multivariate relations between the set of time perspective variables and the set of attribution variables extracted one significant root linking the two variates.

The canonical root indicated that students who display a more integrated time perspective tend to attribute their achievement successes to their own effort and ability, whereas they tend to attribute their achievement failures to insufficient effort. This attributional pattern facilitates achievement motivation (i.e., task initiation and persistence) and performance. Explaining success with ability and effort attributions enhances self-worth because these causal inferences suggest that one is able as well as virtuous (Covington & Omelich, 1979). Moreover, ability and effort attributions for success usually increase self-confidence and feelings of competence because they are internal causes. Explaining failure with attributions to lack of effort, but not to lack of ability, also increases motivation and performance. This bias in explaining failure is a self-serving one that safeguards self-worth and belief in one's competence. Because effort is under volitional control, attributing failure to lack of effort allows one to believe that working harder on similar tasks in the future can produce greater success. This sense of control is unlikely to occur if one attributes

failure to lack of ability; because ability is relatively fixed, students should expect continued failure on similar tasks undertaken in the future.

Whereas a more integrated time perspective relates to a facilitative attributional pattern, a less integrated time perspective relates to a debilitative attributional pattern. Students with a less integrated time perspective tend to attribute their achievement successes to good luck and task ease, and they tend to attribute their failures to lack of ability, bad luck, and task difficulty. This attributional pattern debilitates motivation and performance. Students who explain their achievement successes and failures with attributions to external causes often come to believe that outcomes are independent of their own responses. Included in the attributional pattern associated with less integrated time perspective are attributions to lack of ability to explain failure, which further debilitate motivation and performance. Although ability is an internal cause, suggesting that the individual might influence outcomes, students with a less integrated time perspective tend to use ability attributions to explain their failures but not their successes. When these students have an asymmetrical preference for ability attributions, they tend to blame failure on their own inadequacy, and consequently they feel incompetent. Repeated use of the debilitative attributional pattern may lead people to conclude that they cannot influence outcomes and thus must depend on other people or on good luck to produce desired outcomes. The conclusion that outcomes are personally uncontrollable has been called *learned helplessness* and has been linked to cognitive, affective, and motivational impairment (Abramson, Seligman, & Teasdale, 1978; Dweck, 1975; Dweck & Repucci, 1973).

The results of the present study support the hypothesis that systematic and significant links exist between time perspective and attributional preferences. Interpretation and generalizability of this conclusion are limited by the fact that the data are from a sample composed of students at one grade level at a single high school. Because the study is correlational, the causal relations between time perspective and attribution

can only be speculatively considered and must await experimental studies. In spite of these limitations, one interpretation seems straightforward: If students are pessimistic about their futures, then about the best they can do is to show that they are not responsible for what becomes of them (Goffman, 1961). Students who expect to fail should be disinclined to take responsibility for outcomes. If one pessimistically expects many failures and few successes, then it is self-serving to be more inclined to blame others, circumstances, or fate. Following failure, attributions to lack of ability also may be self-serving in supporting requests for exemption based on incompetence and declarations of dependency on other people. Conversely, if one optimistically expects many successes and few failures, then it is self-serving to be more inclined to use ability and effort attributions to take credit for outcomes.

A related line of theorizing may help to interpret the present results. According to self-efficacy theory (Bandura, 1977), outcome expectancy differs from efficacy expectancy. Outcome expectations are subjective estimates that a given behavior can produce certain outcomes. Efficacy expectations, on the other hand, are estimates about one's power to do the potent behavior. Time perspective may strongly influence outcome expectancy. A cognitive schema that connects prior behavior to present circumstances and present behavior to future outcomes can facilitate recognition of action–outcome sequences and, thereby, influence outcome expectancy. In particular, a sense of continuity offers a schema within which actions and outcomes that are separated in time can still be linked in thought. Students with a fragmented time perspective probably experience increasing difficulty in recognizing action–outcome connections as actions and outcomes are separated by longer lengths of time.

Extending this line of reasoning, if one interprets the facilitative attribution pattern as reflecting a strong sense of efficacy, then integrated time perspective relates to self-efficacy. The association of time perspective and self-efficacy, however, is probably mediated by outcome expectancy. Without the belief that actions can produce desired outcomes, there is no basis for efficacy expectancy. If there is no hope that a given behavior can produce a certain outcome, then estimates of one's power to do the behavior are irrelevant. In other words, hopelessness logically necessitates helplessness. The converse is not true. One can feel helpless (low efficacy expectancy) but still hope that other people or fate will produce the desired outcome. From this perspective, low efficacy expectancy leads to dependency (helpless but not hopeless), whereas low outcome expectancy leads to despair (helpless and hopeless).

The present results also can be interpreted along other lines of theorizing. From the perspective of theories of psychosocial development, integrated time perspective is a conceptual antecedent of willpower as operationally defined by the facilitative attributional pattern. For example, Erikson's (1968) theory of psychosocial development postulates that hope precedes willpower. Simply stated, people must trust in the continuity and consistency of the future if they are to exercise willpower, that is, use ability and effort to influence future outcomes. Developmental changes in time perspective many influence how people process attributional feedback and formulate outcome and efficacy expectations. This implication that attribution and psychosocial developmental theories may be linked together is speculative and awaits experimental studies that examine the antecedent–consequent relation between time perspective and the attribution process.

The results of the present study support both of the hypotheses about the association between time perspective and causal dimensions. The derived index of locus related significantly to optimism, the affective component of time perspective, which supports Weiner's hypothesis linking the locus dimension to affective reactions. The findings concerning the lack of relation between the stability dimension of attributions and time perspective also were as Weiner hypothesized; stability was unrelated to time perspective.

From a practical viewpoint, the findings of the present study suggest that students' time perspective may mediate their success in motivation change and reattribution

training programs. If this assertion is correct (which remains a hypothesis for future examination), then facilitating continuity, optimism, and effective time utilization may be useful in motivation–attribution change interventions. Such training may increase the readiness to learn the facilitative attributional pattern.

This study was designed as an initial attempt to examine the relation of time perspective to attributional variables. Based on the relations found in this study and the implications and speculations stemming from them, replication, cross-validation, and extension of these findings probably would increase our understanding of the link between time perspective and causal attributions for achievement. Well-designed longitudinal studies could serve to contribute substantially to this understanding. Also recommended are studies that examine the relation between time perspective and attributions among subjects at different ages and in other motivational domains, such as attributions for affiliation success and failure.

References

Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, *87*, 49–74.

Anderson, C. A., & Jennings, D. L. (1980). When experiences of failure promote expectations of success: The impact of attributing failure to ineffective strategies. *Journal of Personality*, *48*, 393–407.

Andrews, G. R., & Debus, R. L. (1978). Persistence and the causal perception of failure: Modifying cognitive attributions. *Journal of Educational Psychology*, *70*, 154–166.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.

Bar-Tal, D. (1978). Attributional analysis of achievement-related behavior. *Review of Educational Research*, *48*, 259–271.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The hopelessness scale. *Journal of Consulting and Clinical Psychology*, *42*, 861–865.

Chandler, T. A., Shama, D. D., & Wolf, F. M. (1983). Gender differences in achievement and affiliation attributions: A five-nation study. *Journal of Cross-Cultural Psychology*, *14*, 241–256.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (rev. ed.). New York: Academic Press.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings.* Chicago: Rand McNally.

Cottle, T. J., & Klineberg, S. L. (1974). *The present of things future.* London: Collier–MacMillan.

Covington, M. V., & Omelich, C. L. (1979). It's best to be able and virtuous too: Student and teacher evaluative responses to successful effort. *Journal of Educational Psychology*, *71*, 688–700.

DeVolder, M. L., & Lens, W. (1982). Academic achievement and future time perspective as a cognitive–motivational concept. *Journal of Personality and Social Psychology*, *42*, 566–571.

Doob, L. W. (1971). *Patterning of time.* New Haven: Yale University Press.

Dweck, D. C. (1975). The role of expectations and atttributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, *31*, 674–685.

Dweck, C. S., & Goetz, T. E. (1978). Attributions and learned helplessness. In J. H. Harvey, W. Ickes, R. F. Kidd (Eds.), *New directions in attribution research* (Vol. 2, pp. 157–179). Hillsdale, NJ: Erlbaum.

Dweck, C. D., & Repucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, *25*, 109–116.

Epley, D., & Ricks, D. R. (1963). Foresight and hindsight in the T.A.T. *Journal of Projective Techniques*, *27*, 51–59.

Erikson, E. H. (1968). *Identity: Youth and crisis.* New York: Norton.

Frane, J. (1981). All possible subsets regression. In W. J. Dixon & M. B. Brown (Eds.), *BMDP: Biomedical computer programs* (pp. 264–277). Los Angeles: University of California Press.

Friedman, W. J. (Ed.). (1982). *The developmental psychology of time.* New York: Academic Press.

Goffman, E. (1961). *Asylums.* Chicago: Aldine.

Heckhausen, H. (1967). *The anatomy of achievement motivation.* New York: Academic Press.

Heimberg, L. (1961). *Development and construct validation of an inventory for the measurement of future time perspective.* Unpublished master's Thesis, Vanderbilt University, TN.

Kerlinger, F. N., & Pedhazur, E. J. (1973). *Multiple regression in behavioral research.* New York: Holt, Reinhart & Winston.

Klineberg, S. (1968). Future time perspective and the preference for delayed reward. *Journal of Personality and Social Psychology*, *8*, 253–257.

Lefcourt, H. M. (1979). Locus of control for specific goals. In L. C. Perlmuter & R. A. Monty (Eds.), *Choice and perceived control* (pp. 209–220). Hillsdale, NJ: Erlbaum.

Lefcourt, H. M., Von Baeyer, C. L., Ware, E. E., & Cox, D. J. (1979). The multidimensional–multiattributional causality scale. *Canadian Journal of Behavioral Science*, *11*, 286–304.

Levine, M. S. (1977). *Canonical analysis and factor comparison.* Beverly Hills, CA: Sage.

Lord, F. M., & Novick, M. R. (1968). *Statistical theories of mental test scores.* New York: Addison-Wesley.

Madison, M. C. (1984). The psychological dimensions of temporal experience: A multi-instrument analysis (Doctoral dissertation, Kent State University, 1983).

Dissertation Abstracts International, 44, 3202B.

Marsh, H. W., Cairns, L., Relich, J., Barnes, J., & Debus, R. L. (1984). The relationship between dimensions of self-attribution and dimensions of self-concept. *Journal of Educational Psychology, 76,* 3–32.

Miller, R. G. (1981). *Simultaneous statistical inference* (2nd ed.). New York: Springer-Verlag.

Nisan, M. (1972). Dimension of time in relation to choice behavior and achievement orientation. *Journal of Personality and Social Psychology, 21,* 175–182.

Platt, J. J., & Eisenman, R. (1968). Internal–external control of reinforcement, time perspective, adjustment, and anxiety. *Journal of General Psychology, 79,* 121–128.

Raynor, J. O., & Rubin, I. S. (1971). Effects of achievement motivation and future orientation on level of performance. *Journal of Personality and Social Psychology, 17,* 36–41.

Savickas, M. L., Silling, S. M., & Schwartz, S. (1984). Time perspective in vocational maturity and career decision-making. *Journal of Vocational Behavior, 25,* 258–269.

Schunk, D. H. (1983). Reward contingencies and the development of children's skills and self-efficacy. *Journal of Educational Psychology, 75,* 515–518.

Thayer, S., Gorman, B. S., Wessman, A. E., Schmeidler, G., & Mannucci, E. G. (1975). The relationship between locus of control and temporal experience. *Journal of Genetic Psychology, 126,* 275–279.

Wainer, H., & Thissen, D. (1981). Graphical data analysis. *Annual review of psychology, 32,* 191–241.

Wallace, M., & Rabin, A. (1960). Temporal experience. *Psychological Bulletin, 57,* 213–236.

Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71,* 3–25.

Weiner, B. (1980). *Human motivation.* New York: Holt, Rinehart & Winston.

Weiner, B. (1983). Some methodological pitfalls in attributional research. *Journal of Educational Psychology, 75,* 530–543.

Weiner, B., Graham, S., Taylor, S. E., & Meyer, W. (1983). Social cognition in the classroom. *Educational Psychologist, 18,* 109–124.

Wessman, A. E. (1973). Personality and the subjective experience of time. *Journal of Personality Assessment, 37,* 103–114.