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ABSTRACT

A sample of 51 fourth graders' perceptions of the quality of their school life, including satisfaction with school, commitment to their classwork, and attitudes toward teachers was assessed at the beginning and end of the school year, as were beliefs concerning responsibility for successful, unsuccessful, and overall academic achievements. Results of an exploratory cross lagged panel correlation analysis provide tentative support for the view that perceptions of these aspects of quality of school life temporally preceeded perceptions of academic responsibility. It is suggested that the more favorably these classroom factors are perceived, the more likely students are to accept responsibility for their school successes and failures. (Author)

Quality of School Life: Cause or Effect of Beliefs of Academic Responsibility? A Cross-Lagged Panel Correlation Analysis

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Quality of School Life: Cause or Effect of Beliefs of Academic Responsibility? A Cross-lagged Panel Correlation Analysis

Individuals' affective reactions and beliefs of responsibility for achievement successes and failures have been shown to be significantly associated (Arlin, 1975; Epstein and McPartland, 1976; Weiner, 1979, in press; Weiner, Russell, and Lerman, 1978, 1979; Wolf, 1979). The question of whether attributions of responsibility "cause" these affects, or whether these affects "cause" beliefs in personal responsibility and control is just beginning to be addressed. The purpose of the present study was to explore this question within an academic achievement context with children.

Several studies indicate that children expressing stronger beliefs in personal responsibility for their achievement successes and failures in relation to their classmates concommitantly express more positive feelings toward school and learning (Arlin, 1975; Epstein and McPartland, 1976; Wolf, 1979). Weiner and his colleagues (Weiner, 1979, in press; Weiner, Kun, & Benesh-Weiner, in press; Weiner, Russell, and Lerman, 1978, 1979) provide some support for the view that there are at least three sources of affect in achievement situations. First, students feel good, bad, satisfied, dissatisfied, etc. in general depending on whether they succeed or fail on a given task or test. These general feelings are thought to be linked directly to the outcome and therefore are not differentiated on the basis of specific internal or external attributions.

However, the other two sources of affect are thought to be linked to the attributional process. For example, distinct emotions such as gratitude or hostility arise if success or failure is perceived as influenced by other people, such as teachers, parents, or peers. Feelings of surprise result if students believe the outcome was tied to luck, and so forth. In addition to these specific attribution-affect linkages, esteem-related affects appear to be related to underlying causal dimensions such as internal-external responsibility beliefs.

Weiner et al. (1979) interpreted the results of an experimental study with college undergraduates as supporting the view that the cognition-emotion and emotion-cognition linkages are symmetrical. That is, just as specific attributions or dimensions enable the prediction of certain affective reactions, likewise knowledge of specific affective responses allows for accurate attributional predictions.

The present study tested this hypothesis of symmetry between cognition-emotion and emotion-cognition by using generalized measures of internal-external responsibility beliefs (cognition) and affective attitudes toward the quality of the school environment (emotion). A quasi-experimental design, the cross-lagged panel correlation technique (Campbell 1963, Cook and Campbell, 1979, Pelz and Andrews, 1964) was used to ascertain whether this bidirectional relationship is indeed symmetrical, or whether either cognition or affect is a stronger cause of the other (i.e. is causally predominant).

In addition, several subhypotheses were tested. Since indices of responsibility for successes and failures have been shown to be relatively independent of each other (Crandall, Katkovsky, and Crandall, 1965; Weiner and Kukla, 1970), it is possible that the hypothesized relationship between cognition and affect may differ for positive versus negative achievement outcomes.

Also, it is possible that this cognition-affect relationship may differ based upon the various aspects of perceived quality of school life. Thus this relationship was explored for the various components of overall affective attitudes toward school, as well as for this general index.

The following cross-lagged panel analysis was conducted to test for a directional relationship between cognitive perceptions of achievement responsibility and affective attitudes toward school, and to see if this relationship differed for success/failure outcomes and for attitudes toward several differing aspects of the learning situation.

METHOD

Subjects

The entire fourth grade of the single elementary school in a suburban community of approximately 12,000 residents in Northeastern Ohio was selected for participation. Residents are predominantly white, although there is a growing number of Orientals in the community. Major sources of employment include a local hospital,

several large department stores, a scientific laboratory, and smaller businesses (Economic Development Department, 1977). This suggests a socioeconomic mix ranging from upper lower class blue and white collar workers to middle or upper middle class physicians.

Fourth graders were selected in order to obtain subjects as early in the developmental and educational sequence as possible. This allowed for an examination of responsibility beliefs and school-related affect earlier in their formative stages. Evidence suggests that locus of responsibility in children develops as early as the third grade (Crandall, Katkovsky, & Crandall, 1965).

Parental permission for children to participate was received for 55 of a total of 75 fourth graders. Four children were excluded from the final data analysis due to absenteeism during one of the testing periods.

Thus the final sample consisted of 51 fourth graders with a modal age of 9 years at the initial data collection phase, and a modal age of 10 years at the second data collection phase later in the same school year. Participants' mean intelligence quotient on the Short Form Test of Academic Aptitude was 114, nearly one standard deviation above the mean for this measure.

Instruments

The measurement instruments selected were those frequently used in previous research to operationally define the constructs investigated in this study. An attempt was made to select those instruments with demonstrated psychometric properties. The

Intellectual-Achievement Responsibility (IAR) questionnaire (Crandall, Katkovsky, and Crandall, 1965) operationally defines students' beliefs of responsibility for their school-related successes and failures. Student perceptions of the quality of the school and classroom environment were operationally defined by the Quality of School Life (QSL) scale (Epstein & McPartland, 1977).

Intellectual Achievement Responsibility Questionnaire. The IAR has been the most frequently used measure of internal-external responsibility beliefs in children (Phares, 1976), and is considered to have acceptable psychometric properties (MacDonald, 1973). It yields three scores, one for academic successes, one for academic failures, plus a total score. Evidence suggests responsibility for successes and failures are generally independent of each other (Crandall et al., 1965; MacDonald, 1973, Weiner and Kukla, 1970).

This questionnaire contains 34 forced-choice items, balanced for positive and negative achievement experiences common to children's daily lives. Thus 17 item stems describe successful school experiences followed by one alternative stating the event was caused by the child and a second alternative stating the event occurred as a result of external factors such as the difficulty or ease of the task, or teacher, parent or peer influence. Another set of 17 items describes the same events as the previous set with the distinction of describing unsuccessful instead of successful outcomes. Again the child must choose between an internal or external cause for the event. For example:

When you do well on a test at school, is it more likely to be:

a. because you studied for it, or
b. because the test was especially easy?

The same item with a negative outcome appears later in the questionnaire:

When you don't do well on a test in school, is it

a. because the test was especially hard, or
b. because you didn't study for it?

The IAR was scored by giving each internal or self-responsibility response a "1" and each external responsibility response a "0". Responses were summed for all 17 "success" items, for all 17 "failure" items, and for the 34 total items to provide three separate scores.

Evidence of the discriminant and convergent validity of the IAR is summarized in Crandall et al. (1965) and MacDonald (1973). IAR scores significantly related to children's report-card grades, but only moderately related to intelligence test scores. Younger children's (i.e., grades 3, 4, 5) IAR scores were negatively correlated with scores on a measure of social desirability. Test-retest correlations over a two-month interval were .66 for responsibility for successes (I+), .74 for failures (I-), and .69 for total scores for this sample of third through fifth graders.

Quality of School Life Scale. The concept of "quality of life" has been only vaguely defined at the present time. However,

there appear to be three basic aspects of this concept relevant to individuals as well as society as a whole. These are general feelings of well-being, positive social involvement, and opportunity to fulfill one's potential (Flanagan, 1975; McFarland, 1975; U.S. Environmental Protection Agency, 1973). The only measure found that operationally defines these three aspects of quality of life within an academic context suitable for children is the Quality of School Life (QSL) scale (Epstein & McPartland, 1977).

The QSL is a standardized 27 item forced-choice, multi-dimensional measure. The Satisfaction with School (SAT) subscale is comprised of five items considered to be an operational measure of students' general social experience in school. The Commitment to Classwork (COM) subscale operationally defines pupils' involvement in and commitment to their school work, and is comprised of 11 items. This subscale reflects students' beliefs in the consequences and value of school work for their future educational and occupational plans. The Reactions to Teachers (TCH) subscale operationally defines students' perceptions of their opportunity to participate and fulfill their potential in the classroom as influenced by the environment created by the teacher. A total of 11 items tap this dimension of the quality of school life.

Both positive and negative statements, as well as several response formats for the items are used to minimize response set. The following items are representative of each subscale and response format:

I enjoy the work I do in class. (SAT)

always often sometimes seldom never

In my classes I get so interested in an assignment or project that I don't want to stop work (COM).

____ 1. never
____ 2. hardly ever
____ 3. quite often
____ 4. every day

T F Most of my teachers do not like me to ask a lot of questions during a lesson. (TCH)

The Quality of School Life scale was scored by allocating "1" point for each response indicating a positive evaluation of a school experience and "0" otherwise. Scores for each subject were obtained by summing the number of points for all 27 items for a total score, the 5 items for the Satisfaction subscale, the 11 items for the Commitment subscale, and the 11 items for the Reactions to Teachers subscale.

Kuder-Richardson formula 20 and formula 8 (reported in parentheses) reliability coefficients for elementary students indicated internal consistency of .81 (.89) for SAT, .72 (.79) for COM, .64 (.73) for TCH, and .86 (.88) for the total QSL (Epstein & McPartland, 1976; 1978).

A principal components analysis of the items supported the construct validity of the three dimensions of quality of school life. Evidence for the concurrent and discriminative validity of the scale suggests that:

> In general, students who report high satisfaction with the quality of their school experiences are those who are comfortable with the demands (regulations for behavior) and

opportunities (participation) of the school setting, are industrious and ambitious, have more positive self-evaluations, and receive positive evaluative messages from teachers and parents (Epstein & McPartland, 1976).

In general, the QSL questionnaire fairs relatively well psychometrically for this type of measure.

Procedure and Analysis

In order to minimize the effect of potential teacher influence over childrens' responses, test administrators unknown to the subjects were used. Subjects were divided into two approximately equal groups and placed in seperate rooms to facilitate testing and attend to questions.

Testing was divided into two data collection stages, one in October at the beginning and the other in May at the close of the school year. The writer and an assistant (also a teacher) served as test administrators. Subjects were informed that these questionnaires were not tests, that there were no right or wrong answers, and that their teachers would not see their responses. The order of presentation for the IAR and QSL was counter-balanced, with one group receiving the QSL first and then the IAR, while the other group completed the IAR first and then QSL.

The cross-lagged panel correlation (CLPC) technique was used to analyze the data (Campbell, 1963; Campbell and Stanley, 1963; Cook and Campbell, 1979; Pelz and Andrews, 1964). The CLPC analysis may be viewed as a special case of the multitrait-multimethod matrix in which two traits, IAR and QSL, were assessed by two methods, Time 1 and Time 2 (Kenny, 1975).

Insert Figure 1 about here.

The hypotheses were tested by assessing the magnitude of the difference between the cross-lagged correlations of each panel, i.e. the circled correlations in Figure 1. While it is assumed that the relationship between performance on the IAR and QSL is reciprocal or bidirectional, i.e. that each influences the other, support for the hypothesis of causal predominance tentatively suggests that one is a stronger cause of the other than the converse. The construct at Time 1 with the larger of the two correlations with the other construct at Time 2 is considered causally predominant. Little or no difference between the two cross-lagged correlations suggests a symmetrical relationship exists between the two constructs.

In order to rule out the possibility that a cross-lagged differential is spurious, i.e. that random error or a third variable account for the relationship, the assumptions underlying CLPC, synchronicity and stationarity, must be met. Synchronicity requires that the two constructs (IAR and QSL) be measured at the same time at each of the two measurement stages. This assumption was reasonably met in the present study. Stationarity assumes the causal process did not change during the interval measured (Kenny, 1975). That is, the correlation between the two constructs at Time 1 (called a synchronons correlation) is similar to the correlation between the two constructs at Time 2. This assumption is addressed in the following discussion of results.

RESULTS

An examination of the synchronous correlations in Table 1 indicates that the data are stationary for nearly all comparisons. This is particularly true for the major hypothesis between the overall measures of achievement responsibility beliefs and school-related affect, as the IAR and QSL correlate .59 at both Time 1 and Time 2.

Insert Table 1 about here

The test of this hypothesis can be clearly seen in Figure 2. The cross-lagged correlation between school-related affect (QSL) at Time 1 with achievement responsibility beliefs (IAR) at Time 2 is greater than the cross-lagged correlation between IAR at Time 1 and QSL at Time 2 ($r=.59 > r=.43$). This suggests that school-related affect (QSL) is causally predominant over beliefs of achievement responsibility (IAR). Thus performance on the QSL measure appears to be a stronger cause of performance on the IAR measure than the converse.

Insert Figure 2 about here

An examination of the cross-lagged coefficient column of Table 1 indicates that this pattern is consistent over the 11 subhypotheses tested in this study. Two of these cross-lagged differentials, between Commitment to Classwork and attributions for achievement failures (.03), and also between Reaction to Teachers and attributions for achievement successes (.02) are relatively small, suggesting that the relationship between each of these pairs may be more symmetrical than causally predominant.

The Pearson-Filon test (Peters and VanVoorhis, 1940; Kenny, 1975) of the difference between cross-lagged correlations is considered inappropriate for use with small samples (Kenny and Harackiewicz, 1979), and was, therefore, not used in this study. "However, large correlations, stationarity, and strong effects can compensate somewhat for 'small' sample size" (Kenny, Note 1).

Since the average cross-lagged difference for all 12 tests in the present study was slightly over .10, and "even a strong causal effect may produce only a small cross-lag difference like .05" (Kenny and Hakackiewicz, 1979), the data in the present analysis do appear to compensate somewhat for the "small" sample size. Humphreys and his colleagues (Atkin et. al., 1977) suggested consistency of the effect across the various hypotheses as an appropriate index of the meaningfulness of cross-lagged differences. Since the effects observed over the 12 hypotheses tested in this study were all consistently in the same direction, this criterion appears to have been satisfied.

DISCUSSION

Since the cross-lagged panel correlation analysis is best used in the exploratory stage of theory construction (Kenny, 1975), results are best interpreted in a tentative manner. This is all the more true given the relatively small sample size in the present study, although the consistency and strength of the effects, as well as the stationarity of the data and the relatively large correlations among the variables do lend support to the non-spuriousness of these effects.

The finding of causal predominance of school-related affect over beliefs of personal responsibility for achievement successes and failures suggests that the more favorably children feel toward school, the more likely they are to accept responsibility for their school performance. This effect was particularly strong for the overall Quality of School Life index and for the Satisfaction with School subscale over both success and failure conditions. The overall perception of the social climate of the school and students' feelings toward their social experiences in school thus appear to facilitate beliefs of personal responsibility for learning.

While this effect was similar for feelings toward the future value and consequences of school work (as measured by students' Commitment to Classwork) and responsibility for school successes, the effect for school failures was very small. This suggests more of a reciprocal or symmetrical relationship between failure

and commitment, or possibly that a third variable may account for the relationship between them. A similar implication may be drawn concerning attitudes toward the classroom environment created by the teacher and responsibility for school successes. Thus the effects for success and failure did differ in magnitude, but not in direction, for these two school affect subscales.

In general, the results of this study are consistent with the findings of Arlin and Whitley (1978), Wang and Stiles (1976), and deCharms and his colleagues (deCharms, 1972, 1976; Koenigs, Fiedler, and deCharms, 1977) that opportunities for and perceptions of self-managed learning opportunities significantly affect students' perceptions of self-responsibility for their learning.

These findings, however, do not appear to be entirely consistent with those presented by Weiner, Lerman, and Russell (1979), except perhaps in the two instances where small cross-lagged differences (i.e., .02 and .03) were observed. There are several possible explanations for the differences between the two studies. First, the two designs differed markedly, as Weiner et. al. (1979) used an experimental laboratory design, while in the present instance a quasi-experimental design appropriate for field settings such as the schools was used. Second, general measures of both overall achievement responsibility and school-related affect (specific to the social environment of school) were used in the present study. Weiner et. al. (1979) used specific attribution measures and more person (versus environment) specific affects in their study. Third, the subjects in Weiner et al. (1979) were college undergraduates, while the findings of

this study were with elementary school children. Finally, the idea of symmetry for Weiner appears to connote that just as certain attributional causes or dimensions predict certain affects, likewise knowledge of specific affects allows for prediction of the corresponding attributions and dimensions. In the present study, symmetry connotes similarity of cross-lagged correlations in a statistical sense, suggesting reciprocal or bidirectional influence for cognitive beliefs and affects. Symmetry as connoted by Weiner would thus be possible even with a causally predominant relationship between the constructs as found in the present study. Causal predominance merely suggests that one construct (e.g. quality of school life) is a stronger "cause" of the other (e.g. achievement responsibility) than the converse.

Thus these differences may be an artifact of design considerations. A future study reconciling some of the differences between the present study and the Weiner et al. (1979) study may be warranted to explore the nature of this cognition-emotion relationship further. Clearly, replications with larger samples across various grade levels appear warranted.

Finally, the results of this study should be viewed as one step beyond the identification of association between perceptions of personal responsibility and feelings toward the social climate of school. But it should also be viewed as one step prior to a true experimental test of the causal relationship between the two variables. While the focus here has only been upon students' perceptions, evidence suggests that perceptions or even illusions

of control over the environment influence behavior in many aspects of life, including learning (Lefcourt, 1973; Perlmuter and Monty, 1977). This study offers tentative support for the view that students' attitudes toward the learning environment do influence their beliefs of self-responsibility for their own successes and failures.

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TABLE 1

Cross-lagged and Other Correlations Between Intellectual Achievement Responsibility (I) and Quality of School Life (Q) Variables at Two Times
n=51

	Coefficients					
	Cross-lagged		Stability		Synchronous	
	I_1-Q_2	Q_1-I_2	I_1-I_2	Q_1-Q_2	I_1-Q_1	I_2-Q_2
Quality of School Life						
IAR positive	.41	.53	.53	.69	.49	.48
IAR negative	.34	.47	.47	.69	.52	.51
IAR total	.43	.59	.64	.69	.59	.59
Satisfaction with School						
IAR positive	.36	.50	.53	.66	.39	.43
IAR negative	.29	.45	.47	.66	.43	.50
IAR total	.37	.56	.64	.66	.48	.55
Commitment to Classwork						
IAR positive	.42	.53	.53	.64	.52	.51
IAR negative	.35	.38	.47	.64	.42	.47
IAR total	.44	.52	.64	.64	.54	.58
Reaction to Teachers						
IAR positive	.35	.37	.53	.60	.37	.36
IAR negative	.27	.44	.47	.60	.53	.43
IAR total	.36	.49	.64	.60	.54	.49

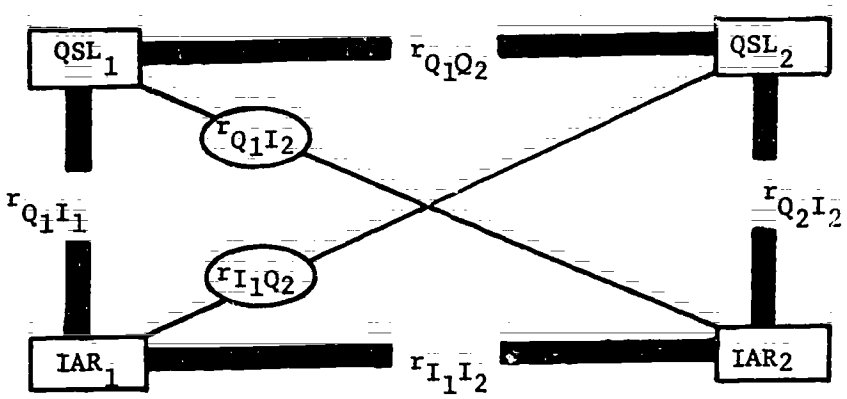

FIGURE 1

Cross-lagged and background correlations between intellectual achievement responsibility (IAR) and quality of school life (QSL) at Time 1 and Time 2.

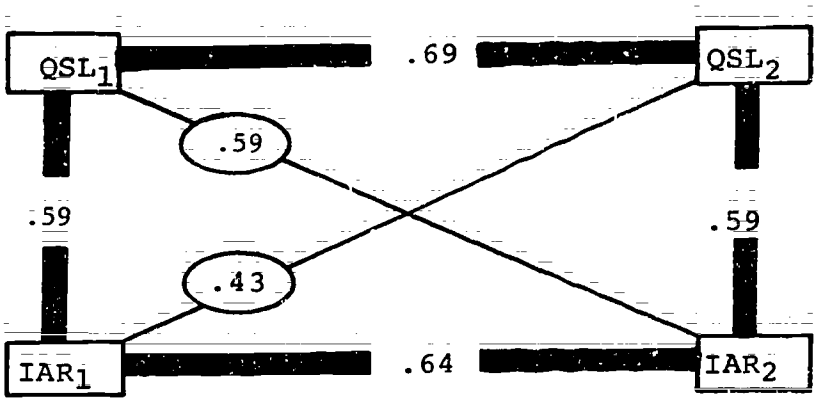

FIGURE 2

Cross-lagged and background correlations between intellectual achievement responsibility (IAR) and quality of school life (QSL) at Time 1 and Time 2.

WO1:A