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ABSTRACT

This study was conducted to compare causal attributions for success and failure response across four school subject areas (English, Mathematics, General Music, and Physical Education) using a "critical incident" methodology. Students (N=205) from a midwestern junior high school completed a questionnaire in which they identified important school-related failure or success experiences. After identifying specific experiences in each of the four subject areas, students responded to six-point Likert-type scale items designed to assess the relative importance of eight causal attributions: ability, effort, strategy, interest, task difficulty, luck, family influence, and teacher influence. Results from a series of analyses of variance, multiple analyses of variance, chi-square, correlational and factor analyses indicated that students' responses were outcome-, attribution-, subject area-, and task-dependent. Consistent with prior dispositional studies, the presence of a strong self-serving effect for attributional response and the absence of the bipolar attributional dimensions advocated by Weiner (1979) were confirmed. A unique finding was the altruism displayed by students in assessing the influence of significant others (teacher, family) on their success and failure experiences; that is, students gave credit to others for their successes, but refused to blame them for failures. The findings suggest that attributional response could not be generalized across subject areas or across specific tasks within some subject areas--most notably General Music and Physical Education. (Author/NB)

Children's Attributions for Personal Success and Failure Experiences in English, Math, General Music, and Physical Education Classes

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Abstract

The purpose of this study was to compare causal attributions for success and failure response across four school subject areas (English, Math, General Music, and Physical Education) using a "critical incident" methodology. Two-hundred-and-five students from a midwestern junior high school completed a questionnaire in which they identified important schools-related failure or success experiences. After identifying specific experiences in each of the four subject areas, subjects responded to six-point Likert scale items designed to assess the relative importance of eight causal attributions: ability, effort, strategy, interest, task difficulty, luck, family influence, and teacher influence. Results from a series of ANOVA, MANOVA, Chi-Square, correlational and factor analyses, indicated that subjects' responses were outcome-, attribution-, subject area- and task-dependent. Consistent with prior dispositional studies, we confirmed the presence of a strong self-serving effect for attributional response and the absence of the bipolar attributional dimensions advocated by Weiner. A unique finding was the altruism displayed by subjects in assessing the influence of significant others (teacher, family) on their success and failure experiences; that is, subjects gave credit to others for their successes, but refused to blame them for failures. Our findings also provided convincing evidence that attributional response could not be generalized across subject areas or across specific tasks within some subject areas--most notably General Music and Physical Education.

Attribution theorists (Heider, 1958; Kelley, 1971; Weiner, 1979;1980) propose that achievement motivation is determined largely by individual interpretations of past achievement events. Research by Weiner (1979, 1980, 1990) indicates that the perceived causes of success or failure and the corresponding dimensionality of those causes (internal-external, stable-unstable, controllable-uncontrollable) are linked to patterns of affective response and achievement striving. Four causal factors -- ability, effort, task difficulty, and luck -- are included in the traditional attribution model as outlined by Weiner (1979). According to Weiner's model, high-achieving students attribute success to ability and effort while attributing failure to lack of effort or external factors (e.g., task difficulty). Conversely, low-achievers cite external factors as causes of success while attributing failure to low ability.

Marsh and his associates (Marsh, 1984, 1986; Marsh, Cairns, Relich, Barnes, & Debus, 1984) have raised several questions concerning the suitability of Weiner's model for investigating individual differences in self-attributions and their relationship to achievement in diverse educational settings. Attribution research supporting Weiner's model typically has employed a situational or state approach, whereby specific components of a hypothetical situation are manipulated to determine their effects on subjects' attributions and whether these effects generalize across all subjects. Marsh distinguishes this approach from dispositional or trait-oriented studies in which the aim is to show that subjects, when reflecting upon personalized experiences of a more ambiguous nature, respond uniquely in a way that may generalize across situations. Undoubtedly, attributions are a reflection of both situational characteristics and individual differences. It appears, however, that real-life experiences and dispositional response across task situations have not been the focus of most attribution research.

In conducting dispositional studies, Marsh recommends that researchers (a) treat success and failure attributions as unique entities, (b) ask subjects to reflect upon personal experiences rather than contrived vignettes, (c) include attributional categories other than those represented in the traditional model (e.g., personality/mood, physical factors, interest, influence of others, etc.), and (d) develop and employ attribution measures supported by strong evidence of reliability and construct validity.

Several important and systematic findings have emerged in three recent studies by Marsh and his associates (Marsh, 1984, 1986; Marsh, Cairns, Relich, Barnes, & Debus, 1984) that incorporated these suggestions. First, self-attributions for success were more internal (ability, effort) than those for failure -- a phenomenon often referred to in the literature as the self-serving effect, self-serving bias, or attributional egotism. Second, the size of this effect depended upon the subject area, causal attribution, and individual difference variables such as academic self-concept and achievement (the higher the self-concept or achievement, the greater the self-serving effect). Third, attributions (e.g., ability) found in these dispositional studies did not generalize over outcomes (success versus failure) or subject areas (reading versus math). Finally, the attributional dimensions identified by Weiner (locus, stability, controllability) did not characterize attributional response in dispositional studies. That is, factor analyses of dispositional attributions did not reveal the bipolar internal-external, stable-unstable, and controllable-uncontrollable dimensions specified in Weiner's model (also see. Crandall, Katovsky, & Crandall, 1965; Elig, & Frieze, 1979; Relich, 1983).

The present study expanded upon Marsh's investigations in several ways

1) Students were asked to respond retrospectively to "critical incidents"-- specific and personally meaningful school achievement events they actually had experienced. According to McHugh, Frieze, and Hanusa (1982) and Whitley and Frieze (1985), naturally-occurring experiences are more valid and emotionally laden than general recollections, hypothetical scenarios, or experimenter-controlled outcomes. While this methodology has been applied successfully in a number of studies (Travis, Burnett-Doering, & Reid, 1982; Farmer, & Vispoel, 1990; Farmer, Vispoel, & Maehr, in press; Weiner, Russell, & Lerman, 1979), it has yet to be systematically compared to dispositional approaches suggested by Marsh or situational approaches used by Weiner..

2) Four school subject areas (English, math, general music, physical education) were examined. Although Marsh's attributional research has focussed on only

two content areas (math and reading), he notes that attributions may become increasingly context-specific when dissimilar subject areas are considered. Several studies have supported this observation, demonstrating that attributional response varied as a function of school content area or learning context (Clifford, 1986b; Farmer & Vispoel, 1990; Farmer, Vispoel, & Maehr, in press; Frieze & Snyder, 1980; Marsh, 1984; 1986; 1988; Marsh, et al., 1984; Whitley & Frieze, 1985). Attributional patterns for arts-related and sport-related content areas appear to differ most markedly from those in other school subject areas (Farmer & Vispoel, 1990; Farmer, Vispoel, & Maehr, in press; Frieze & Snyder, 1980).

3) Eight attribution categories (ability, effort, strategy, interest, task difficulty, luck, family influence, teacher influence) were included. Several recent studies (Anderson, 1983; Anderson & Jennings, 1980; Clifford, 1986a, 1986b; Vispoel & Austin, 1990, 1991) have shown that strategy attributions produce more facilitative responses to failure than either effort or ability attributions While the other non-traditional attribution categories (interest, influence of others) are frequently discounted for having limited value as predictor or intervention variables, they appear to be ecologically valid as evidenced by responses to open-ended attribution formats (Asmus, 1986; Bar-Tal & Darom, 1979; Cooper & Burger, 1980; Elig & Frieze, 1979; Frieze, 1976). In previous studies by Marsh and his associates (Marsh, 1984, 1986; Marsh, Cairns, Relich, Barnes, & Debus, 1984), only three categories of attributions were employed--ability, effort and external. The external category used in these studies contained a mixture of items such as luck, task difficulty, family, and teacher. Because these attributions may elicit differential responses to success and failure, they were examined separately in the present study.

4) Students were asked to identify specific tasks/activities within each subject area. If attributional response varies among subject areas, it might be expected to vary among tasks (differentiated according to privacy of evaluation or ego-involvement) within any single subject area (Frieze & Weiner, 1971; Hiebert, Winograd, & Danner, 1984; Whitley & Frieze, 1985). One advantage of the present methodology (Farmer and Vispoel, 1990; McHugh, Frieze, and Hanusa, 1982) is that such differences can be examined. Moreover, the relative importance of achievement activities in a given subject area can be inferred by comparing the proportion of various activities identified by individuals as successes and failures within each content area.

RESEARCH QUESTIONS AND HYPOTHESES

RESEARCH QUESTION #1 Will the relative endorsement of attributions vary as a function of task outcome, attribution category, or school subject area?
HYPOTHESES
1A. All possible main and interaction effects involving outcome, attribution category, and subject area will be statistically significant.
1B. The effects above will vary in relative magnitude as follows: outcome > attribution category > subject area.
1C. Subject area differences for the endorsement of attributions primarily will separate General Music and Physical Education from Math and English.
1D. Internal attributions will be more endorsed for success than for failure
1E. Differences between levels of endorsement for success and failure will be greater for internal attributions than for external attributions.
(Hypotheses 1A,1B,1D, and 1E are based on the Marsh studies cited earlier and indicate that the self-serving effect is expected to emerge and that the effect will be larger for internal attributions than for external attributions. Hypothesis 1C is based on studies by Farmer and Vispoel (1990), Farmer, Vispoel, & Maehr (in press), and Frieze & Snyder (1980))

RESEARCH QUESTION #2 Will the proportion of recalled achievement experiences vary as a function of outcome and activity within each subject area?

HYPOTHESIS
2. "Testing experiences" will be cited more frequently as failure and success experiences in Math and English than in General Music and Physical Education.
(Hypothesis 2 is based on the assumption that testing experiences are more common in Math and English classes. However, this analysis is primarily exploratory in nature.)

RESEARCH QUESTION #3 Will the relative endorsement of attributions vary as a function of activity/task and outcome within each subject area?
HYPOTHESIS
No a priori hypotheses are stated because this is an exploratory analysis.

RESEARCH QUESTION #4 What is the relationship between achievement and attributional response?
HYPOTHESES
4A. Achievement will have significant positive correlations with internal success attributions, and nonsignificant or significant negative correlations with internal failure attributions. (This effect is expected to be most pronounced for ability attributions.)
4B. Achievement will have nonsignificant or significant negative correlations with external success attributions, and nonsignificant or significant positive correlations with external failure attributions.
4C. The self serving effect (the patterns above) will be greater for high achievers than for low achievers.
(Hypotheses 4A, 4B, and 4C are based on the Marsh studies cited earlier.)

RESEARCH QUESTION #5 What dimensions will emerge when attributions from the four subject areas are factor analyzed?
(Note that attributional responses were analyzed separately for success and failure, since these responses were collected independently for randomly equivalent groups.)
HYPOTHESES
5. The bipolar dimensions of external-internal, stable-unstable, controllable-uncontrollable suggested by the Weiner model will not emerge in these analyses.
(Hypothesis 5 is based on results from Elig and Frieze (1980), and Marsh et al. (1984). However, since no prior studies have factor analyzed the present eight attributions across four content areas, the present factor analyses are largely exploratory in nature.)

METHOD

Subjects

Study participants were 205 students from a midwestern junior high school (7th-grade = 45%, 8th-grade = 55%; male = 56%, female = 44%; mean age = 13.3; average SES = middle to lower-middle class). This sample represented over 90% of all students who attended the school. Data were collected at the end of the school year (June 1989).

Measures

Subjects responded to one of two forms of a 113-item questionnaire assessing success/failure attributions, achievement, and demographic information. Each test form was randomly administered to one-half of the sample. Forms were identical in all respects except that one assessed failure attributions while the other assessed success attributions. On each form, subjects identified important school-related experiences (either failures or successes) for four subject areas (English, Math, General Music, Physical Education) and then classified them according to the activity categories listed on the questionnaire. The activity categories were based on information obtained from teacher interviews and state curriculum guides. Subjects were permitted to describe their experiences if it did not fit into one of the established categories; relatively few subjects (less than 6%) chose this option.

After identifying a specific experience, subjects responded to 24, six-point Likert scale items (1 = strongly disagree, 6 = disagree) designed to assess eight causal attributions: ability, effort, strategy, interest, task difficulty, luck, family influence, and teacher influence. Three items were used to assess each attribution. Each 24-item set was factor analyzed to determine the convergent/discriminant validity of the scales. Within each school subject area, a separate factor analysis was run for success and failure attributions. In every analysis, an 8-factor solution was obtained, reflecting a clearly distinguishable factor for each three-item scale cluster. Coefficient alphas for these clusters ranged from .79 to .96 with a median of.89.

To distribute any potential fatigue or carry-over effects equally across subject areas, each form of the questionnaire was arranged and administered in four, counterbalanced orders; each subject area appeared an equivalent number of times on each of the four pages of the questionnaire. Items used to assess achievement and demographics appeared on the last two pages of both test forms. Achievement was assessed by asking subjects to circle the most recent letter/course grade they had received in English, Math, General Music, and Physical Education. All subjects had completed or were enrolled in courses representing each of these areas. Demographics were assessed through selection-type items about gender, grade, age, and parents' educational levels (SES). Examples of the questionnaires for failure and success are provided in Appendix A.

RESULTS

Research Question 1: Outcome, Attribution Category, and Subject Area Effects Descriptive Statistics and ANOVA Results: Attribution category means by outcome, and subject area are summarized in Table 1 and in Figures 1 and 2. As can be seen from Figure 1, of the 32 success attributions , only four (luck in English, Math, and General Music; and family in General Music) fell below the scale midpoint of 3.5--indicating that 87.5% of the attributions were viewed as viable reasons for success. In rank order (based on the total attribution category means collapsed across subject area--Figure 2, and third to last row in Table 1), the most to least endorsed attributions were effort (5.06), interest (4.59), teacher influence (4.36), ability (4.04), task difficulty (3.98), strategy (3.95), family influence (3.71), and luck (3.35). Regardless of subject area, effort was the most endorsed, while luck was least endorsed. The greatest variability in responses, as shown in Figure 1, was most closely associated with nontraditional attributions (interest, family, and teacher) and with the the two subject areas that typically hold less curricular status (General Music, Physical Education).

TABLE 1
Attribution Means and Differences by Outcome, Attribution Category, and Subject Area.

		Ability	Effort	Strategy	Interest	Task Dif.	Luck	Family	Teacher	Total
English	S	3.76	5.06	3.98	4.52	3.78	3.35	3.63	4.56	4.08
	F	2.96	3.02	3.25	3.71	3.67	2.70	2.24	2.13	2.96
	Dif	0.80	2.04	0.73	0.81	0.11	0.65	1.39	2.43	1.12
Math	S	4.16	5.10	4.11	4.33	3.90	3.19	4.16	4.60	4.19
	F	2.57	2.87	3.43	3.25	3.78	2.50	2.22	2.06	2.84
	Dif	1.59	2.23	0.68	1.08	0.12	0.69	1.94	2.54	1.36
Music	S	4.11	4.92	3.84	4.52	4.06	3.24	3.34	4.24	4.03
	F	3.17	3.57	3.27	3.94	3.61	2.76	3.06	3.14	3.32
	Dif	0.94	1.35	0.57	0.58	0.45	0.48	0.28	1.10	0.71
Phys. Ed.	S	4.14	5.15	3.87	5.00	4.18	3.61	3.71	4.02	4.21
	F	2.28	2.99	2.64	3.58	2.96	2.58	2.30	2.60	2.74
	Dif	1.86	2.16	1.23	1.42	1.22	1.03	1.41	1.42	1.47
Total	S	4.04	5.06	3.95	4.59	3.98	3.35	3.71	4.36	4.13
	F	2.75	3.11	3.15	3.62	3.51	2.64	2.46	2.48	2.97
	Dif	1.29	1.95	0.80	0.97	0.47	0.71	1.25	1.88	1.16

FIGURE 1.
Plot of Attribution Means by Subject Area and Outcome.

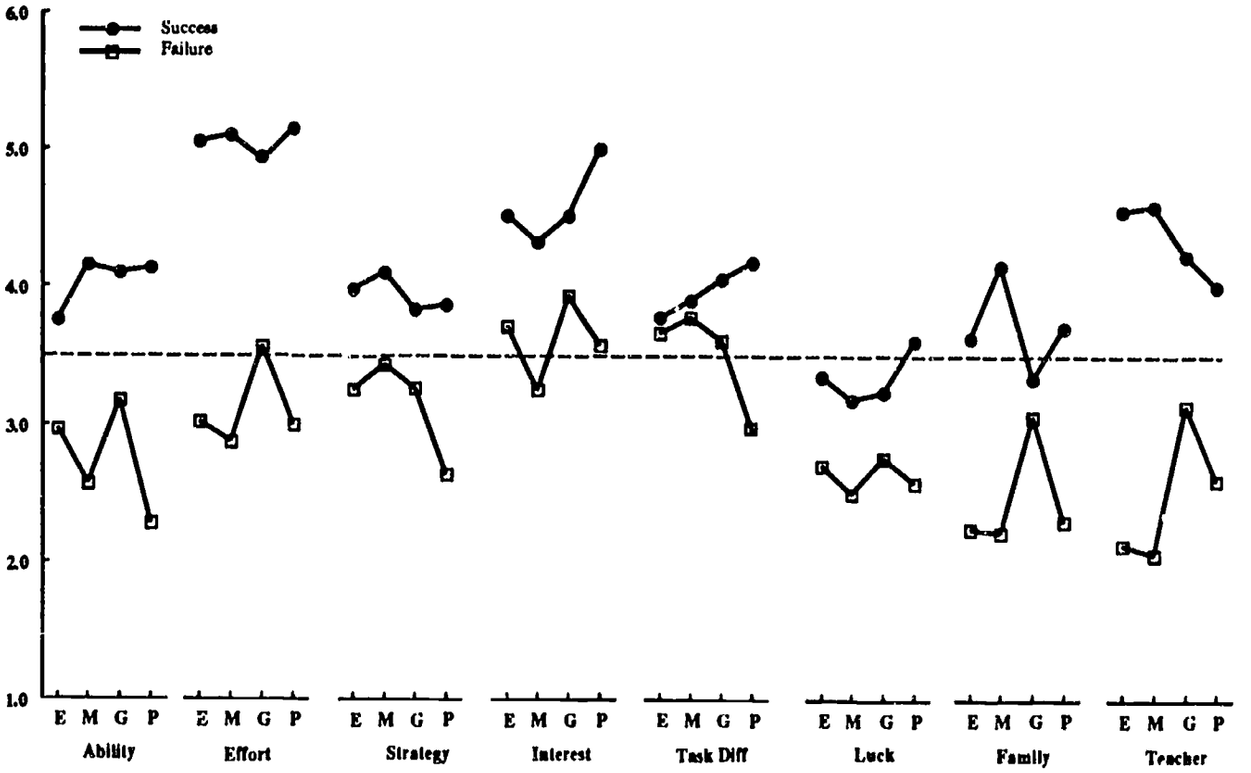
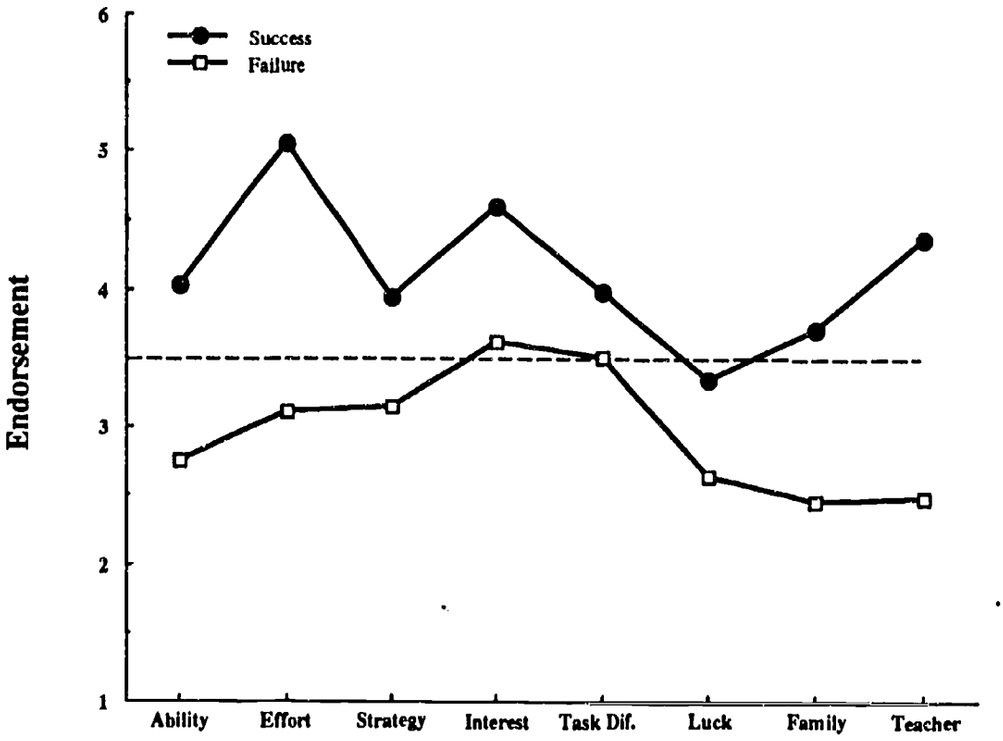


FIGURE 2.
Plot of Total Attribution Means by Outcome.



In contrast to the results for success attributions, only six out of the 32 failure attributions (lack of interest and task difficulty in English; task difficulty in Math; lack of interest; task difficulty, and lack of effort in General Music; and lack of interest in Physical Education) were endorsed as viable reasons for failure--had scale means above 3.5. Subjects readily accepted most of the given attributions as explanations for success, but denied that these same attributions were reasonable explanations for failure. In rank order (based on the total attribution category means collapsed across subject area--Figure 2, and second to last row in Table 1), the most to least endorsed attributions were interest (3.62), task difficulty (3.51), strategy (3.15), effort (3.11), ability (2.87), luck (2.64), teacher influence (2.48), and family influence (2.46). Variability in attributional response among subject areas permeated both nontraditional and traditional attribution categories (except luck), and like success were most closely associated with General Music and Physical Education.

To determine the extent to which attributional response varied as a function of outcome, attribution category, and subject area, the data were analyzed using a 2 X 8 X 4 Split-Plot ANOVA design with one between-subjects factor -- outcome (failure, success) -- and two within-subjects factors -- attribution category (ability, effort, strategy, interest, task difficulty, luck, family influence, teacher influence) and subject area (English, Math, General Music, Physical Education). Consistent with Hypothesis 1A, a significant three-way interaction (Outcome X Attribution Category X Subject Area) emerged, indicating that attributional responses were category-, outcome-, and subject area-dependent (See Table 2). The "Omega Squared" coefficients, given in Table 2, indicate the proportion of variance accounted for by each effect in the ANOVA design. Pooling the appropriate main and interaction effects, it is evident that 70.21%, 34.22%, and 11.80% of the variance was accounted for by effects involving outcome, attribution, and subject area, respectively. These results confirm Hypothesis 1B.

TABLE 2
Split-plot ANOVA Results.

	Hyp DF	Err. DF	F	Sig.	Omega^2
Outcome	1	203	233.77	.000	.5317
Subject	3	609	3.49	.016	.0114
Outcome by subject	3	609	12.34	.000	.0520
Attribution	7	1421	60.02	.000	.2050
Outcome by Attribution	7	1421	24.77	.000	.0826
Subject by Attribution	21	4263	5.08	.000	.0188
Outcome by subject by Attribution	21	4263	8.77	.000	.0358

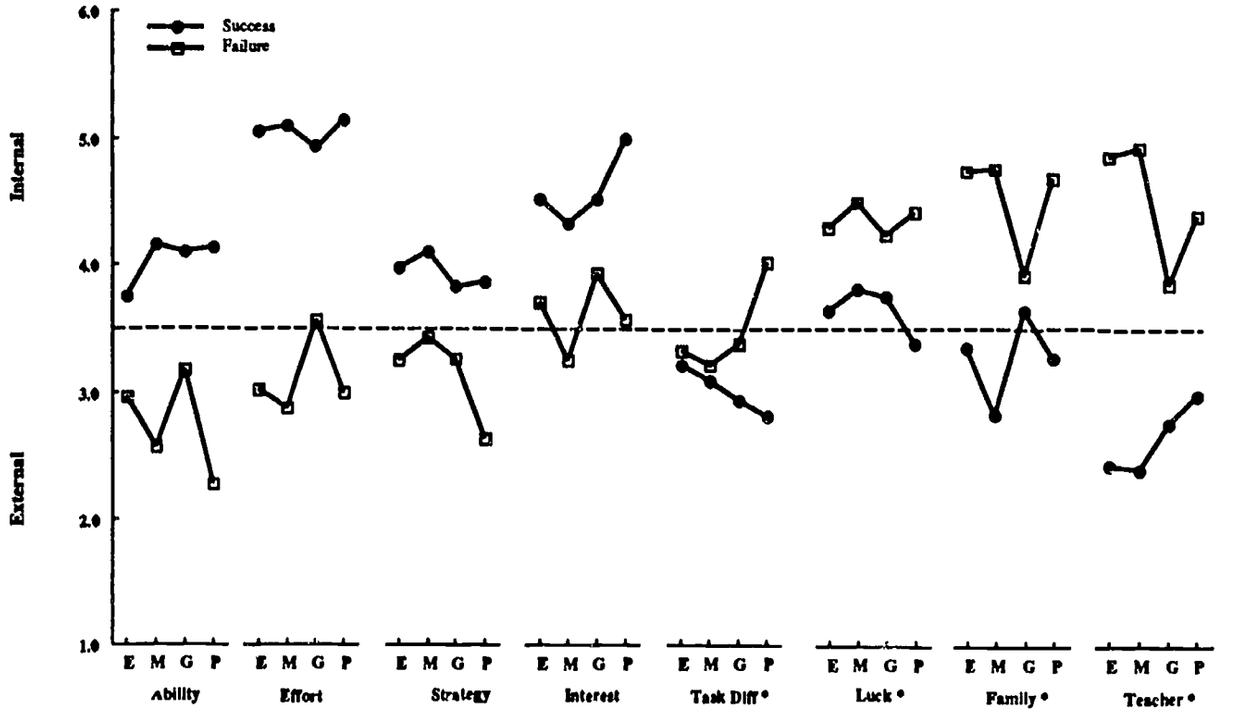
Simple Effect Tests for Outcome Differences: To help clarify the nature of the three-way interaction and to provide a means for evaluating the self-serving effect (Hypotheses 1D and 1E), simple effect tests for outcome differences were conducted and are summarized in Table 3. Following procedures outlined by Marsh (1986), external attribution scale means (task difficulty, luck, family, and teacher) were reversed so that higher scores on all scales reflect more internal responses. The resulting scale means are depicted in Figures 3 and 4. Consistent with Hypothesis 1D and 1E, outcome differences when collapsed across subject areas were statistically significant for all internal attributions (though less so for strategy and interest than for effort and ability) and were nonsignificant for two of the external attributions (luck and task difficulty). Results for the other external attributions (family and teacher), however, were inconsistent with Hypothesis 1E. The difference scores for these attributions indicate that individuals were more likely to give others credit for their successes than to blame them for their failures. Consequently, the large and statistically significant observed difference scores for family and teacher influence were exactly the opposite of a self-serving effect; in fact, one might call this an "altruism" effect. Overall, the self-serving and altruism effects were similar across subject areas with two exceptions; the "self-serving effect" for internal attributions was strongest in Physical Education, and the "altruism" effect for influence of others was weakest in General Music.

TABLE 3
Simple Effect Tests for Outcome Differences

	English	Math	General Music	Physical Education	Total
Ability	1.85*	3.69***	2.18*	4.31***	2.99**
Effort	4.73***	5.17***	3.13***	5.01***	4.52***
Strategy	1.69*	1.58	1.32	2.85**	1.85*
Interest	1.88*	2.50**	1.34	3.29***	2.25**
Task Dif.	.25	.29	1.04	2.82**	1.09
Luck	1.51	1.60	1.11	2.39**	1.65
Family	3.22***	4.50***	.65	3.27***	2.90**
Teacher	5.63***	5.89***	2.55**	3.29***	4.36***

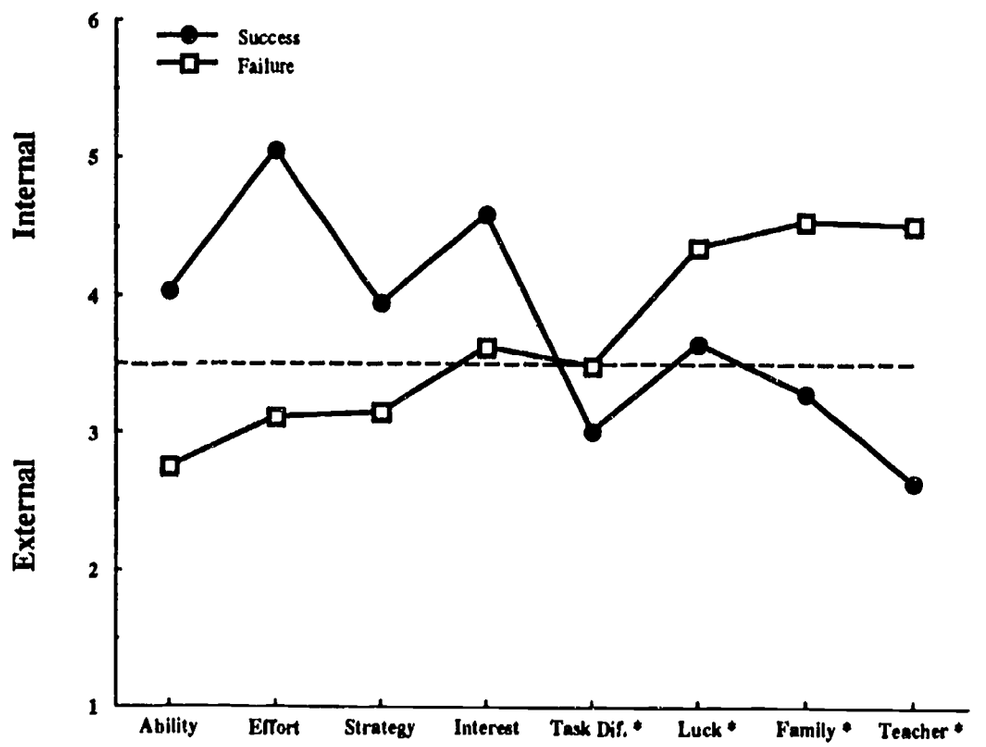
[a]Entries represent t-ratios with df=203. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

FIGURE 3.
Plot of Rescaled Attribution Means by Subject Area and Outcome.



* Responses to the external items were reversed so that higher scores on all scales reflect more internal responses.

FIGURE 4.
Plot of Rescaled Total Attribution Means by Outcome.



* Responses to the external items were reversed so that higher scores on all scales reflect more internal responses.

Simple Effect Tests for Subject Area Differences: Simple main effect tests for subject area differences at each combination of outcome and attribution category were conducted to further clarify the nature of the three-way interaction. These results, summarized in Table 4, indicate that failure experiences produced a broader scope of subject area differences than did success experiences. Significant differences for failure were found for all attributions except luck, while those for success were confined to interest and external attributions (luck, family, and teacher). Consequently, failure experiences were more dynamic than success experiences in eliciting differential attributional response across subject areas.

TABLE 4
Simple Effect Tests for Subject Area Differences

	Success			Failure		
	df	F	Sig.	df	F	Sig.
Ability	3/315	2.41	.067	3/300	4.96	**.002**
Effort	3/315	1.73	.161	3/300	6.68	**.000**
Strategy	3/315	1.55	.201	3/300	12.55	**.000**
Interest	3/315	6.34	**.000**	3/300	4.51	**.004**
Task Diff	3/315	2.46	.063	3/300	11.33	**.000**
Luck	3/315	4.18	**.006**	3/300	1.68	.170
Family	3/315	9.38	**.000**	3/300	14.53	**.000**
Teacher	3/315	6.34	**.000**	3/300	19.06	**.000**

Note that significant differences among subject areas ($p < .01$) are indicated in boldface type.

Scheffé posthoc comparison tests for subject area differences in attributions suggested by the pattern of means are summarized in Table 5. These results are consistent with Hypothesis 1C in that the majority of significant differences separated either General Music or Physical Education from the other subject areas, This is not to say that responses were always similar for General Music and Physical Education; in fact, these subject areas were "unique in unique ways". As Table 5 shows, endorsement means for General Music and Physical Education often were significantly different from each other, as well as from the other subject areas.

TABLE 5
Summary of Significant Mean Differences from Scheffé Test

Success

Attribution	Pattern of Significant Subject Area Differences*
Family	M>E, PE>GM
Interest	PE>E,M,GM
Teacher	E,M>GM,PE
Luck	PE>E,M,GM

Failure

Attribution	Pattern of Significant Subject Area Differences*
Teacher	GM>PE>E,M
Family	GM,PE>EM
Strategy	E,M,GM>PE
Task Diff	E,M,GM>PE
Effort	GM>E,PE,M
Ability	GM,E>M>PE
Interest	GM,E,PE>M

*Indicates significant differences among means beyond the .05 level.

Research Question 2: Activities Cited as Successes and Failures
Frequency Distributions and Chi-Square Tests: As noted earlier, one advantage of the critical incident technique is that the percentage of types of activities cited as important success and failure experiences can be compared systematically. The frequency distributions for activities, presented in Table 6, indicate that subjects recalled a wide variety of activities as important success and failure experiences, but tended to recall certain activities more often that others for both failures and successes. The majority of recalled experiences in General Music and English were performance-oriented (singing, playing an instrument, giving a speech), while the majority in Math were test-oriented. In Physical Education, subjects predominantly recalled "team sport" as a success, and "fitness test" as a failure. Consistent with Hypothesis 2, "test performance" was cited more frequently as a success or failure experience in Math (51.2%) and English (20.7%) than in General Music (7.2%). However, contrary to Hypotheses 2, test performance was cited essentially with equal frequency in English (20.7%) and Physical Education (22.2%).

TABLE 6
Percentage and Frequency for Activities by Outcome and Subject Area *.

		Success		Failure		Total	
		%	f	%	f	%	f
English	Essay	6.2	6	28.1	27	17.1	33
	Speech	54.6	53	38.5	37	46.6	90
	Read story	21.6	21	9.4	9	15.5	30
	Taking test	17.5	17	24.0	23	20.7	40
Math	Problem solve	23.7	22	28.6	28	26.2	50
	Class project	9.7	9	14.3	14	12.0	23
	Graphing/Table	17.2	16	4.1	4	10.5	20
	Taking text	49.5	46	53.1	52	51.3	98
Music	Singing	41.4	41	29.2	28	35.4	69
	Instrument	36.4	36	30.2	29	33.3	65
	Read music	15.2	15	33.3	32	24.1	47
	Taking test	7.1	7	7.3	7	7.2	14
Phys. Ed.	Team sport	65.3	66	27.5	28	46.3	94
	Individual sport	7.9	8	11.8	12	9.9	20
	Recreational game	14.9	15	3.9	4	9.4	19
	Dance	2.0	2	22.5	23	12.3	25
	Fitness test	9.9	10	34.3	35	22.2	45

* Responses to the "other" activity category were excluded.

Chi-square tests were used to determine whether there were significant differences in the percentage of activities recalled as successes and failures within each subject area. The percentage of recalled activities, as shown in Table 7 , was highly outcome dependent with the strongest effects occurring in English and Physical Education. To help clarify the nature of these outcome effects, an additional set of Chi-Square tests was conducted to compare the relative percentage of recalled successes and failures for each subject area activity. As Table 8 shows, outcome differences were significant for about half of the activities. These significant differences are summarized as follows: 1) In English, "understanding a story was cited more frequently as a failure, 2) In Math, "table/graph building" was cited more frequently as a success, 3) In general Music, "reading music" was cited more frequently as a failure, and 4) In Physical Education, "team sport" and "recreational game" were cited more frequently as successes, while "dance" and "fitness test" were cited more frequently as failures. The differential percentages of recalled failures and successes in Physical Education may be partially responsible for the greater variability in attributional response between Physical Education and the other subject areas noted earlier.

Table 7
Chi-Square Tests for Activity and Outcome Differences.within Each Subject Area

Subject Area	Chi-Square	df	Sig
GM	9.31	3	.026*
PE	54.06	4	.000***
E	21.90	3	.000***
M	9.25	3	.026*

*$p < .05$, **$p < .01$, ***, $p < .001$.

TABLE 8
Chi-Square Tests for Outcome Differences for each Activity within each Subject Area.

		Chi-Square	df	Sig
Music	Singing	2.440	1	.118
	Instrument	.754	1	.385
	Read music	6.149	1	.013*
	Taking test	.000	1	1.000
Phys. Ed.	Team sport	15.362	1	.000***
	Individual sport	.800	1	.371
	Recreational game	6.368	1	.012*
	Dance	17.640	1	.000***
	Fitness test	13.899	1	.000***
Math	Problem solve	.720	1	.396
	Class project	1.087	1	.297
	Graphing/Table	7.200	1	.007**
	Taking text	.367	1	.544
English	Essay	13.364	1	.000***
	Speech	2.844	1	.092
	Read story	4.800	1	.092
	Taking test	.900	1	.343

*$p < .05$, **$p < .01$, ***, $p < .001$.

Research Question 3: Activity Effects on Attributional Response
MANOVA and ANOVA Results for Activity Differences: To assess the effect of activity on attributional response, a separate one-way MANOVA was run for each combination of outcome and subject area, with activity as a between-subjects factor and the eight attribution scales as the dependent variable set. (Since this was primarily an exploratory analysis, MANOVAs were used to control the probability of Type I Error.) Results for these analyses and follow-up ANOVAs are given in Table 9. Significant multivariate activity differences ($p < .05$) emerged for failure attributions in Math, General Music, and Physical Education; and for success attributions in General Music. Consistent with earlier results, failures were more dynamic than successes in eliciting differential attributional response. Activity means for attributions in which significant effects were found are provided in Table 10, along with a summary of results from posthoc Scheffé tests suggested by the patterns of activity means. Consistent with Hypothesis 3, the majority of significant activity effects were for success and failure attributions in General Music and Physical Education. In General Music, "singing" elicited stronger ability attributions for success and stronger ability, effort, and teacher attributions for failure than did "playing an instrument", "reading music" or "taking a test". In Physical Education, the most frequently occurring failure attribution differences involved either "dancing/rhythm" or "fitness test". "Fitness test" tended to elicit stronger ability and task difficulty attributions and weaker effort attributions; whereas "dance/rhythm activity" tended to elicit stronger effort and interest attributions and weaker task difficulty attributions.

TABLE 9
MANOVAs and ANOVAs for Activity Effects.

SUCCESS

		Multi	Ability	Effort	Strategy	Interest	Task Dif.	Luck	Family	Teacher
English	DF	24/250	3/93	3/93	3/93	3/93	3/93	3/93	3/93	3/93
	F	1.16	0.80	1.39	1.24	1.47	2.22	0.94	0.02	0.13
	SIG	0.279	0.620	0.251	0.301	0.227	0.091	0.424	0.996	0.944
	Eta^2		0.019	0.043	0.038	0.045	0.067	0.030	0.001	0.004
Math	DF	24/338	3/89	3/89	3/89	3/89	3/89	3/89	3/89	3/89
	F	1.20	0.59	0.33	1.17	2.21	2.01	0.51	1.07	0.90
	SIG	0.243	0.624	0.803	0.325	0.093	0.118	0.677	0.367	0.446
	Eta^2		0.020	0.011	0.038	0.069	0.064	0.017	0.035	0.029
Music	DF	24/256	3/95	3/95	3/95	3/95	3/95	3/95	3/95	3/95
	F	2.77	5.35	0.20	0.98	1.92	7.48	1.31	2.59	4.30
	SIG	**0.000**	**0.002**	0.894	0.405	0.131	**0.000**	0.275	0.057	**0.007**
	Eta^2		0.145	0.006	0.030	0.057	0.191	0.040	0.076	0.120
Phys. Ed.*	DF	32/330	4/96	4/96	4/96	4/96	4/96	4/96	4/96	4/96
	F	1.44	2.53	3.64	2.15	3.08	0.70	0.44	1.75	1.03
	SIG	0.064	**0.046**	**0.008**	0.081	**0.020**	0.592	0.777	0.145	0.400
	Eta^2		0.095	0.132	0.082	0.114	0.029	0.018	0.068	0.041

FAILURE

		Multi	Ability	Effort	Strategy	Interest	Task Dif.	Luck	Family	Teacher
English	DF	24/241	3/90	3/90	3/90	3/90	3/90	3/90	3/90	3/90
	F	0.58	0.07	1.60	0.78	0.09	0.30	1.15	0.45	0.56
	SIG	0.944	0.977	0.195	0.511	0.967	0.822	0.573	0.719	0.644
	Eta^2		0.002	0.047	0.025	0.003	0.010	0.022	0.014	0.018
Math	DF	24/244	3/91	3/91	3/91	3/91	3/91	3/91	3/91	3/91
	F	1.64	0.89	5.73	2.63	2.61	0.51	0.51	0.79	1.16
	SIG	**0.034**	0.448	**0.001**	0.055	0.056	0.679	0.675	0.501	0.329
	Eta^2		0.028	0.157	0.079	0.079	0.016	0.016	0.025	0.036
Music	DF	24/241	3/90	3/90	3/90	3/90	3/90	3/90	3/90	3/90
	F	2.26	3.19	1.83	0.98	3.62	0.27	1.59	0.93	8.09
	SIG	**0.001**	**0.028**	0.147	0.405	**0.016**	0.849	0.198	0.430	**0.000**
	Eta^2		0.096	0.057	0.030	0.107	0.009	0.050	0.030	0.210
Phys. Ed.	DF	32/330	4/96	4/96	4/96	4/96	4/96	4/96	4/96	4/96
	F	2.27	3.13	2.56	0.79	6.56	.4.42	0.68	0.49	0.65
	SIG	**0.000**	**0.018**	**0.043**	0.535	**0.000**	**0.003**	0.610	0.741	0.630
	Eta^2		0.112	0.097	0.032	0.215	0.156	0.027	0.020	0.026

* Follow-up ANOVAs were not interpreted because the overall multivariate result are not statistically significant.
Note that significant differences among activities ($p < .05$) are indicated in boldface type.

Table 10
Activity Means for Significant Effects*

Success
General Music

Activity	N	Ability Mean	Task Dif. Mean	Teacher Mean
Singing (SI)	41	4.80	4.69	3.98
Playing an Instrument (PI)	36	3.90	3.40	4.93
Reading Music (RM)	15	3.46	3.82	3.82
Taking a Test (TT)	7	3.39	4.62	3.67
Significant Mean Differences**		SI>PI,RM,TT	SI,TT>RM,PI	
PI>SI,RM,TT				

Failure
Math

Activity	N	Effort Mean	
Solving Problems (SP)		27	2.38
Completing a Project (CP)	13	4.26	
Tabulating/Graphing (TG)	4	2.83	
Taking a Test (TT)	51	2.79	
Significant Mean Differences		CP>TG,TT,SP	

General Music

Activity	N	Ability Mean	Interest Mean	Teacher Mean
Singing (SI)	28	3.78	4.76	4.18
Playing an Instrument (PI)	28	3.07	3.85	2.71
Reading Music (RM)	32	3.09	3.46	2.71
Taking a Test (TT)	6	1.78	3.67	2.24
Significant Mean Differences		SI>RM,PI,TT	SI>PI,RM,TT	SI>PI,RM,TT

Physical Education

Activity	N	Ability Mean	Effort Mean	Interest Mean	Task Dif. Mean
Team Sport (TS)	28	2.42	3.17	3.47	2.29
Individual Sport (IS)	11	1.64	2.39	2.00	3.03
Recreational Game (RG)	4	1.63	3.33	2.67	3.42
Dance/Rhythm Activity (DR)	23	1.81	3.57	4.53	2.62
Fitness Test (FT)	35	2.74	2.61	3.75	3.57
Significant Mean Differences		FT,TS> DR,IS,RG	DR,RG,TS >FT,IS	DR> FT,TS,RG,IS	FT,RG,IS >DR,TS

* Responses to the "other" activity category were excluded.
**Indicates significant differences among means for posthoc Scheffe' tests ($p < .05$)

Research Question 4: Relationships between Achievement and Attributional Response

Correlational Analysis: The relationship between achievement and attributional response was investigated by computing zero-order correlations between course grade (as reported by subjects) and failure/success attribution scores within each subject area. Ability attributions, as shown in Table 11, had the highest correlations with achievement in all subject areas, regardless of outcome (median absolute value of $r = .51$ across subject areas). Hypothesis 4A were supported by the pattern of correlations for internal attributions (achievement scores had significant positive correlations with internal success attributions , coupled with nonsignificant or significant negative correlations with corresponding internal failure attributions). This result also confirms Hypothesis 4B, indicating that the self-serving effect was greater for high achievers. Hypothesis 4C, on the other hand, was only supported by the pattern of correlations for the external success attributions--luck and task difficulty (achievement scores generally had nonsignificant or significant negative correlations with these success attributions). In most other cases, the pattern of correlations for the external attributions was in the opposite direction from that hypothesized (achievement had significant positive correlations with external attributions, and significant negative correlations with external failure attributions). This reversed pattern of correlations was particularly strong for the external attributions, family and teacher, indicating that the "altruism effect' like the self-serving effect noted earlier is greater for high achievers. Consequently, high achievers are more willing to take personal responsibility and credit others for their successes, but less willing to take responsibility or blame others for their failures.

TABLE 11
Intercorrelations among Attribution and Achievement Variables.

	SUCCESS Grade Point Average					FAILURE Grade Point Average				
	E	M	GM	PE	TOT	E	M	GM	PE	TOT
Ability	.34	.49	.39	.53	.36	-.38	-.65	-.43	-.35	-.48
Effort	.33	.29	.23	.28	.27	.12	-.06	-.14	-.10	.02
Strategy	.29	.17	.16	.43	.28	-.03	-.08	-.25	-.12	-.10
Interest	.29	.19	.37	.27	.27	.02	-.17	-.18	-.20	-.06
Task Diff	.01	.07	.18	.12	-.06	-.03	-.23	-.28	-.09	-.09
Luck	-.17	-.15	.03	-.17	-.18	-.35	-.22	-.32	-.18	-.39
Family	.20	.04	.27	.34	.24	-.29	-.20	-.24	-.04	-.30
Teacher	.29	.11	.10	.29	.14	-.37	-.39	-.30	-.28	-.41
R	.46	.55	.45	.59	.48	.51	.71	.48	.43	.58
R^2	.22	.30	.21	.35	.23	.26	.50	.23	.19	.33

$|r| > .17, p < .05$; $|r| > .17, p < .01$; $|r| > .29, p < .001$

Research Question 5: Dimensionality of Attributional Response

Failure Analysis: The dimensionality of attributional response was assessed by factor analyzing responses to the 32 attribution subscales (8 attributions in four subject areas) separately for success and failure. Although several solutions were examined, a nine factor solution seemed to work reasonable well for both the success and failure.analyses (A principal factor solution and subsequent oblique (oblimin) rotation were used in each case.) The factor pattern matrices for these solutions, along with tentative factor labels are given in Tables 12 and 13. Hypothesis 5 was strongly supported--the bipolar factors of locus (internal-external), stability (stable-unstable), and control (controllable-uncontrollable) were not obtained.

TABLE 12
Factor Analysis Results for Success*

		I	II	III	IV	V	VI	VII	VIII	IX
English	Ability						.60			
	Effort						.39			
	Strategy						.50			
	Interest						.79			
	Task Dif.					.59				
	Luck			.84						
	Family						.70	(.23)		
	Teacher						.54			
Math	Ability				.67					
	Effort				.77					
	Strategy				.59					
	Interest				.66					
	Task Dif.					.70				
	Luck			.65						
	Family							.66		
	Teacher				.30					
Music	Ability		.66						.51	
	Effort		.85							
	Strategy		.46							
	Interest		.93							
	Task Dif.					(.14)			.47	
	Luck			.57						
	Family		.36						.39	
	Teacher		.63					(.06)		
Phys. Ed.	Ability	.58								.39
	Effort	.57								
	Strategy	.79								
	Interest	.62								
	Task Dif.					.52				.56
	Luck			.57						
	Family	(.26)						.30		.47
	Teacher	.71								

*Tentative Factor Names: I = PE Internal/Others, II = GM Internal/Others, III = Luck, IV = MATH Internal/Others
V = Task Difficulty, VI = ENG Internal/Others, VII = Family VIII = GM Ability, IX = PE Ability

TABLE 13
Factor Analysis Results for Failure

		I	II	III	IV	V	VI	VII	VIII	IX
English	Ability					(.78)				
	Effort							.68		
	Strategy							.61	.28	
	Interest							.61		
	Task Dif.				.80					
	Luck	.78								
	Family					.66				
	Teacher	(.51)				(.34)				
Math	Ability			.43						
	Effort			.48					(.39)	
	Strategy			(.17)					.68	
	Interest			.75						
	Task Dif.			.30	.45				(.33)	
	Luck	.70								
	Family					(.29)				
	Teacher			.47						
Music	Ability		.50							
	Effort		.51							
	Strategy	(.37)	.36						.31	
	Interest		.80							
	Task Dif.	(.49)	(.24)							
	Luck	.68	(.17)		(.23)					
	Family		.38			.58				
	Teacher		.77			.				
Phys. Ed.	Ability									.63
	Effort						.73			.
	Strategy						(.22)		.45	.56
	Interest				.44		.65			.
	Task Dif.									
	Luck	.39								.58
	Family					.36				.55
	Teacher			(.49)						.62

*Tentative Factor Names: I = Luck, II = GM Internal/Others, III = MATH Internal/Others, IV = Task Difficulty, V = Family, VI = PE Motivation, VII =ENG Motivation, VIII = Strategy, IX = PE Ability/Others

More important than the confirmation of this hypothesis, however, was the overall pattern of obtained factors. The majority of factors in both success and failure analyses were clusters of attributions for a common subject area (subject-specific factors) rather than clusters of subject areas for a common attribution (attribution-specific factors). In most cases, subject-specific factors contained all of the internal attributions plus the external attribution, teacher. With the exception of a "strategy-related" factor for failure, the only attribution specific factors were for the external attributions, luck, task difficulty, and family. These findings provide strong evidence that most attributions do not generalize across subject areas.

Discussion

The purpose of the present investigation was to examine attributional response using a "critical incident" approach rather than the situational or dispositional approaches used in most prior research. In employing the critical incident approach, one can (a) evaluate naturally occurring success and failure experiences expected to memorable and personally relevant to individuals, (b) compare attributional response for specific activities within the same subject area, and (c) infer the relative importance of different failure and success activities by comparing the percentage of times each is cited. While this technique enhances personal relevance and specificity in describing recalled experiences, the critical incident approach--like any assessment procedure--also has some drawbacks, including the possibility that recalled experiences may be distorted and the problem of generalizing results beyond the specific activities recalled by subjects. However, the use of several approaches--situational, dispositional, and critical incident--is more likely to enhance our understanding of attributional theory than is the exclusive use of any one technique. As Marsh (1986) has pointed out, one can not assume that results from situational studies generalize to dispositional studies or vice versa, even though this practice is common in the attribution literature. Similarly, it is not justified to assume that results from critical incident studies generalize to either situational or dispositional studies.

While acknowledging these reservations, it was hypothesized in the present study that attributional response to critical incidents would yield results similar to those in dispositional studies, since both approaches involve self-perceptions of personally-referenced failure and success experiences. The two approaches differ predominantly in terms of whether the sampled experience is real (critical incident) or hypothetical (dispositional).. For example, in Marsh's instrument a math ability attribution question might be phrased "Suppose you did badly in a math test. This is probably because you always do badly in math tests." (answered on a 5-point true-false scale). In the present study, the respondent would choose test as a past failure experience and then would respond to an item such as "I did poorly on the test because I have weak skills in math." (answered on a 6-point Likert scale).

In general, the present results were similar to those obtained by Marsh and his associates in dispositional studies. .When responding to traditional attributions (ability, effort, task difficulty, luck), the present subjects tended to take more personal responsibility for their successes and less responsibility for their failures (i.e., the self-serving effect was obtained), and this effect was greater for high achievers than for low achievers. Despite this general trend, there was at least one important distinction that emerged regarding traditional attributions--effort rather than ability elicited the greater self-serving effect. Because subjects recalled successes and failures that were personalized and important to them, it would seem logical that high levels of effort expenditure actually occurred, and therefore effort attributions would be endorsed for success and denied for failure.

The self-serving effect obtained for strategy and interest attributions was systematically lower than that obtained for effort and ability--despite the fact that strategy and interest also may be conceptualized as internal attributions. This may have occurred because strategy and interest, are not as ego-involving as ability and effort. Strategy attributions tend to focus attention away from oneself and more toward the task to be accomplished. The reduced self-serving effect observed for strategy is consistent with recent studies suggesting that strategy attributions produce more facilitative response to failure than do ability and effort attributions (Anderson, 1983; Anderson & Jennings, 1980; Clifford, 1986a, 1986b; Vispoel & Austin, 1990, 1991). Similarly, the reduced self-serving effect observed for interest may have occurred because failing due to "lack of interest" is not as ego-threatening as failing due to "lack of ability" or "lack of effort". This observation is supported by the finding that lack of interest was the most endorsed failure attribution. The differential self-serving effects observed for the internal attributions imply that it is inappropriate to combine ability, effort, strategy and interest into a single attribution category. In previous studies by Marsh, separate ability and effort scales were used; the present study indicates that, if included, strategy and interest attributions also should be measured separately.

In contrast to the self-serving effect obtained for internal attributions, an "altruism effect" was observed for the external attributions--family and teacher. In general, subjects were more willing

to credit others for their successes than to blame them for their failures, and like the self-serving effect this tendency was more pronounced for high achievers. This finding has at least two important implications. First, external attributions such as luck, task difficulty, and others (family, teacher) should not be combined into the same category as was done by Marsh in previous studies. Second, the presence of an altruism effect coupled with a self-serving effect suggests that subjects attributional responses represent accurate self-perceptions rather than conscious and intentional distortions of reality designed to protect one's ego (i.e., a self-serving "bias".) Clearly, the altruism effect would not have emerged if ego protection or gratification was preeminent on the minds of subjects. This conclusion is consistent with a number of previous studies (Brewer, 1977; Miller, 1978; Miller & Ross, 1975; Marsh, 1984, 1986; Marsh, Cairns, Relich, Barnes, & Debus, 1984)

Another conclusion, based on the observed differences in the self-serving effect among attributions and the factor analysis results, is that it is inappropriate to collapse responses for different attributions to form scales for Weiner's dimensions of locus (internal-external), stability (stable-unstable), and controllability (controllable-uncontrollable).in critical incident studies like the present one. Marsh and his associates (Marsh, 1984, 1986; Marsh, Cairns, Relich, Barnes, & Debus, 1984) came to the same conclusion in their dispositional studies. While these results do not invalidate the Weiner dimensions for situational research, they provide compelling evidence that separate attribution scales should to used rather than locus, stability, and controllability scales in critical incident and dispositional studies.

A related and important finding that emerged from the factor analyses and other statistical tests was that attributional response did not necessarily generalize across subject areas or even across activities in the same subject area. In the factor analysis results, there was much stronger evidence for separate subject dimensions (containing predominantly internal attributions) than there was for separate attributional scales that cut across subject areas. With the exception of a strategy factor for failure, all other attribution-specific factors involved the external attributions--luck, task difficulty, and family. These results provide strong evidence that internal attributions in particular do not generalize across subject areas when subjects are permitted to recall their own naturally-occurring successes and failures.

Although the factor analytic results indicated that attributional response is not necessarily correlated across subject areas, there was a reasonable degree of similarity in the patterns of relative endorsement of attributions across subject areas. (e.g.., rank ordering of attributions tended to more similar than difference across subject areas) When differences did emerge they usually were associated with General Music and Physical Education and were evident at both subject area and activity levels. In General Music, the altruism effect was weaker than in other subject areas; and "singing" elicited significantly different attributional responses than did the other music activities. In Physical education, the self-serving effect was stronger than in other subject areas; and "fitness test" and "dance"elicited different attributional responses than did the other Physical Education activities. These results highlight not only the importance of analyzing attributions separately for different subject areas, but also of analyzing attributions separately for activities within certain subject areas.

A final important finding was that subjects recalled a wide variety of different success and failure experiences, and that with the exception of Math, these experiences were predominantly non-testing situations. This finding is significant because most attributional research in classroom settings has involved testing. The present results suggest that other ongoing classroom activities may be just as , if not more, powerful as testing situations in understanding the motivation of students. The recalled activity data also provided hints about those activities that students are likely to remember as success and failure experiences in the sampled subject areas. For example, the most commonly recalled failures were "giving speeches" and "writing essays" in English; "taking tests" in Math; "singing", "playing an instrument", and "reading music" in General Music; and "fitness test", "team sport", and "dance" in Physical Education. Knowing the activities that students commonly recall as failures can help instructors target appropriate failure coping strategies for the identified activities.

Summary

Research involving a critical incident methodology, nontraditional attributions, and subject areas outside of the core curriculum, can provide new perspectives on the motivational processes that influence school achievement and learning behaviors. The results of such studies also may be viewed as more ecologically valid than those obtained using situational or dispositional approaches. In agreement with the work of Marsh and his associates, we confirmed the presence of a strong self-serving effect for attributional response and the absence of the bipolar attributional dimensions advocated by Weiner. A unique finding was the altruism displayed by subjects in assessing the influence of significant others (teacher, family) on their success and failure experiences; that is, subjects gave credit to others for their successes, but refused to blame them for failures. Finally, our findings provide convincing evidence that attributional responses can not be generalized across subject areas or across specific tasks within some subject areas, notably General Music and Physical Education.

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Appendix A

Examples of Questionnaires for Success and failure Experiences

DIRECTIONS: Think about your past experiences in junior high school **PHYSICAL EDUCATION** classes. Try to remember a time in which you did particularly <u>well</u> on an activity that was important to you. The activity you are thinking of might be listed below. If so, circle the letter preceding the activity. If the activity is not listed below, please circle the letter preceding "other" and describe the activity in the space provided. Be sure to circle only one letter.

A. Participating in a team sport (*e.g.*, volleyball, basketball, soccer, softball, touch football)
B. Participating in an individual sport (*e.g.*, tennis, golf)
C. Participating in a recreational game (*e.g.*, shuffleboard, badminton, table tennis)
D. Participating in a dance/rhythm activity (*e.g.*, aerobic, folk, square or social dance)
E. Taking a physical fitness test (*e.g.*, 12-minute run, pull-ups, sit & reach)
F. Other _____
(please specify)

There may have been many different reasons why you did well on the activity you just circled. The following statements are possible reasons why you might have done well. Read each statement carefully and put an "X" in the appropriate box to indicate the extent to which you agree or disagree with each statement. Be sure to respond to all of the statements.

I DID WELL ON THE ACTIVITY BECAUSE:

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
1. I was lucky.	☐	☐	☐	☐	☐	☐
2. The activity was easy.	☐	☐	☐	☐	☐	☐
3. I have strong skills in physical education.	☐	☐	☐	☐	☐	☐
4. I tried hard.	☐	☐	☐	☐	☐	☐
5. I liked the activity.	☐	☐	☐	☐	☐	☐
6. My parents have strong skills in physical education.	☐	☐	☐	☐	☐	☐
7. I liked the teacher.	☐	☐	☐	☐	☐	☐
8. I used the right study or practice methods.	☐	☐	☐	☐	☐	☐
9. I had good luck.	☐	☐	☐	☐	☐	☐
10. The activity was simple.	☐	☐	☐	☐	☐	☐
11. I am talented in physical education.	☐	☐	☐	☐	☐	☐
12. I made a strong effort.	☐	☐	☐	☐	☐	☐
13. I was interested in the activity.	☐	☐	☐	☐	☐	☐
14. Talent in physical education runs in my family.	☐	☐	☐	☐	☐	☐
15. I got along with the teacher.	☐	☐	☐	☐	☐	☐
16. I used effective learning or training strategies.	☐	☐	☐	☐	☐	☐
17. The odds worked in my favor.	☐	☐	☐	☐	☐	☐
18. The activity wasn't difficult.	☐	☐	☐	☐	☐	☐
19. I have natural ability in physical education.	☐	☐	☐	☐	☐	☐
20. I tried to do my best.	☐	☐	☐	☐	☐	☐
21. I found the activity enjoyable.	☐	☐	☐	☐	☐	☐
22. My parents are talented in physical education.	☐	☐	☐	☐	☐	☐
23. The teacher understood me.	☐	☐	☐	☐	☐	☐
24. I knew the best ways to study or practice.	☐	☐	☐	☐	☐	☐

DIRECTIONS: Think about your past experiences in junior high school ENGLISH classes. Try to remember a time in which you did particularly poorly on an activity that was important to you. The activity you are thinking of might be listed below. If so, circle the letter preceding the activity. If the activity is not listed below, please circle the letter preceding "other" and describe the activity in the space provided. Be sure to circle only one letter.

A. Writing an essay
B. Giving a speech or oral report
C. Reading and understanding a story
D. Taking a test
E. Other _____
(please specify)

There may have been many different reasons why you did poorly on the activity you just circled. The following statements are possible reasons why you might have done poorly. Read each statement carefully and put an "X" in the appropriate box to indicate the extent to which you agree or disagree with each statement. Be sure to respond to all of the statements.

I DID POORLY ON THE ACTIVITY BECAUSE:

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
1. I was unlucky.	☐	☐	☐	☐	☐	☐
2. The activity was difficult.	☐	☐	☐	☐	☐	☐
3. I have weak skills in English.	☐	☐	☐	☐	☐	☐
4. I didn't try hard.	☐	☐	☐	☐	☐	☐
5. I disliked the activity.	☐	☐	☐	☐	☐	☐
6. My parents have weak skills in English.	☐	☐	☐	☐	☐	☐
7. I disliked the teacher.	☐	☐	☐	☐	☐	☐
8. I used the wrong study or practice methods.	☐	☐	☐	☐	☐	☐
9. I had bad luck.	☐	☐	☐	☐	☐	☐
10. The activity was complicated.	☐	☐	☐	☐	☐	☐
11. I'm not talented in English.	☐	☐	☐	☐	☐	☐
12. I made a weak effort.	☐	☐	☐	☐	☐	☐
13. I wasn't interested in the activity.	☐	☐	☐	☐	☐	☐
14. Talent in English doesn't run in my family.	☐	☐	☐	☐	☐	☐
15. I didn't get along with the teacher.	☐	☐	☐	☐	☐	☐
16. I used ineffective learning or training strategies.	☐	☐	☐	☐	☐	☐
17. The odds worked against me.	☐	☐	☐	☐	☐	☐
18. The activity wasn't easy.	☐	☐	☐	☐	☐	☐
19. I don't have natural ability in English.	☐	☐	☐	☐	☐	☐
20. I didn't try to do my best.	☐	☐	☐	☐	☐	☐
21. I didn't find the activity enjoyable.	☐	☐	☐	☐	☐	☐
22. My parents aren't talented in English.	☐	☐	☐	☐	☐	☐
23. The teachers didn't understand me.	☐	☐	☐	☐	☐	☐
24. I didn't know the best ways to study or practice.	☐	☐	☐	☐	☐	☐