

Relationships Between Attributional Style and Trait Anxiety for Preadolescent Australian Boys and Girls¹

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ABSTRACT

This study examined relationships among components of attributional style and trait anxiety for 428 English-speaking boys and girls, grades 4-6, from primary public schools in New South Wales, Australia. Students completed general measures of attributional style and trait anxiety. Results showed a small but significant relationship between negative attributional style and trait anxiety. In addition, girls reported higher trait anxiety than boys, and attributional style and trait anxiety were strongly correlated for girls, but not for boys. Compared to younger students, older students reported more internal attributions for negative events and higher overall scores on negative attributions. Implications of these results for education are discussed.

Key words: Children, attributional style, trait anxiety, gender comparisons, Australia

INTRODUCTION

Many psychological factors have been shown to influence children in academic settings. For example, self-efficacy, learned resourcefulness, explanatory style, need achievement, trait anxiety, and cognitive style all influence learning outcomes (Salili, 1994; Seipp, 1991; Smith & Bond, 1993). While these constructs are usually examined in isolation, there has been a paucity of research devoted to the relationships between these dispositions among Australian preadolescent children, in general, and with attributions and trait anxiety, in particular (Bell-Dolan & Wessler, 1994). Researchers have found that anxiety disorders are among the most prevalent in childhood

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(e.g., Kashani & Orvaschel, 1990). Thus, it is not surprising that both trait and state anxiety have been studied in educational settings.

Several investigators have studied the complex relationship between trait anxiety and students' academic performance. The results of these studies have been equivocal, depending on various anxiety constructs, characteristics of participants, and the conceptualisation of performance (Seipp, 1991). Still, the results of several studies indicate that children with high trait anxiety perform more poorly in school than their low-anxious peers (e.g., Ialongo, Edelsohn, Werthamer-Larsson, Crockett, & Kellam 1994; Sarason, 1972). Likely reasons for poorer academic performance include low self-image (Fite, Howard, Garlington, & Zinkgraf, 1992) and reduced information processing efficiency (Calvo & Carreiras, 1993).

An additional factor that might influence children's academic expectancies, perhaps related to their anxiety, is attributional style. Attributional, or explanatory, style is defined as the pattern of explanations for the causes of events (Abramson, Seligman, & Teasdale, 1978; Seligman, 1975). Abramson et al. (1978) identified three dimensions of attributional style, each of which is related to adapting to an uncontrollable event. These are the locus, stability, and globality of the person's causal explanation. The locus dimension concerns whether the event occurred due to the person's actions, an internal attribution, or due to a situational factor, an external attribution. In their critique of this literature, Abramson et al. contend that internal, not external, attributions following unpleasant events are related to loss of self-esteem.

The stability dimension of Abramson et al.'s (1978) model concerns explaining the event as due to a persistent factor (e.g., a stable attribution), or to a transient factor (e.g., an unstable attribution). To Abramson et al., stable attributions may lead to more chronic adaptational deficits. The globality dimension concerns whether the cause of this event influences many aspects of life, a global attribution, or influences only the currently experienced specific event. Along these lines, Tennen and Herzberger (1985) contend that the globality of a person's causal explanation includes a generality of adaptational deficits across situations. Attributing an unpleasant event to a global factor may lead to pervasive adaptational deficits, whereas attributing the event to a more specific cause will lead to less pervasive deficits. In summary, with regard to negative events, a negative explanatory style consists of internal, stable, and global attributions, whereas a positive explanatory style consists of external, unstable, and specific attributions.

Causal attributions have been shown to be an important motivational factor in promoting academic performance (Dweck & Elliot, 1983; Kaslow, Rehm, Pollack, & Siegel, 1988). Dweck and Wortman (1982) found that children tended to explain academic failure as due to stable and global causes. Further, these explanatory patterns correlated significantly with decreased persistence, reduced quality of problem-solving strategies, and lowered expectations for future success. Fincham, Hokoda, and Sanders (1989) found that stability attributions predicted academic performance in 3rd- and 5th-grade students. Thus, children's causal explanations of their academic success or failure can significantly influence their expectancies for and actual future academic performance.

Attributional style has been examined as a source of children's anxiety, particularly in educational settings. For example, Rodriguez and Routh (1989) studied the relationship between trait anxiety and attributional style among learning disabled and non-learning disabled elementary school students. They found that anxiety was positively associated with a more positive, rather than a more negative, attributional style for both groups of students. Alternatively, Bell-Dolan and Last (1990) found that both trait anxiety and anxiety disorders in children were significantly correlated with negative attributional style. Specifically, children with anxiety disorders were more likely to generate internal, global, and stable attributions for negative events than non-anxious children. Similarly, Hilsman and Garber (1995) found that a negative attributional style, more than a positive style, was associated with persistent negative reactions to a "bad" report card among fifth and sixth graders.

Other researchers have found that attributional style in children affects levels of depression, self-esteem, and achievement motivation (Dweck & Elliot, 1983; Kaslow et al., 1988). In a meta-analytic review of studies of children and adolescents, Joiner and Wagner (1995) found that attributional style and depression are clearly correlated. In particular, whereas positive attributional styles were associated with reduced depression, negative attributional styles were associated with increased depression. These relationships did not vary as a function of gender or age. Kaidar, Weiner, and Tannock (2003) found that, compared to controls, children with ADHD tended to view their problem behaviors as less under their control and as more global and stable across situations. Similarly, Tabassam and Grainger (2002) found that students with learning disabilities showed more negative academic attributional styles. It is possible that attributional style is similarly related to trait anxiety among children in school settings.

In a comprehensive review of the attributional styles of anxious children, Bell-Dolan and Wessler (1994) noted several important theoretical and research trends. First, they found a virtual absence of research on the cognitive aspects of children with high trait anxiety. Second, they argue that studying attributions associated with anxiety in children would have important implications for treatment and educational interventions. Third, they suggest that internal and stable failure attributions, coupled with external success attributions, may reflect a person's doubts about his or her ability to succeed, and a tendency to engage in avoidance behaviour. Finally, they did not discuss gender differences in the attribution-anxiety relationship among children.

Several studies have indicated that anxiety about school and educational performance is widespread among children and increases with age (e.g., McDonald, 2001). Weary, Stanley, and Harvey (1989) found that high state anxiety in academic settings may reduce expectancies of future performance, foster negative mood states, and inhibit educational success. According to Ahrens and Haaga (1993), high levels of anxiety, in both trait and state forms, may be related to negative attributional style, at least among college students (see also Bell-Dolan & Wessler, 1994). In a study of college students, Corr and Gray (1996) found that trait anxiety was positively correlated with negative attributional style and negatively correlated with positive attributional style. The researchers suggest that students who make internal and stable attributions for their failures may be more likely to show fear and avoidance of possible failure situations. This tendency has important implications for controlling state anxiety, because as children develop their ability to anticipate possible negative events and acknowledge the subsequent consequences, their ability to overcome anxiety in educational settings may improve dramatically (Vasey, 1993).

The results of previous studies suggest that gender may also be an important factor when considering how attributions and trait anxiety relate to each other. Several studies indicate gender differences in attributional style. For example, in a longitudinal U.S. study, Nolen-Hoeksema, Girgus, and Seligman (1991) found that 3rd-, 4th-, and 5th-grade boys reported significantly more pessimistic attributions for negative events than similarly aged girls (see also Callaghan & Manstead, 1983). Dweck, Goetz, and Strauss (1980) showed that girls were more likely to attribute failure to global than specific causes. Adams (1985) found that Australian female high school students offered more internal explanations following both practice and criterion task performance on the Australian Scholastic Aptitude Test (ASAT) than did males (see also Chandler, Shama, & Wolf, 1983). In a study of computer experiences among 5th-graders, Nelson and Cooper (1997) found that boys made unstable attributions for failure, whereas girls made unstable attributions for success. Bar-Tal (1978) found that females rated their ability lower than males, especially after successful outcomes. Other researchers, however, have found no significant gender differences in attributional style following successful or unsuccessful academic performance (e.g., Bar-Tal, Goldberg, & Knaani, 1984; Johnson & Kanoy, 1980).

The research literature is replete with studies indicating that females tend to show higher levels of anxiety and fearfulness than males. For example, the results of selected studies have indicated that females score higher than males on test anxiety (e.g., DiMaria & DiNuovo, 1990;

McDonald, 2001). Although researchers have not found gender differences in math anxiety among elementary students (e.g., Gierl & Bisanz, 1995), college-aged females report greater math anxiety than males (Campbell & Evans, 1997). Ginsburg and Silverman (2000), in a study of children with anxiety disorders, found that lower scores on masculinity were associated with higher levels of both general and specific fearfulness. In another study, del Barrio, Moreno-Rosset, Lopez-Martinez, and Olmedo (1997) found that 11-15 year old adolescents girls scored higher on measures of depression, anxiety, and neuroticism than boys. Some researchers have argued that, at least in the case of trait anxiety, observed gender differences might reflect socialization differences in the perceived appropriateness of reporting anxious symptoms (e.g., Dweck & Bush, 1976; Ollendick, Matson, & Helsen, 1985).

Finally, researchers have examined changes in selected dispositions as a function of age or grade. For example, according to Horn (2004), internal locus of control, perfectionism, perceived competence, self-esteem, and many others increase with age. Whereas children in early elementary school show less adult-like attributions, by middle to late elementary school, children's attributions are similar to adults' (e.g., Frieze, 1981). Wigfield (1988) found that older children showed adult-like self-serving biases, attributing failures to specific causes but successes to internal and global causes.

In summary, relatively little research has examined the relationships between attributional style and trait anxiety in late childhood, particularly among Australian students. Research is also equivocal regarding gender differences in this area. Therefore, the purpose of this study was to examine the relationship between attributional style and trait anxiety among preadolescent, English-speaking, Australian students. Based on previous research, we expected that higher trait anxiety would be associated with a more negative attributional style. As a second purpose of this study, we explored gender differences in students' attributional style and trait anxiety. Based on past research, we expected that females would report higher levels of trait anxiety than males. We also examined whether the relationship of attributional style and trait anxiety would differ for females and males. Because previous research is equivocal regarding gender differences in attributional style, we did not have specific predictions here. A third purpose of this study was to investigate age-related changes in trait anxiety and attributional style. Based on past research, we expected that older children would report more trait anxiety and more internal attributions.

METHOD

Participants

Participants consisted of 428 students (214 boys, 214 girls) from English-speaking families attending elementary schools in grades 4-6 in New South Wales, Australia. Students' ages ranged from 9 to 12 yrs ($M = 10.27$, $SD = .93$), with 131 4th-graders, 161 5th-graders, and 136 6th-graders.

Prior to data collection, we obtained parental permission for all children's participation, as required by the local Department of School Education. To meet this requirement, all children took home a permission slip and a cover letter written by the school's principal to support the study and encourage participation. Approximately 55% of students returned permission slips and constituted the final sample size. Return percentages were similar across grades (4th: 31%; 5th: 36%; 6th: 32%).

Materials

We measured students' attributional style with the Children's Attributional Style Questionnaire (CASQ; Kaslow, Tanenbaum, & Seligman, 1978). The CASQ is a self-report, forced-choice measure of general explanatory style, assessing the child's tendency to attribute positive and negative events to internal, stable, and global factors. For both positive and negative events, respondents receive internal, stable, and global scores. These scores are combined into

composite positive and negative scores. An overall attributional style score is calculated by subtracting the negative from the positive composite. Thus, high overall attribution scores reflect a tendency to make more internal, stable and global attributions for positive than negative events.

Seligman, Peterson, Kaslow, Tanenbaum, Alloy, and Abramson (1984) report Cronbach's alphas for the composite positive, composite negative, and overall attributional style as .71, .66, and .73, respectively. They also demonstrated criterion and construct validity of the CASQ, in which positive and negative attributional styles were related to theoretically relevant symptomatology. In the present study, the raw scores of the tests were converted to the scaled score in accordance with the norms of the tests. The alpha reliability coefficients in the current study were .70, .67, and .71 for composite positive, composite negative, and overall attributional style, respectively.

Students also completed the State-Trait Anxiety Inventory for Children – Trait Form (STAIC-T; Spielberger, 1973). The STAIC-T is a self-report measure of general childhood trait anxiety. Spielberger reported construct validity and Cronbach's alpha of .78 for males and .81 for females, with high internal consistency ranging from .83 to .92. The reliability coefficient of test-retest was .65 for males and .71 for females. In the current study, the alpha reliability coefficients were .73 for boys and .77 for girls. Higher scores reflect a more extensive level of trait anxiety.

Students' academic performance scores were obtained from their school records with the permission of the respective school principals. This methodology was derived from Ames (1984), who studied achievement attributions of fifth and sixth grade children and used teacher ratings as the only criterion for students' academic achievement. The classroom teachers, who had access to the students' records, were asked to score their students based on a scale ranging from 0 (*very poor*) to 100 (*very high*) reflecting the students' general level of academic performance. Teacher ratings rather than grades were used in this study to measure academic performance because schools differed in their technique for evaluating student academic performance. However, the majority of schools in the district included teacher ratings during the school year.

Procedure

Prior to data collection, students were briefed about the nature of the study, informed that their responses to the inventories were confidential - each questionnaire was coded with an identifying number - and were then given the opportunity to ask questions. The students verbally consented to participate in the study after being advised that refusing to participate would not result in any deleterious consequences and that they could withdraw from the study at any time without penalty. Teachers assisted with data collection by administering the materials during class time. Teachers read each item aloud to the students, who then immediately wrote their response. We counterbalanced the order of presentation of the anxiety and attribution measures across classes.

RESULTS

Correlational analysis indicated moderate support for our first prediction, that negative attributional style would be associated with higher trait anxiety. In particular, trait anxiety was negatively related to positive stability, $r(426) = -.11, p < .05$, and positively related to negative stability, $r(426) = .18, p < .001$, negative globality, $r(426) = .13, p < .01$, and composite negative attributional style, $r(426) = .15, p < .005$. In addition, trait anxiety was negatively related to overall attributional style, $r(426) = -.15, p < .005$, and academic performance, $r(426) = -.12, p < .01$. Academic performance was negatively correlated with scores on negative stability, $r(426) = -.10, p < .05$, and negative globality, $r(426) = -.17, p < .001$. In other words, as students' academic performance ratings decreased, their tendency to attribute negative events to stable and global factors increased. Although these results provided support for our prediction, the magnitude of the relations was small.

Gender analyses on the major measures revealed several significant differences (see Table 1). As expected, girls reported higher trait anxiety than boys. In addition, boys reported higher scores on negative internality, negative stability, and composite negative attributional style than girls. Finally, overall attributional style scores were higher (more positive) for girls than boys.

Consideration of the relationship between attributional style and trait anxiety by gender revealed several interesting and significant results. As Table 2 indicates, trait anxiety was strongly related to attributional style for girls but was unrelated to attributional style for boys. Girls who reported higher trait anxiety showed lower scores on stable and composite attributions for positive events and higher scores on stable, global, and composite attributions for negative events. Increases in girls’ overall attributional style (i.e., more positive attributions) were negatively correlated with trait anxiety.

The pattern of gender differences was reversed when considering the relationship between academic performance and attributional style (see Table 2). For girls, academic performance was significantly related to neither attributional style nor trait anxiety. However, for boys, academic performance was positively correlated with negative internality scores and negatively correlated with negative globality scores. In other words, as boys’ internal attributions increased and global attributions decreased for negative events, their grades increased. Finally, boys’ trait anxiety was significantly and negatively correlated with their academic performance.

Table 1: Descriptive Statistics for Trait Anxiety, Academic Performance, and Attributional Style by Gender

Measure	Females (<i>n</i> = 214)	Males (<i>n</i> = 214)	
	Mean (SD)	Mean (SD)	
Trait Anxiety	35.75 (7.79)	33.75 (6.83)	**
Academic Performance	76.08 (12.03)	74.33 (13.44)	
Positive Internality	4.43 (1.44)	4.49 (1.37)	
Positive Stability	4.41 (1.97)	4.08 (1.82)	
Positive Globality	4.43 (1.52)	4.29 (1.52)	
Composite Positive	13.28 (3.63)	12.87 (3.18)	
Negative Internality	3.00 (1.75)	3.35 (1.85)	*
Negative Stability	2.16 (1.55)	2.76 (1.42)	***
Negative Globality	2.52 (1.36)	2.50 (1.34)	
Composite Negative	7.68 (2.98)	8.60 (2.86)	***
Overall (Positive – Negative)	5.60 (5.27)	4.27 (4.57)	**

Note. * *p* < .05; ** *p* < .01; *** *p* < .001.

Table 2: Relations among Attributional Style, Trait Anxiety, and Academic Performance by Gender

Measure	Females (<i>n</i> = 214)		Males (<i>n</i> = 214)	
	Trait Anxiety	Academic Performance	Trait Anxiety	Academic Performance
Positive Internality	-.13	.01	.05	.00
Positive Stability	-.16 *	-.11	-.08	-.08
Positive Globality	-.06	-.02	-.01	.09
Composite Positive	-.16 *	-.06	.09	.00
Negative Internality	.02	.02	-.01	.15 *
Negative Stability	.32 ***	-.09	.09	-.08
Negative Globality	.15 *	-.12	.11	-.21 **
Composite Negative	.24 ***	-.09	-.02	-.04
Overall (Positive – Negative)	-.25 ***	.01	-.08	.02
Trait Anxiety	---	-.12	---	-.16 *

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

In order to examine the relation of age to anxiety and attributional style, we conducted a series of 3 (grades 4, 5, 6) x 2 (male, female) ANOVAs. These analyses revealed significant grade effects on negative internality, $F(2, 422) = 6.65, p < .001$, and composite negative style, $F(2, 422) = 3.71, p < .05$. In particular, students showed an increase in internal attributions for negative events from 4th – 6th grades ($M_s = 2.79, 3.12, \text{ and } 3.60$, respectively) as well as an increase in composite negative attributions from 4th – 6th grades ($M_s = 7.58, 8.19, 8.62$, respectively). We found no age effects for anxiety and no grade by gender interactions.

DISCUSSION

In this study, we examined the relationship of attributional style and trait anxiety among Australian schoolchildren. We also explored gender differences among these variables and their relationship. Very little previous research has examined this question. We found moderate support for our prediction that higher trait anxiety would be associated with a more negative attributional style. In addition, we found significant gender differences in students' attributional style and trait anxiety. As expected, girls reported higher levels of trait anxiety than boys. We also found support for our prediction that children would report increased negative attributions with age.

Most importantly, the relationship between attributional style and trait anxiety differed for girls and boys. Girls who attributed negative events to stable and global causes were more trait-anxious than girls who attributed these events to unstable and specific causes. These findings are consistent with several previous studies (e.g., Ahrens & Haaga, 1993; Hedl, 1990; Heimberg, Klosko, & Dodge, 1989; Lynd-Stevenson & Rigani, 1996; Teglasi & Fagin, 1984).

The small magnitude of the attributional style and trait anxiety relationship is not inconsistent with previous research. Such research suggests that negative attributional styles are more strongly related to anxiety about social rather than academic situations (Bell-Dolan & Wessler, 1994). We used a general measure of trait anxiety that is not specific to academic settings, although several items on the STAIC-T do pertain to such settings. It would be interesting to use more specific anxiety

measures, such as those pertaining to test anxiety or mathematics anxiety, to further explore the relations between anxiety and attributions for boys and girls.

For example, Ryan (2004) found gender differences in musical performance anxiety among 6th-graders. In particular, boys showed higher heart rates and more anxious behaviours than girls while performing in a piano recital. Although Ryan did not measure the students' subsequent attributions for their performance, we would expect different performance attributions among boys and girls as well as among students who were high versus low in anxiety.

We also used a general measure of attributional style. Future studies should include examining environmental-specific inventories, such as the Academic Attributional Style Questionnaire, to determine school-related attributions (e.g., Martinez & Sewell, 2000; Tiggemann & Crowley, 1993). A stronger observed relationship between attribution style and anxiety may result, especially if that measure taps academic anxiety.

In summary, it is also possible that students may show different anxieties and attributional styles for different school subjects, such as math, English, or physical education. Because our measures of anxiety and attributions were general rather than domain- or subject-specific, even stronger relationships might be found with more specific measures. Nonetheless, the fact that we found a relationship between general attributional style (which applies across a variety of social, academic, and family domains) and general trait anxiety for children is consistent with, and contributes to, the limited research on this question (Bell-Dolan & Wessler, 1994).

Some researchers have considered whether different attributional components are more important than others. For example, Abramson et al. (1978) emphasized stability as an important component of the negative attributional style. In their review of the attributional style and anxiety literature, Bell-Dolan and Wessler (1994) proposed that certain attributional dimensions might be more strongly related to anxiety than others. In particular, stable attributional dimensions tend to show the strongest relations with anxiety compared to the globality and internality dimensions. Our findings supported this argument. Neither internality nor globality was strongly related to trait anxiety, however stability was strongly related to anxiety (for girls).

The results indicating that girls reported higher trait anxiety than boys are also consistent with other findings (e.g., Call, Beer, & Beer, 1994; Joiner & Blalock, 1995; Ollendick et al., 1985). Differences in psychological characteristics between girls and boys may be related to socio-cultural factors. For example, girls admit to their fears more freely than boys (Ollendick et al., 1985), and parents report that their daughters show more fears than their sons (Bouldin & Pratt, 1998). Perhaps admitting a fearful state is more acceptable for girls than boys (Harris & Ferrari, 1983). Joiner and Blalock (1995) report that females score higher than males on negative emotionality. Thus, if the fears and anxieties reported by girls are a normal part of their development and socialisation, then these feelings are more freely accepted, leading to a higher reporting rate by girls than boys. From an educational perspective, if girls show more fears or anxieties related to their academic performance than boys, this might lead to differential treatment from teachers (e.g., Beckman 1970; Martinek & Johnson, 1979).

Without considering trait anxiety, girls indicated a less negative, pessimistic attributional style than boys. This finding is consistent with past research (e.g., Nolen-Hoeksema et al., 1991). In particular, girls tended to attribute negative events more to external and unstable causes, representing an optimistic attributional style. The explanatory pattern of boys, however, was to attribute negative events to internal and stable causes, suggesting a more pessimistic attributional style (Seligman et al., 1984). However, whereas girls tended to make less negative attributions than boys as a group, girls with high trait anxiety showed much more negative attributions than low-anxiety girls. For boys, trait anxiety was unrelated to their explanatory style. Why might this be? Weiner (1986) proposed that females in an achievement situation tend to attribute perceived success to unstable causes and perceived failure to stable causes, whereas for males this pattern is reversed. We found the opposite pattern for the students in our sample, with girls scoring higher than boys on positive stability but lower on negative stability. Girls who attributed negative events to unstable

factors showed higher levels of trait anxiety. Perhaps the lack of predictability or control over negative events generates (or reflects) greater anxiety about those events, especially if girls prefer explanatory stability over instability compared to boys.

In another possible explanation of these findings, Bell-Dolan and Wessler (1994) claim that anxious individuals who experience success unexpectedly tend to not perceive future success as likely. This explanation process reflects an unstable, rather than a stable, attributional pattern. The researchers concluded that "anxious individuals would externalise credit for success in order to prevent others from expecting future success. Thus, internal and stable failure attributions and external success attributions are presumed to result from anxious individuals' own doubts about their ability to succeed, as well as from their desire to present themselves in a way that protects them from further negative evaluation by others" (p. 83). It may be that such an explanation applies more to girls than boys, although we collected no data that would address this possibility.

We expected increases in both trait anxiety and internal attributions with age. Results did not support the anxiety prediction. One possible explanation for this outcome is that our general measure of anxiety did not directly assess test anxiety, which has been shown to increase with age (McDonald, 2001). As we discussed earlier, this result lends credence to the need for context-specific measures of anxiety. Our results did support the prediction of increased internal attributional style with age, but only with regard to negative events. This result is consistent with past research that has shown increased internality with age along several cognitive dimensions (Frieze, 1981; Wigfield, 1988). As a partial explanation of this result, Horn (2004), in her review of the developmental changes in youth sport, concluded that young athletes take increased responsibility for failure outcomes (e.g., attributing failure to low ability). One consequence of this attributional pattern is the young athlete's reduced satisfaction and eventual withdrawal from sport competition. Perhaps this pattern applies also to academic settings. In particular, students might learn early on to take credit for their academic successes, but with maturation they learn to take increased responsibility for their failure outcomes. Future research is needed to examine this possibility.

Implications for Future Research

Taken separately, our trait anxiety, attributional style and sex difference results are consistent with previous research. However, what the present study contributes to the research literature is its consideration of how these variables work together. As the preceding discussion has demonstrated, the relationship between anxiety and attributions is clearly complicated by gender considerations. Our study serves as a first step toward identifying some of these considerations. In the final section of this paper, we briefly discuss some of the implications of these issues for future research.

It might be worthwhile for future studies to examine the different components of anxiety as they relate to attributions. Liebert and Morris (1967) distinguished between worry and emotionality components of anxiety. Gillis, Nadeau, and Claybourn (2005), using the Child Anxiety Scale, identified three factors that included apprehensiveness, emotional instability, and vigilance/suspiciousness. It is likely that different academic, social, and performance settings would be more strongly associated with certain anxiety factors. For example, high levels of worry or apprehensiveness associated with taking tests might lead to more negative global or stable attributions for failure (in a pattern that might differ for boys and girls).

Our measure of academic performance was less than ideal for two reasons. First, it was a general rating rather than specific to academic area. Past research (e.g., Campbell & Evans, 1997; Nelson & Cooper, 1997) suggests that attributions will differ for boys and girls depending on the academic content area. Second, the academic performance measure was based on teachers' ratings rather than on more objective indicators of achievement.

It is possible that teachers' ratings of students might have been influenced by their perceptions of students' attributional or anxious tendencies. Alternatively, students' attributions might be accurate reflections of their teachers' perceptions. For example, if a teacher thinks that a student is a

poor performer, that student might incorporate the teacher's opinion into a stable and global negative attributional style. These possibilities are certainly worth exploring.

Despite the weak negative relation observed between trait anxiety and academic performance in our study, the direction was consistent with previous research. Several studies have shown that emotionally disturbed children are characterized by poorer academic performance (e.g., Becker, 1982; Rodriguez & Routh, 1989; Tomb & Hunter, 2004; Williams, Watts, Macleod, & Mathews, 1988).

Future research might also address the causality research question of whether trait anxiety causes more pessimistic attributions for negative events, or whether a negative attributional style causes high trait anxiety. Given that internal attributions for negative events were more likely for the older children in our study, whereas trait anxiety did not vary by age, our results suggest that trait anxiety may become increasingly tied to one's explanations for negative events with age. Why this would occur for girls but not for boys remains an open question and, if this is a robust finding, should be the examined more thoroughly.

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