

GENDER DIFFERENCES IN HIGH ACHIEVERS' ATTRIBUTIONAL STYLE

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ABSTRACT. The present study focuses on variations in attributional style among high achieving adolescents, in relation with gender and level of achievement. The sample included 113 Romanian high school students, who completed an adapted version of Attributional Style Questionnaire (*ASQ*). Results suggest that gifted girls tend to display an internal, stable and global attributional style, which leads to a self-effacing attributional pattern. High achieving boys show similar attribution patterns, with a more positive tendency. Although differences among the four subgroups are inconsistent, the findings suggest a disadvantaging attributional style in both high achieving boys and high achieving girls.

Keywords: giftedness, high achievement, gender, attributional style

Inhaltsangabe. Die vorliegende Studie konzentriert sich auf die Variationen des attributionalen Stils unter Jugendlichen mit hohen Leistungen, im Verhältnis mit dem Geschlecht und das Niveau der Leistung. Die Auswahl schloss 113 rumänische Schüler vom Gymnasium ein, die eine adaptierte Version des Formulars über Attributionalen Stil (*ASQ*) ausgefüllt haben. Die Ergebnisse haben angezeigt, dass begabte Schülerinnen die Tendenz haben, stabiler und globaler attributionaler Stil ab zu bilden, was zu übertriebenem bescheidenem attributionalem Muster führt. Schüler mit hohen Leistungen zeigen ähnliche attributionalen Muster, mit einer positiven Tendenz. Obwohl die Unterschiedlichkeiten unter der vier Untergruppe inkonsistent sind, zeigen die Ergebnisse einen attributionalen Benachteiligungsstil sowohl bei Schüler mit hohen Leistungen als auch bei Schülerinnen mit hohen Leistungen.

Stichwörter: Begabung, hohe Leistung, Geschlecht, attributionaler Stil

Introduction

Although this study aims to partially uncover effects of gender and achievement level on students' attributional style, the theoretical background of the research is larger in scope for several reasons: firstly, giftedness issues tend to be very specific, and identification problems persists despite researchers' efforts to explain processes, methods and to develop valid and reliable instruments; secondly, gifted/high achieving girls have a distinct personality profile, mainly due

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to socialization influences, which affects their educational track and career expectations; and thirdly, there is a need to review studies on gifted students' attributional style, and associated characteristics. Approaching these matters is relevant especially in the context of the growing interest for gifted students, and appropriate counseling and educational provisions. On the other hand, attributional style, as isolated personality variable or combined with other characteristics as self-efficacy, self-concept, self-esteem, decision-making style etc. may have important effects on academic achievement in both average and high achievers.

There is a rather large body of research on high school students' attributional style, but less work has been done to document attribution patterns among high achieving boys and girls. Therefore, the present study addresses the research problem of gender and achievement level as influencing factors for students' attributional style. Gender-related assumptions in the field lack the support of sufficient empirical data and our research attempts to answer this specific need, searching for particularities in high achievers' attribution patterns. We explored the issue through a rather simple research design, and due to study's limitations (mainly the size and the composition of the sample, the lack of longitudinal information on participants) findings may be generalized with caution. Additional information is also needed for doubtlessly concluding on effects of gender and achievement level on attributions' internality, stability and globality.

Our approach of the research problem includes an extensive literature review, concentrated on three issues: explaining the overlaps of the terms giftedness and high achievement, summarizing available research outcomes on gender and giftedness, discussing present scientific knowledge on gender differences among gifted students, in terms of attribution patterns and related personality features. Previous studies reviewed in this article support our research choices: the samples of high achievers and average achievers have been established based on cumulative information gathered through intelligence tests, academic records, and results in various academic competitions; and attributional style has been explored with an adapted version of *Attributional Style Questionnaire (ASQ)*, Peterson et al., 1982). Results are discussed against the literature reviewed as theoretical background, and final conclusions are provided.

Gender and giftedness: the scope of research interests

Giftedness / High Achievement. Although avoided in the title, *giftedness* is one of the central concepts in the present study. It may be considered a quite confusing term, due to the variety of accepted definitions. Several theoretical models of giftedness are currently used as foundation of giftedness' identification and education processes (Gagné, 1999; Gardner, 1999; Mönks, 1992; Renzulli, 1998, 2000; Sternberg, 1990). Most of the concurrent definitions accept that high achievement in one or multiple academic domains may be interpreted as giftedness.

One of the most influential definitions within the field offered by Marland (1972, p. ix) indicates high performance as part of manifested giftedness: "Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance". In the attempt of defining giftedness from a developmental perspective, researchers identify a theoretical category – the so called achievement-oriented models of giftedness (Mönks & Mason, 2000), which support the idea that *achievement* is the observable output of giftedness. The most influential achievement-oriented model of giftedness is the "three-ring conception" of J. S. Renzulli (1998, 2000), which emphasizes that high achievement is based on outstanding level of ability, task commitment and creativity. The model has been improved by F. J. Mönks (1992), who placed the three rings in the context of environmental influences on gifted adolescents' development (school, family and peers are named to be most influential environmental factors at this age).

The achievement-oriented approach in defining giftedness and authors' distinction between potential and realized capacities may be questioned, but it has several advantages: it serves both high achievers and underachievers, provides opportunity for educational interventions and equally orients theorists and practitioners' attention on human potential and processes associated to its full achievement and recognition (Mönks & Mason, 2000).

Based on contributions discussed above, the term "high achievers" is preferred, and identification of participants has been conducted by considering both intelligence tests results and students' level of academic achievement.

Gender and giftedness/ high achievement. Gender differences among gifted individuals have been subject of numerous studies, most of them searching for explanations for gifted girls' and women' problems in fulfilling their potential.

Early and recent studies underline that giftedness is evident in the girls at an earlier age than boys because gifted girls are more likely to show developmental advancement in a variety of areas: gifted girls are likely to speak earlier, to read earlier, and to write earlier than gifted boys (Silverman, 1986). Gifted girls outperform gifted boys in classroom achievement throughout the school years, maintaining higher grades in all subjects (Gallagher, 1985), but the age of adolescence seems to bring changes in gifted girls' aspirations, expectations and achievement (Kerr, 1997).

However, gifted girls may have career interests more similar to those of gifted boys (Silverman, 1986) and tend to be less rigid in their sex role identification than average girls (Hay & Bakken, 1991; Kerr, 1997). Although the number of gifted females interested in math and natural sciences is increasing, they continue to avoid the physical sciences, computer science, and engineering (Campbell & Clewell, 1999).

A study of adolescents' attitudes toward their own giftedness notices that gifted girls were evidently concerned about the impact of their giftedness on others' attitudes (Kerr, Colangelo & Gaeth, 1988). Although most of them believed

that there were some social advantages to being gifted, females saw more disadvantages than their male peers. There was a deep ambivalence about the label *gifted* as well as concern about negative images others might hold of that label. There is also evidence that gifted girls are also vulnerable to loss of self-esteem (Lea-Wood & Clunies-Ross, 1995) and to risky behaviors that can jeopardize their goals and dreams (Kerr & Robinson-Kurpius, 1999).

Researchers agree upon the idea that social stereotypes affect dramatically the lives of gifted girls and women: they have been excluded to a large degree for their contributions and accomplishments because societal rules restrict women's opportunities and achievements within society's structure. Personal goals are often compromised for the sake of family and other responsibilities, and lost opportunities become the norm as women fail to pursue original goals. Hollinger and Fleming (1992) studied career choices made by gifted young women. Their examination revealed that at age 29, young women "have yet to achieve the educational, career, and lifestyle aspirations they identified in adolescence" (p. 207). Arnold (1987) noted similar results from her study: by their final year in college, women have already compromised their original career goals, and have changed to fit in with their perceptions of the multiple roles they would have as wives and mothers. Conditions such as these can limit women's realization of their potential, and, if recognition does occur, it may come late in life (Heilbrun, 1979; Rubin, 1994).

Barriers in social affirmation of women's giftedness can be discussed either as internal factors or external determinants, both categories being extensively analyzed in previous research. This study will focus on attributional style, as one of the internal factors which can make the difference between gifted males and females.

Gender and attribution style in high achievers. Although numerous studies have been conducted on students' attributional style, less effort has focused on gifted students' attribution patterns.

Gifted girls and females are considered underserved in the present educational systems, especially in the programs oriented toward sciences, and attributional style, as an important type of self-cognition, has been suggested as one of the underachievement factors.

Factors associated with gifted girls' underachievement during school years and adulthood are multiple, either internal (personality factors) and external (mainly explicit and implicit influences of parents and teachers). One of the most influential works on gifted females and their struggle to fulfill their potential, written by B. Kerr (1997), reveals some of these barriers in gifted girls' development: sex-role stereotypes which determine children by the age of eleven to lose their assurance in themselves and their abilities, difficult psychological adjustment of gifted girls and women to society's expectations.

According to S. M. Reis (2002), the factors may include dilemmas about abilities and talents, personal choices about family, choices about duty and caring

and nurturing the talents in oneself as opposed to putting the needs of others first, religious and social issues which consistently affect women across their life-spans, poor planning, hiding abilities and differences, perfectionism, *attributing success to luck rather to ability*, poor choice of partners, and confusing messages from home about politeness.

Although the causes for gender differences are still disputed in the literature, the focus of research has shifted during the last few years towards explanations based on differing self-related cognitions and more socialization oriented approaches. Noteworthy among the latest explanatory theories (for an overview see Ziegler & Heller, 1997; Beerman et al., 1992) is the amount of importance attached to various differing socialization experiences attributed to gender which can, to a certain extent, be effective even before formal instruction has started.

According to Broom et al (1998) these socialization experiences can be subdivided into two components: self-related cognitions, particularly attribution style, self-concept or implicit theories of abilities, and previous experiences. Research shows that boys prove themselves to be significantly more adept at both of these components (Ziegler, Heller & Broome, 1996 cited by Broom et al, 1998). The results of their study on physics achievement show that shutting the gender gap in physics by compensating for the deficits in prior knowledge among the girls is illusionary. As depicted by the regression analysis conducted within the mentioned study, neither prior knowledge nor talent level can explain the gender differences evident in physics course grades. These findings strongly support that gender differences in physics/science achievement are more influenced by the second component of physics-related socialization experience: self-related cognitions, such as domain specific self-concept or attribution style connected with achievement results. Based on this conclusion, authors recommend intervention treatments aiming changes in self-related cognitions of the girls, particularly an improvement of dysfunctional attribution styles.

Similar findings are also reviewed by S. L. Hanson (1996): personality characteristics that vary by gender and have an impact on achievement especially in sciences include confidence and self-esteem, sex-role attitudes, educational/occupational expectations and locus of control. These personal resources persist in their importance through the school years, and influence achievement even after the high school years. Notably, one's perceptions of one's ability in sciences and attribution of success to ability have been reported to be important predictors of participation and performance in science during college. Authors suggest that men have the advantage on last dimensions discussed.

Social stereotypes encourage girls to adopt self-conceptions and values that demote science interest and achievement. These self-conceptions lead to a pattern of learned helplessness with respect to science and mathematics, with success attributed to luck and failure to lack of ability. In girls, this pattern of attribution of

success and failure with respect to science and mathematics increases from elementary to high school (Hamilton & Tindall, 2004).

Reviewing the literature available at the time, DeMoss, Milich & DeMers, S. (1993) support this body of research suggesting that gender differences in attributional styles are linked to social learning factors such as sex-role stereotypes and differential evaluation feedback from parents and teachers. Generally, females tend to attribute negative events to internal, stable, and global causes, while males tend to attribute negative events to external, unstable, and specific causes. Their empirical study proved no difference between attribution scores for both positive and negative events among high achieving boys and girls. Beyond these results, attributional style was shown to correlate significantly with creativity and depression in gifted students.

Several studies on gifted psychology and education emphasize that gifted girls' achievement and processes associated with career orientation and development in adulthood are linked with some syndromes, which may be also identified in non-gifted population, but are constantly reported for gifted girls and females. One of the syndromes studied in relation with gifted girls and women – the “*fear of success*” (first introduced by Horner in 1970) – illustrates their beliefs according to which their success and achievement would eventually lead to rejection by their peers and families (Rakow, 2005).

Two relevant studies are to be mentioned in relation with fear of success syndrome: Arnold's (1995) work on high school students and Ludwig's (1996) research on Olympic contenders. Arnold reported high school girls losing confidence in their ability after few years of college, and lowering assessment of their intelligence. The author suggests this phenomenon to be a cause for changing college plans, goals for graduate study, choice of career or of a partner. Ludwig (1995) found fear of both success and failure in participants, but fear of success has been proved to be primarily a female issue: “Fear of success for women seems to initiate from a cognitive belief system that sometimes becomes an insurmountable obstacle to success” (p. 31).

A related issue well documented in the literature is the *imposter syndrome* (Clance & Imes, 1978; Clance, 1985), which describes the low sense of self-esteem that occurs when gifted females attribute their success to external factors and judge their achievement as accidental or undeserved. The difficulty experienced by many gifted women in understanding the complex relationship between effort and ability is related to the imposter syndrome (Johnsen & Kendrick, 2005).

The two phenomena previously described are directly linked to high achieving girls' attributional style, and this line of reasoning emphasizes the importance of the feature in studying the psychological and behavioral profile of gifted females.

The present study

Based on the literature review, we tested the general hypothesis that girls (with average and high level of achievement) tend to make more internal, stable

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and specific attributions than boys, especially in the case of negative events (higher scores for locus of control, stability, and global attribution, and lower scores for differential locus of control and differential stability).

Specific research hypotheses derived from the one mentioned above have been tested, using descriptive and inferential statistics.

Method

Participants. The sample included 113 Romanian high school students, 60 males and 53 females, 58 with average achievement / intellectual ability and 55 identified as high achievers / above average intellectual ability. The level of intellectual ability was estimated based on intelligence test results (under and above the score of 120), as reported by the school counselors. In addition, school achievement and participation in various academic contests has been considered in including students in one of the two groups (See also Table 1 below).

Table 1.

Crosstabulation: Gender * Achievement level

		High/Average Achievement		Total
		Average	Above average	
Gender	Male	32	28	60
	Female	26	27	53
Total		58	55	113

Instrument. *Attributional Style Questionnaire (ASQ)*, Peterson et al., 1982) with positive and negative events adapted to participants' age was applied for measuring the dependent variable. The instrument was previously adapted and piloted; computed reliability (Cronbach's Alpha) for the resulted version is 0.77. Attributional style involves two aspects of an event: the valence (where the outcome is experienced as positive or negative) and whether the event involves individual achievement or affiliation (relationship to others). The perceived cause of the event is a function of a) the extent to which the individual believes that the causes of the event are internal or external and b) whether the causes are seen as stable or variable. There are four attributional patterns: a) *self-effacing* - external attributions for good events and internal attributions for negative events; b) *external* - external attributions for good events and bad events; c) *self-enhancing* - external attributions for negative events and internal attributions for positive events; d) *internal* - internal attributions for good and bad events.

The questionnaire asks respondents to make causal interpretations for twelve hypothetical situations that might happen to a student. There are six affiliation events involving relationships with other people (example: "I had an

argument with my best friend in the class”) and six achievement events (example: “I got a bad grade in one subject”). Half of each subset is positive in outcome (example for positive affiliation situation: “I meet a friend, who compliments me on my look”; example for positive achievement situation: “I finished an important project, and it was appreciated”) and half is negative (example for negative affiliation situation: “A friend needs my help, but I don’t offer any support”; example for negative achievement situation: “I cannot finish all school tasks assigned to me”). Individual respondents are asked to imagine the outcome if it were to happen to them. They indicate their perception of the major cause for the event on 7-point scales representing locus (from 1=totally due to other people or circumstances to 7=totally due to me), stability (from 1=will never again be present to 7=will always be present), and perceived globality of the cause (1= influences only this area of my life to 7= influences also other areas of my life).

Locus for events (the overall tendency to attribute events to internal or external causes) is computed by averaging the internality ratings for all twelve events. Differential locus (the tendency to perceive the causes of positive events as more internal than the causes of negative events) is computed by subtracting mean locus ratings for negative events from those for positive events. Positive scores indicate a self-enhancing pattern; a negative score indicates a self-effacing pattern. Stability of causes is computed in a similar fashion. A positive score on differential stability indicates that good events are attributed to more stable causes than bad events (optimism). A negative score indicates that good events are attributed to more variable causes than bad events (pessimism). Perceived globality of events’ causes is computed by averaging all correspondent scores for the twelve situations.

Procedure. Participants have been included in the sample and assigned to one of the subgroups according to the intelligence test score, reported by the school counselors (participants with scores under 120 in the group of students with average level of intellectual ability and participants with scores above 120 in the group of students with a high level of intellectual ability). School achievement and other academic performances have been also considered.

All participants completed the ASQ form in one application session, and scores have been computed respecting the computation procedure described in the previous section.

Results

Scores for *locus of attributional style for positive and negative events* have little variation among the four subgroups of the sample; however, highest mean ($M= 4,84$; $SD= 0,73$; respectively, $M= 5,05$; $SD= 0,97$) for these dimensions has been computed for high achieving girls (they tend to attribute causes for both positive and negative events more to themselves, and less to external circumstances). Scores for *stability of attributions for positive and negative events*

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can be described as more diverse, means ranging from $M= 3,73$ ($SD= 0,93$) for high achieving boys/positive events, to $M= 4,95$ ($SD= 2,14$) for high achieving girls/positive events, and from $M= 3,94$ ($SD= 0,67$) for boys with average level of achievement/negative events to $M= 4,50$ ($SD= 0,69$) for high achieving girls/negative events.

Scores for the global/specific dimension of attributional style indicate a certain variation according to participants' gender and level of achievement, indicating girls' tendency to more global attributions. Scores for high achieving girls ($M= 4,72$; $SD= 1,21$), and average achieving girls ($M= 4,95$; $SD= 0,21$) are higher than scores obtained by high achieving boys ($M= 4,01$; $SD= 0,76$) and average achieving boys ($M= 3,95$; $SD= 0,41$).

Mean for differential locus of attributional style (See also Figure 1) indicate a self-enhancing pattern for boys with average level of achievement ($M= 0,16$; $SD= 0,76$), and self-effacing attributional pattern for high achieving boys ($M= -0,26$; $SD= 0,87$), high achieving girls ($M= -0,12$; $SD= 0,93$) and girls with average level of achievement ($M= -0,26$; $SD= 0,73$).

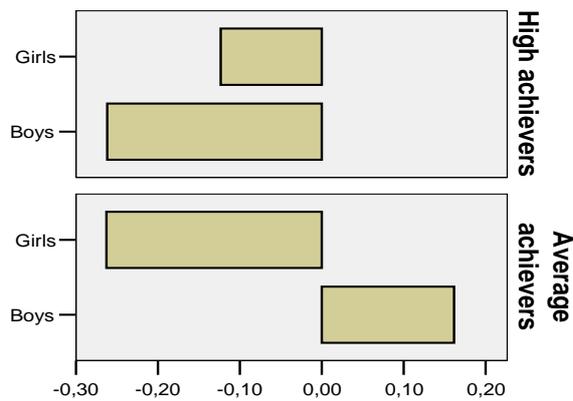


Figure 1. Mean /Differential locus of control

Scores for stability of attributional style (See also figure 2) indicate optimist patterns for both girls with average and high level of achievement ($M= 0,01$; $SD= 1,11$; respectively, $M= 0,46$; $SD= 1,98$), and boys with average level of achievement ($M= 0,01$; $SD= 0,60$). High achieving boys manifest a pessimist attributional style ($M= -0,77$; $SD= 1,08$).

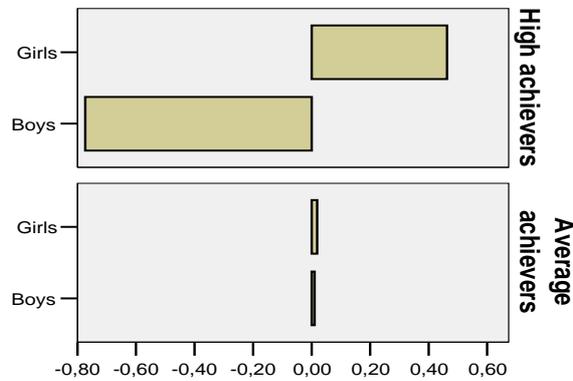


Figure 2. Mean/Differential stability

The investigation of the significance of differences among participants through an univariate analysis of variance revealed the following: there are not main or interaction effects of gender and achievement level on locus and differential locus of attributional style; there is a main effect of gender on stability of attributional style [$F(3)= 10,98$; $p= 0,001$], but no interaction effect of gender and achievement; there is a main effect of gender on differential stability of attributional style [$F(3)= 6,52$; $p= 0,012$] and an interaction effect of gender and achievement level [$F(3)= 6,34$; $p= 0,013$]; there is a main effect of gender on global attribution [$F(3)= 10,98$; $p= 0,001$], but no interaction effect of the two variables considered.

Further statistical analysis reveals that girls tend to make significantly more stable attributions [$t(111)= -3,33$; $p= 0,001$] and to display more optimism [$t(111)= -2,41$; $p= 0,017$]. Gifted boys are significantly more pessimist than those with average level of achievement [$t(58)= 2,75$; $p= 0,008$] and manifest a more self-effacing pattern [$t(58)=2,01$; $p= 0,049$]. There is no significant difference between high and average achieving girls in terms of attributions' locus and stability. However, data suggest that gender influences gifted adolescents' attributional style: high achieving girls express more stable and optimist attributions [$t(53)= 2,38$; $p= 0,021$; respectively, $t(53)= 2,60$; $p= 0,012$].

Generally, girls produce more global attributions than boys [$t(111)= -3,33$; $p= 0,001$], but no significant difference have been computed for either high or average achieving participants, or the four sample's subgroups considered in the study.

Discussion

The findings of our study support to some extent previous research outcomes on gifted students' attributional style: high achieving girls attribute failure mainly to internal factors (their own ability), and relate their success to external factors, which leads to a self-effacing attributional pattern. Similar results

have been reported in early and recent studies using attributional style as variable. Thus, the pioneering study of Seligman et al. (1984) reported that gifted students rated themselves as having more negative attributional styles; there is also some evidence that bright females develop maladaptive patterns over time if they continue to attribute failure to ability, rather than effort (Dweck, 1986), generally in areas where males traditionally perform better than females such as the sciences and mathematics. A study conducted by Assouline et al. (2006) noted that boys were much more attuned to ability as a basis for their success while higher percentages of girls focused on working hard.

However, our findings are to some extent inconsistent, giving the fact that differences among the four subgroups are not significant for some dimensions; gender rather than achievement level seem to determine significant effects. Similar contrasting findings can be also identified in other research (Assouline et al., 2006). One may speculate that this outcome may due to poor educational support for girls nowadays in family and school environments. Our results would stand against this way of reasoning, as high achieving boys are found to be significantly self-effacing and pessimistic in their attributions. Do boys face new challenges in today's social and educational environments, due to preoccupations within general public for girls' achievement and intellectual potential fulfillment? Or is this a feature of adolescent boys, either gifted or non-gifted? This type of questions may arise in interpreting research results, and giving appropriate and well-founded answers remains a point of reflection for future empirical inquiries.

As high achieving students (mainly girls) included in our sample display, to some extent, disadvantaging attributional style, we may suggest some educational implications of these findings. The literature includes several recommendations for specific intervention strategies to be conducted by both teachers and counselors: promotion of incremental ability of students, and attributional retraining techniques (Heller & Ziegler, 1996, 2001). The first intervention assumes that teachers can encourage students' beliefs in their abilities, which can determine the move from internal and stable locus control to an uncontrolled and flexible. Attributional retraining techniques cover the previously described intervention, but add some more structured approaches: teachers and counselor may chose modeling or commenting techniques. Modeling techniques are based on a role model, acting for the person whose attributional style has to be changed, who verbalizes the desired attributions or informs the person of a desirable attributional style. The other attribution technique is using clear written feedback on homework, projects and tests, giving precise information, positive but truthful.

Attributional retraining has been proven to be effective in the case of gifted children. A study on attributional retraining in the area of physics (Heller & Ziegler, 2001) examined the attributions of gifted girls whose intelligence was at least one standard deviation above the average of all high school students. These gifted young women attributed success in physics to luck (or other external factors)

and attributed failure to ability (internal factor). Boys responded with an opposite attributional style; success was attributed to ability (internal factor), and failure to bad luck (external factor) or insufficient effort (internal factor; Heller & Ziegler, 2001). Attributional retraining produced significant positive effects, and authors supports this approach, based on the premise of the potential negative impact on self-efficacy if attributions of success are made to luck or attributions of failure made to ability (Heller & Ziegler, 1996).

Although attributional retraining may be important, it aims only to provide individuals with an accurate image of their own competencies and abilities, and therefore the technique should be combined with other interventions which aim at improving knowledge (Heller & Ziegler, 1996).

Finally, some comments are to be made on limitations and cautions in interpreting our research results. The sampling procedure has been based on counselors' reports on results of intelligence tests, and also on school achievement analysis. Both counselors and teachers may be influenced in their decision by their own beliefs and conceptions; therefore more caution would be advisable in future research on high achieving students, and more information sources should be used for including participants in the gifted/non-gifted groups. Findings should be generalized with caution, not only because of sampling weaknesses, but given the specificity of the Romanian educational settings, and the emerging status of the issues of giftedness and gender in Romanian psychological and pedagogical research.

Conclusions

Our study aimed to focus on the problem of gender and achievement level as influencing factors for students' attributional style. Although the study findings are consistent with previous research outcomes, differences among the four subgroups (high and average achieving boys, high and average achieving girls) in terms of attribution patterns are not significant for some dimensions of the attributional style (internal/external locus, stable/ unstable attributions, global/specific attributions). Based on these results we can report that gender rather than achievement level seems to determine significant effects. No significant interaction effects of gender and achievement level on attributions' locus and stability have been found, while the two variables influence significantly the global dimension of attribution. Both high and average achieving girls tend to make more stable attributions, and are more optimistic than boys. They also make more global attributions, generalizing causes of an isolated event for all potential similar events. High achieving boys are more pessimistic than average achieving boys and all girls included in the sample, regardless their achievement level.

The outcomes partially cover our initial general assumption, stating that high achieving girls would show internal, stable and global attribution patterns, while boys would attribute events to external, unstable and specific causes. However, no specific attribution pattern has resulted for average and high

achieving individuals, and gender effect is significant only for some attributional dimensions. Unexpected findings also resulted from the study, namely the pessimistic attribution pattern in high achieving boys. Although the data collected offer some empirical support for explaining effects of gender and achievement level on attributional styles, a more complex research design is needed for clarifying the present results. Having as rationale previously mentioned research limitations and some confusing results, we may conclude that further research is needed in order to confirm and sustain the present findings.

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