

## Preface

ELIAS BESEVEGIS  
VASSILIS PAVLOPOULOS  
GEORGIOS GEORGOULEAS

When looking at a special journal issue on adolescence, one could possibly look for a discussion on the very concept of this developmental phase and its importance in human life.

We are not, however, going to deal with this, rather theoretical, aspect of adolescence, for two reasons: First, both the concept of adolescence and its significance in human development have been extensively dealt with in relevant volumes, mostly books. Second, these issues are clearly out of the scope of this journal volume, which aims at presenting a sample of contemporary empirical research on adolescence.

One thing will be mentioned here: The old debate as to whether adolescence is a "storm and stress" period or it is just a phase with normal developmental challenges seems to have lost its significance for at least two reasons: First, extensive empirical work on community samples has shown that stormy conflicts and extremely stressful events do not have to be either usual or desirable in adolescence, as it appears in the writings of orthodox psychoanalytic theorists; second, researchers have realized that the nature of adolescence would be better and more reliably understood by dealing with specific, important aspects in adolescent development, such as identity and personality development in general, cognitive development, parent-adolescent relations, behavior problems in psycho-social and emotional development, etc.

This is what the editors of this special issue hope to have accomplished, namely shed some light on important areas of research, by presenting empirical work on various aspects of development in this critical stage of human life.

Of the nine (9) papers included in this volume the first six (6) deal with normal development in areas such as personality, self, identity, cognitive development and parent-adolescent relations, while the last three (3) focus on problems in adolescent development.

Specifically, G. Moneta and M. Csikszentmihalyi examined the relationship between role gender attributes, motivational traits, and involvement in talent areas among talented teenagers. Their 3-factor solution of the Personal Attributes Questionnaire (PAQ) items matched McCreary and Steinberg's solution, i.e., communion, cognitive, and behavioral. The authors concluded that their findings formed an adult-like structure of internalized gender role attributes that characterized talented adolescents. The second paper, by W. Meeus, presents results from two studies dealing with parental and peer support and identity development. Parental support decreased as adolescents grew older, while peer support increased. However, the former was a better predictor of psychological well-being, at least in early and middle adolescence. On the other hand, identity was shown to develop progressively with age and its relationship with psychological well-being became stronger with age. The author reasonably concludes that these findings support the notion of the second separation-individuation in adolescence.

The study of self-concept consistency is the aim of the next paper by L. Adamson. As one could have expected, self-concept consistency was lower among adolescents in comparison to adults. Also, female adolescents seemed to demonstrate inconsistency more often than their male counterparts. Moreover, the author, by presenting an interesting case study, provided convincing evidence that transitions from inconsistency to consistency are possible, a change which seems to be facilitated by the quality of

person perceptions that are socially desirable for both men and women, are possessed by both men and women, wherein instrumentality is on average possessed to a greater extent by men and expressivity is on average possessed to a greater extent by women. Most research on gender role attributes utilized either the Bem Sex-Role Inventory (BSRI) (Bem, 1974) or the Personal Attributes Questionnaire (PAQ) (Spence et al., 1974, 1975; Spence & Helmreich, 1978). Applications of both inventories have confirmed the independence of instrumentality and expressivity, and thus the existence of gender-typed, cross-gender-typed, dual-gender-typed, and non-gender-typed persons.

Bem (1981, 1987) has argued that individual differences in gender role attributes correspond to individual differences in gender schemata. Compared to non-gender-typed persons, gender-typed persons tend to recall information in gender clusters, grouping together masculine and feminine words (Bem, 1981), and are less capable of differentiating persons of the opposite sex (Frable & Bem, 1985). Replications of these studies have led to inconsistent results (Deaux, Kite, & Lewis, 1985; Edwards & Spence, 1987) and different conceptualizations of the role played by gender schemata. Markus and co-workers (Markus, Crane, Bernstein, & Saladi, 1982) argued that gender role orientations imply the utilization of gender schemata irrespectively of the gender of the person; so that, masculine men and women are both schematic for masculinity, feminine men and women are both schematic for femininity, androgynous men and women are schematic for both masculinity and femininity, and non-feminine and non-masculine men and women are both non-gender-schematic. Taylor and Hall (1982) argued that gender roles are not attributes or traits possessed by a person but processes that may operate simultaneously in a person's information processing. Despite the ongoing controversies on the nature and influence of gender schemata, empirical findings converge in indicating that

persons with different combinations of instrumentality and expressivity differ in the way they acquire, memorize, and process information.

More recent research has, however, indicated that the relatively simple bi-dimensional representation of gender role attributes may not be adequate. In applying the short form of the PAQ to a sample of British adults, McCreary and Steinberg (1992) identified three orthogonal factors. The first component, labeled Communion, included all the items that were supposed to load on expressivity (e.g., kind and warm). On the other hand, the items designed to measure instrumentality loaded on two distinct components that were named Cognitive (e.g., self-confident and resistant to pressure) and Behavioral (e.g., independent and competitive), respectively.

McCreary and Steinberg's (1992) contribution represents a departure from a purely cognitive interpretation of gender role attributes and a return to Bakan's (1966) motivational and phenomenological definition of agency and communion as the fundamental dimensions along which persons construct their interactions with the environment. Communion is the general tendency to unite with others and to surrender one's individuality to a collective entity such as the couple, a group, or a symbolic whole. Agency is the general tendency to separate oneself from the environment in order to master it. From this point of view, expressivity can be considered an indicator of communal tendencies and instrumentality an indicator of agentic tendencies. The fact that instrumentality turned out to be constituted by separate cognitive and behavioral traits indicates that a person's agentic tendencies may be either latent (cognitive), substantiated in behaviors (behavioral), both, or neither.

Murray (1938) sustained that themes, as they emerge from narrative stories written in response to the Thematic Apperception Test, convey and feed motivational dispositions in a sort of

reciprocal determinism. Several authors (Gregg, 1991; Hermans, 1976, 1992; McAdams, 1993) have argued that agentic and communal tendencies constitute the basic components on which individuals write their life stories and, thus, construct their sense of identity and purpose in life. Communion generates themes of love, warmth, and care, while agency generates themes of power and achievement. In turn, it is in the construction of one's life story that themes contribute to the different types of motivational dispositions. Communal themes contribute to motivational dispositions of intimacy and affiliation, and agentic themes to motivational dispositions of achievement and power. Thus, insofar as gender role attributes reflect the presence and intensity of agentic and communal tendencies, they should be related to motivational dispositions. However, this relationship has not yet been investigated.

The motivational valence of gender role attributes is of particular interest in developmental psychology. There is consistent evidence showing that gender role attributes are formed in the early stages of socialization due to the influence of cultural definitions and expectations of gender-appropriate behaviors (Fagot & Leinbach, 1993; Kohlberg, 1966; Poulin-Dubois, Serbin, Kenyon, & Derbyshire, 1994). On the other hand, agentic and communal life themes become clearly defined only in adolescence (Erikson, 1968; McAdams, 1993), in response to the identity crisis and in an attempt to construct a coherent and unique life plan. According to Kohlberg (1966), children and adolescents accommodate and model around their gender identity in order to acquire, maintain, and enhance a socially appropriate self-concept. Thus, it is likely that gender role attributes are important personality components on which children and adolescents construct their life story, their domain-specific interests, and their specific structures of motivational dispositions. If gender role attributes are indeed antecedents of motivational dispositions, they should have a

comparatively greater role in leading adolescents' interest toward specific domains of activity and competence.

The relationship between gender role attributes and motivational dispositions is at the roots of talent development. It has been systematically found that creative and talented adolescents have a greater tendency to be cross-typed than normal adolescents (Csikszentmihalyi, Rathunde, & Whalen, 1993; Gilligan, 1982; Spence & Helmreich, 1978); so that, talented boys tend to be higher in expressivity than other boys, and talented girls tend to be higher in instrumentality than other girls. Csikszentmihalyi (1997) pointed out that the creative personality is complex, as it is characterized by the presence of extremes and the ability to move from one pole to the other without inner conflict. Creative and talented individuals can be both playful and disciplined, extroverted and introverted. In terms of agentic and communal characteristics, they can be both aggressive, determinate, and dominant, on one hand, and nurturant, sensitive, and submissive, on the other hand. In other words, they appear to have a larger range of potential ways to seek and adapt to situations. It is therefore of particular interest to investigate how gender role attributes and motivational dispositions in talented teenagers conjointly affect the choice, involvement, and giftedness in different subject areas.

This article exploits data collected on a sample of talented teenagers (Csikszentmihalyi et al., 1993) to pursue four goals. First, we examine whether the three-dimensional representation of gender role attributes that McCreary and Steinberg (1992) have identified in British adults also applies to talented adolescents. Second, we examine the relationships between gender role attributes and a wide range of motivational dispositions. Third, we estimate the relative importance of gender role attributes and motivational dispositions in explaining the areas within which the adolescents have developed their talent. Lastly, by combining the results from

the second and third objective, we infer the causal path linking gender role attributes and motivational dispositions to talent development in different areas.

## Method

### Participants

The participants were 184 high school students in Chicago, 104 females and 74 males, 14-17 years old. These adolescents had been nominated by their teachers as showing talent in one or more of the following subject areas: mathematics, science, music, athletics or arts. The data were collected in 1984-1985 (Csikszentmihalyi et al., 1993).

### Assessments

The participants completed the Personality Attributes Questionnaire (PAQ) (Spence et al., 1974, 1975), short form (16 items), and the Personality Research Form (PRF) (Jackson, 1989), Form E. The PRF was constructed based on Murray's (1938) theory of personality which defines a catalog of 26 basic human needs. Jackson has re-defined Murray's needs as trait-like motivational dispositions that measure what we usually do when we undertake goal-directed behaviors, and are largely, if not entirely, conscious. The PRF consists of 352 false-true questions tapping 20 of Murray's needs including agentic motivational dispositions (e.g., need for achievement and dominance), communal motivational dispositions (e.g., need for affiliation and nurturance), and motivational dispositions that escape the agentic-communal distinction (e.g., need for understanding and sentience).

When the PRF scores were compared with those of average counterparts, our sample of talented teenagers exhibited higher needs for achievement, endurance, sentience, dominance, exhibition, and harm avoidance, and lower needs

for abasement and change (Csikszentmihalyi et al., 1993). A classification of the PRF traits into agentic and communal dispositions indicated that these teenagers tended to be more cross-typed than average teenagers. No analysis of the PAQ scores was conducted on this sample at the time.

### Statistical analysis

The statistical analysis proceeded in three steps. In step 1, we factor analyzed the items of the PAQ by the method of Principal Components with Varimax rotation. We selected the number of factors based on the number of eigenvalues greater than 1 and, more importantly, on the indication of the scree plot. We then compared the factor loadings with those obtained by McCreary and Steinberg (1992) on data from a sample of British adults.

In step 2, we computed factor scores of the gender role attributes for each participant by the regression method. We then regressed the PAQ factor scores on the PRF scales. For each gender role attribute separately, we first fitted the full model containing all 20 motivational dispositions as predictors. We then selected a final model by backward elimination. At each step of the model selection, we adopted a probability level greater than .05 from t-testing for eliminating the least significant predictor.

In step 3, we utilized discriminant analysis in order to identify the set of variables that best predict teenagers' talent area. In this analysis, talent area was the dependent variable and gender, PAQ factor scores, and PRF scales the independent variables. Discriminant analysis identifies the linear transformations (discriminant functions) of the independent variables that maximize the ratio of (a) the multivariate group mean difference of the independent variables to (b) the multivariate within-groups variance of the independent variables. By this method we could estimate the relative importance of the independent variables in differentiating between

adolescents in three major areas of talent: (a) mathematics and science, (b) music and arts, and (c) sports. In order to avoid confounding, we kept in the analysis the 142 participants who had only one talent area (39 in mathematics and science, 71 in music and arts, and 32 in sports). We began by fitting a full model containing gender, gender role scores, and motivational traits as independent variables. We then selected a final model by backward elimination. At each step of the model selection, we adopted a probability level greater than .05 from the *F*-testing of Wilk's lambda for eliminating the least significant independent variable. Gender and all three gender role scores were forced in the final model even if nonsignificant.

### Results

The principal component analysis of the 16 items of the short form of the PAQ yielded four factors with eigenvalues (3.34, 2.82, 1.28, and 1.10) greater than 1. The scree plot indicated that three factors were sufficient. Table 1 shows the factor loadings of all items for our sample of talented teenagers and for McCreary and Steinberg's (1992) sample of British adults. The solution for the talented teenagers groups all 8 items designed to measure expressivity into the Communion factor. Instead, the 8 items designed to measure instrumentality split into the two factors Cognitive and Behavioral. There are no double loadings. The only problem with the solution is represented by the low (<0.4) loading of "independent" on Behavioral. Comparing the two solutions, we notice that they explain virtually the same amount of variance in the items. Although we utilized the Varimax rotation method while McCreary and Steinberg utilized the Equamax rotation method, the patterns of factor loadings are remarkably similar with two exceptions. First, the item "emotional", although designed to measure expressivity, loads on Cognitive in British adults. Second, as McCreary

and Steinberg acknowledged, their data reveals an unexpected and unexplained negative relationship between the item "can make decisions easily" and the underlying Cognitive factor.

Table 2 shows the standardized regression coefficients of the final models obtained by regressing the PAQ factor scores on the PRF scales. On the whole, the PRF scales explain a fair amount of individual variance in PAQ factor scores. Communion is predicted by two communal motivational dispositions (need for affiliation and nurturance) and negatively by three agentic motivational dispositions (need for dominance, achievement, and aggression). Cognitive is predicted by one agentic motivational disposition (need for dominance) and negatively by one communal motivational disposition (need for abasement). Behavioral is predicted by two agentic motivational dispositions (need for achievement and endurance) and two motivational dispositions that escape the communal-agentic classification (need for understanding and harm avoidance).

In the discriminant analysis, the stepwise model selection procedure identified a sufficient set of four significant discriminating variables: two PAQ factor scores (Cognitive and Behavioral) and two PRF scales (affiliation and sentience). After forcing gender and Communion into the final model, we obtained the model-based univariate *F*-tests of equality of means across talent areas shown in Table 3. There were significant between-areas mean differences in Cognitive, Behavioral, affiliation, and sentience, and nonsignificant differences in Communion and gender.

Figure 1 shows the mean values across talent areas for all personality variables that were included in the final discriminant model (group-mean PAQ factor scores and group-mean PRF standardized scores). Concerning gender role attributes, the pattern indicates that Behavioral is comparatively important in sports, Cognitive in science and mathematics, while Communion

**Table 1**  
**Factor loadings of the short form of the Personal Attributes Questionnaire (PAQ) estimated on a sample of U.S. talented teenagers and a sample of British adults (McCreary & Steinberg, 1992)**

Items	U.S. talented teenagers			British adults		
	Factors			Factors		
	Communion	Cognitive	Behavioral	Communion	Cognitive	Behavioral
Understanding of others	.70	.12	.04	.80	.17	-.04
Aware of feelings of others	.61	-.25	.05	.75	-.07	-.03
Kind	.68	.12	.16	.75	.06	.16
Able to devote self completely to others	.51	.05	-.10	.62	.00	-.04
Helpful to others	.62	.23	.16	.60	-.04	.19
Gentle	.56	-.08	-.31	.57	-.17	-.13
Warm in relations to others	.81	.00	.12	.57	-.51	.15
Emotional	.43	-.22	-.05	.33	-.48	.18
Feels superior	.01	.75	.12	.00	.69	.24
Self-confident	.04	.78	.05	.03	.65	.44
Stands up well under pressure	.03	.60	.38	.09	.65	.31
Can make decisions easily	.02	.57	-.16	.07	-.59	.15
Active	.12	.04	.77	.07	-.21	.70
Competitive	.00	.07	.77	-.10	.14	.69
Never gives up easily	.06	.27	.66	.10	.35	.48
Independent	-.05	.17	.37	.07	.33	.45
Total variance explained		46.5%			46.7%	

*Note.* Factors were extracted by the method of Principal Component (PC) and subdued to Varimax rotation for the U.S. talented sample, and Equamax rotation for the British adult sample.  $N = 184$  for the U.S. sample and  $N = 341$  for the British sample.

**Table 2**  
**Regression of gender role attributes (PAQ factor scores) on motivational dispositions (PRF scales): Standardized regression coefficients of the predictors included in the final models**

PRF scales	PAQ factor scores		
	Communion	Cognitive	Behavioral
Affiliation	.36	—	—
Nurturance	.28	—	—
Dominance	-.23	.32	—
Achievement	-.21	—	.26
Aggression	-.18	—	—
Abasement	—	-.17	—
Endurance	—	—	.25
Understanding	—	—	-.18
Harm avoidance	—	—	-.17
Autonomy	—	—	—
Change	—	—	—
Cognitive structure	—	—	—
Defence	—	—	—
Exhibition	—	—	—
Impulsivity	—	—	—
Order	—	—	—
Play	—	—	—
Sentience	—	—	—
Social recognition	—	—	—
Succorance	—	—	—
Variance explained	41%	28%	40%

Note. The final models were selected by backward elimination.  $n = 184$ .

might be of some importance in sports. Teenagers talented in music and arts are characterized by average Communion and below average Cognitive and Behavioral; in this sense they are average feminine and non-masculine. Teenagers talented in sports are mostly characterized by high Behavioral and Communion; in this sense they are feminine and masculine at the same time. Teenagers talented in science and mathematics are mostly characterized by high Cognitive; they are masculine in the sense of high perceived control and confidence. Turning attention to motivational dispositions, the need for affiliation is com-

paratively important in science and mathematics as well as in sports, and the need for sentience is important in sports. Affiliative needs are lower among teenagers talented in mathematics and science, and high among teenagers talented in sports. The need for sentience is lower among teenagers talented in sports.

### Discussion

Paralleling McCreary and Steinberg's (1992) work, we found that talented teenagers have three independent gender role attributes:

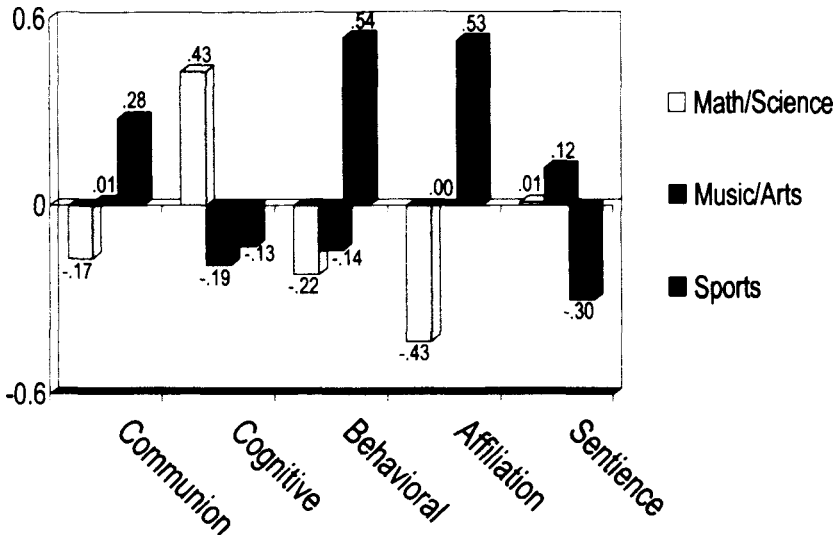
**Table 3**  
**Discriminant analysis of broad talent areas (mathematics and science, music and arts, and sports) as a function of gender, gender role attributes (PAQ factor scores), and motivational dispositions (PRF scales): Model-based tests of equality of means across talent areas**

Discriminating variable	Wilks' lambda	F value	p <
Gender	.995	.339	.714
Affiliation (PRF)	.895	8.172	.001
Sentience (PRF)	.954	3.323	.040
Communion (PAQ)	.974	1.843	.163
Cognitive (PAQ)	.930	5.266	.007
Behavioral (PAQ)	.914	6.540	.003

Note. The final model was selected by the stepwise Wilks' Lambda method. Gender and Communion were forced into the final model even if nonsignificant. *n* = 142. All *F*-tests had 2/139 degrees of freedom.

*Communion, Cognitive, and Behavioral.* Communion includes all communal self-descriptions, Cognitive all agentic self-appraisals that relate to the inner sense of control and confidence, and Behavioral all agentic self-descriptions that relate to behavioral tendencies used in approaching

and mastering the environment. Based on this evidence, we infer that an adult-like structure of internalized gender role attributes characterizes adolescents talented in different domains. It is an open question whether adolescents in general have the same three-dimensional structure of



**Figure 1**  
**Mean factor scores of gender role attributes and mean standardized scores of motivational dispositions across talent areas.**



gender role attributes.

Gender role attributes are related to motivational dispositions that can be classified into agentic and communal. In particular, Communion is predicted by communal dispositions of affiliation and nurturance, and negatively by agentic dispositions of achievement and dominance. Cognitive is predicted by the agentic disposition of dominance. Behavioral is predicted by the agentic disposition of achievement and, negatively, by the dispositions of intellectual curiosity and avoidance of physical harm that escape the agentic-communal classification. Thus, the interpretation of gender role attributes as expressions of communal and agentic motivational dispositions is largely confirmed. Yet, this result was achieved by using explicit, respondent measures of Murray's needs. These measures, like the measures of gender role attributes, subsume endorsements of values that are quite sensitive to social influence. It remains to be seen whether gender role attributes are related to implicit, operant and, thus, more value-free measures of Murray's needs as they can be obtained by the Thematic Apperception Test (Murray, 1938).

On the whole, gender role attributes differentiate teenagers in different talent areas to a greater extent than motivational dispositions. By combining findings on differentiation across talent areas with the findings on the relationship between gender role attributes and motivational dispositions, we can reach tentative conclusions on possible mediating pathways linking gender role attributes and motivational dispositions to talent development in different areas. Communion was predicted by need for affiliation and did not predict talent area; yet, need for affiliation did predict talent area. Thus, based on Baron and Kenny's (1986) framework, it appears that Communion does not mediate the effect of affiliative needs on talent development in different areas, while affiliation has a direct effect. Both Cognitive and Behavioral were predicted by agentic motivational dispositions and did predict

talent area; at the same time, no agentic motivational disposition predicted talent area. Thus, the results are consistent with the hypothesis that Cognitive and Behavioral mediate the effects of agentic motivational dispositions on talent development in different areas. On the whole, these findings point out an interesting asymmetry between femininity and masculinity: irrespectively of gender, only masculinity appears to channel motivational dispositions into specific areas of talent.

Need for sentience was unrelated to gender role attributes but did predict adolescents' talent areas. This motivational disposition represents openness and responsiveness to new information and, as such, cannot be classified into the agentic-communal framework. The fact that sentience loads on the openness to experience dimension of the Big Five personality model (Costa & McCrae, 1988) suggests that the development of talent in specific areas is also determined by intellectual and aesthetic dispositions toward the world that are captured neither by gender role attributes nor by agentic and communal motivational dispositions.

In sum, based on Bakan's (1966) and Murray's (1938) theories, we have hypothesized that gender role attributes and motivational dispositions are functionally related, and that together contribute to the development of specific interests and talents in adolescence. Our cross-sectional data confirmed that gender role attributes are indeed related to dispositional motivations, and suggested an intriguing mediated pathway by which these two sets of constructs lead to talent development in specific areas. This preliminary model can be useful for planning a more comprehensive and longitudinal evaluation of the relevance of gender role attributes throughout childhood and adolescence.

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