

A comparison of Dabrowski's overexcitabilities by gender for American and Korean high school gifted students

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The differences between US (Ohio) gifted and talented high school students and South Korean gifted and talented high school students on the *Overexcitabilities Questionnaire II* (OEQ II) were investigated. The OEQ II was administered to 227 Ohio identified gifted and talented high school students (M=88, F=139) and to 341 high school students from four specialized high schools (one for science, one for foreign language, and two for the arts) in Seoul, Korea (M=117; F=224). Multiple analysis of variance by gender and country revealed that Korean males and females scored higher in psychomotor OE and that US males and females scored higher in imaginal OE. No differences were found in intellectual OE, emotional OE, or sensual OE.

Keywords: giftedness; adolescents; personality; overexcitabilities; Dabrowski; OEQ II

Introduction

A growing body of research has used the Dabrowski Theory of Positive Disintegration (Dabrowski & Piechowski, 1977) to describe the personality attributes and development of gifted and talented children, adolescents, and adults (e.g., Mendaglio, 2008; Piechowski, 2006; Piirto, 2004). The Theory of Positive Disintegration (TPD) is a five-level hierarchical theory of human development. Lower levels of development must be torn down before higher levels can be attained. Dabrowski theorized that the highest levels of development are reached by people who possess high levels of emotional, intellectual, and imaginal overexcitability (OE) (Dabrowski, 1967). OE is "an innate tendency to respond with heightened intensity and sensitivity to intellectual, emotional, and other stimuli, also called psychic overexcitability" (Piechowski, 1999, p. 325).

Kazmirz Dabrowski (1964, 1967, 1970, 1972; Dabrowski & Piechowski, 1977), according to his major translator, Michael Piechowski, saw these OEs as a higher form of adjustment on a continuum of levels of adjustment. "To varying degrees, these five dimensions give talent its power," said Piechowski (1997, p. 366). Piechowski assisted researchers in better understanding the relationship of OEs to the TPD with numerous studies of emotional and spiritual intelligence (Piechowski, 1975, 1979, 1989, 1990, 1991, 1992, 1997, 1999, 2006, 2008; Piechowski & Colangelo, 1984; Piechowski & Cunningham, 1985; Piechowski & Miller, 1995; Piechowski, Silverman, & Falk, 1985). The need to investigate OEs on a cross-cultural level may provide new understanding to the use of OEs with talented children and youth.

The five OEs are psychomotor, sensual, imaginal, emotional, and intellectual. Piechowski (1991, p. 287) described them this way:

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- *psychomotor OE*—an augmented capacity for being active and energetic—expressed as movement, restlessness, drivenness;
- *sensual OE*—an enhanced differentiation and aliveness of sensual experience;
- *intellectual OE*—avidity for knowledge and the search for truth—expressed as discovery, questioning and love of ideas and theoretical analysis;
- *imaginational OE*—the power of thought creation—expressed through vividness of imagery, richness of association, liking for the unusual, and a facility for dreams, fantasies, and inventions;
- *emotional OE*—the heart—recognized in the great depth and intensity of emotional life expressed through a wide range of feelings, attachments, compassion, heightened sense of responsibility, and scrupulous self-examination.

These OEs have been also called *sensitivities* and *intensities* (Piechowski, 2006). Piechowski (1999) said, “the difference in intensity, sensitivity, and acuity is not only greater than normal, it is also a difference in the very quality of experiencing” (p.325). The presence of the OEs contributes to what is called *developmental potential*. Developmental potential contributes to adult creativity, and includes, besides OE, the presence of intelligence, talents, abilities, and development.

One of the emerging ideas about academically talented students has been that they possess higher OE – that they are more sensitive and intense than students who do not have high scores on IQ or achievement tests (O’Connor, 2002; Piechowski & Colangelo, 1984; Pyryt, 2008; Schiever, 1985; Silverman, 1993; Silverman & Ellsworth, 1981; Tucker & Hafenstein, 1997). There have been on-going discussions about the most appropriate means to determine the OE for individuals or groups.

Measuring OE

The first attempt to measure OEs was with the *Overexcitability Questionnaire* (OEQ). Originally a 41-item open-ended questionnaire, the OEQ was refined and published as a 21-item questionnaire by Lysy and Piechowski (1983) and a technical manual was developed (Falk & Piechowski, 1991; Falk, Piechowski, & Lind, 1994). Piechowski (2008) has described the process of development in great detail. The OEQ consists of 21 open-ended questions designed to elicit responses indicating the responder’s relative intensities in each of the five OEs. Each question is scored on a range from 0 (no evidence) to 3 (high intensity) across all five OEs. Two trained raters score each questionnaire. Raters receive intensive training until their inter-reliability reaches above 90%. The scoring of this instrument is labor-intensive. Studies using the OEQ have included populations of young children (e.g., Gallagher, 1986), adolescents (Piirto, Beach, Rogers, & Fraas, 2000; Schiever, 1985), and adults (Miller & Silverman, 1987; Miller, Silverman, & Falk, 1994). Of particular interest here is the study (Piirto et al., 2000) of gifted adolescents, which found higher levels of intellectual OEs in identified gifted adolescents in comparison with adolescents who attended a vocational high school.

Studies using the OEQ have found that the presence of intellectual OE is high in the gifted and talented populations, though using the OE to identify gifts and talents has been discouraged not only because of its difficulty and complexity in scoring (Piirto et al., 2000), but because it was not a measure designed or validated to identify gifts and talents.

The Overexcitability Questionnaire II (OEQ II)

The Overexcitability Questionnaire II (OEQ II) was developed to facilitate administration and scoring (Falk, Lind, Miller, Piechowski, & Silverman, 1999; Falk, Piechowski, & Piirto, 2000). It is a 50-item Likert scale, with 10 items for each OE. It takes about 10 minutes to administer, and 10 minutes to score. This represents a significant saving of time and labor over the first instrument, though depth and breadth are sacrificed, as the responses to the questions on the OEQ are rich and provide much thick description for researchers (Piechowski, 2006; Piirto, 2002, 2004).

By 2008, the OEQ II had been translated into Chinese (Taiwan), Spanish, and Turkish (Falk, Yakmaci-Guzel, Chang, Sanz, & Chavez-Eakle, 2008). The present study adds Korean.

Several recent studies have been conducted using the OEQ II (Bouchet & Falk, 2001; Moon & Montgomery, 2005; Tieso, 2007; Tieso & McCoach, 2006). The Bouchet and Falk study examined group and gender differences between college students who had been in high school and elementary programs for the gifted and talented and those who had not. The group differences showed that the identified gifted students had higher scores on intellectual and on emotional OEs. Gender differences showed that males had higher intellectual, imaginal, and emotional OE and females had higher intellectual and emotional OE. The Moon and Montgomery study examined the OEs of Korean adolescents attending special high schools for science, foreign language, and the arts. The findings showed differences by gender and talent area. The students qualifying for the arts schools were higher in sensual and imaginal scores than students in the other schools; the foreign language school had higher scores for psychomotor and intellectual for their male students; however, the students in the science school showed no gender differences on any scale. The Tieso and McCoach study used middle school US youth who were attending a special summer session.

To complete the list of instruments that have been designed to measure OE, a third instrument exists. The instrument was developed by Bouchard (2004). This instrument is the ElemOEQ, a 30-item Likert scale designed for elementary school students. To date, hers is the only study published using this instrument.

OE and gifted

Using the OEQ II and a measure of self-perception, Tieso and McCoach (2006) studied students with learning disabilities (LD) and students considered gifted. Whereas OEs did not distinguish gifted students from students with LD, academic self-perception did distinguish the two groups. Additionally, the students with LD showed more variability than the gifted students. Tieso and McCoach questioned the reliabilities of the form itself. In another study of OE among gifted adolescents, Tieso (2007), using hierarchical linear modeling, found that gifted adolescents' OEQ-II levels were attributable to their parents' levels.

A meta-analysis by Ackerman (1997a), utilizing studies comparing OEQ scores for gifted individuals and regular individuals, showed that there were small Cohen effect sizes (between .20 and .50) on the intellectual, imaginal, and emotional OEs, and trivial effect sizes (below .20) on the sensual and psychomotor OEs. Pryor (2008) commented, "It's somewhat surprising how few studies have actually been conducted comparing gifted and average-ability individuals" (p. 177).

What these few studies with gifted adolescents seem to be leading toward is this: (1) there are small gender differences in OEs among gifted and talented adolescents; (2) there are differences between gifted and talented students among countries; (3) results on parental OEQ IIs are similar to student OEQ IIs; and (4) there are potential differences on OEQs between gifted and other special populations. None of these assertions is definitive, however. What differences in OEs do gifted and talented people show?

The theoretical assertion is that gifted and talented people have higher OEs, which will ultimately permit them to move to higher levels on the hierarchy of levels of development. As shown in previous studies using both the OEQ and the OEQ II, gifted and talented students show higher levels of OE than others. Ackerman (1997a), using the OEQ, found higher levels of psychomotor OE in Canadian high school students and similarly high levels of intellectual and imaginational OE in both US and Canadian students. Falk, Manzanero, and Miller (1997), using the OEQ found above average levels of imaginational OEs in Brazilian artists.

Yakmaci-Guzel and Akarsu (2006) translated the OEQ II and found that Turkish adolescents with higher intellectual ability scored significantly higher than average-ability high school students in imaginational and intellectual OE. The same OEs were significantly higher when the students were grouped by motivation and leadership (higher OE for high intellectual ability group). Unlike other studies, no differences were found for emotional OE for high intellectual ability students, nor were gender differences found.

Gallagher (1986), using the OEQ, found higher levels of OEs in elementary school gifted students. Miller et al. (1994), using the OEQ, found higher levels of OEs in adults who had been identified as gifted compared to those who had not been identified as gifted. Piechowski and Cunningham (1985), using the OEQ, found higher levels of imaginational OE in amateur and professional visual artists and creative writers. Piirto et al. (2000) found higher levels of intellectual OE on the OEQ when identified gifted and talented adolescents were compared with vocational high school adolescents.

The present study

The present study used the OEQ II. In this study, we attempted to describe the presence of OEs in gifted and talented youth across cultures, contrasting results in two countries. In the present study using the OEQ II, research questions were these: (1) What are the differences in levels of OEs in youth of the two countries, the United States and South Korea? (2) What are the gender differences in levels of OEs in youth of the two countries, the United States and South Korea?

Method

Participants

Participant data were collected from archival files of two completed studies (Gladwell & Liossis, 2005; Moon & Montgomery, 2005) These two studies examined samples that were similar sample size, age and ability level of the students participating, as well as gender representations. Both groups consisted of high school students of high abilities. The study of students from Seoul, Korea was used to describe the OE patterns for students with eastern and western cultural influences.

American students

Two hundred and twenty-seven ($n=227$) students participated in the study (Gladwell & Lioussis, 2005) over a three-year period. All students were previously identified as gifted or talented according to the state standards, regulations, and guidelines in the state of Ohio [Ohio Rule for the Identification of Gifted Students, Ohio Revised Code 3324.01-07 (law) and Ohio Administrative Code 3301-51-15 (rule)]. Children are identified as gifted in Ohio in four major categories: superior cognitive ability; specific academic ability; creative thinking ability; and visual or performing arts ability. Students were attending a state-funded summer honors institute at a small private university (one of 16 annually funded by the Ohio Department of Education). They majored in intensive study in a professional area during their eight-day stay. Professional areas included the humanities and the arts and specialized study in science or math. Students chose the area of study based on their strengths and interests and received a minimum of 29 hours of small group study in that area only. All students who participated in these summer institutes during this period were included in the research. One hundred and thirty-nine of the participants were female and 88 were male.

Korean students

Three hundred and forty-one ($n=341$) students participated in the Korean study (Moon & Montgomery, 2005). The study identified students from four schools designed for learners of high ability, with a cumulative total student population of 3,865. The schools were identified as specialized schools in science, foreign language, and two high schools in the arts. Of the students attending the science school ($n=102$), 66 were male, and 36 were female. Thirty males and 43 females attended the foreign language school ($n=73$). There were 21 males and 145 females from the arts schools ($n=166$). Students were admitted to the special high schools by competitive examination.

Appropriate approval for the use of human subject data was obtained from a US research university and Korean university for the Korean students and from the comprehensive private university for the US/Ohio students.

Instrument

The *Overexcitabilities Questionnaire – II* (OEQ-II; Falk et al., 1999) was the instrument used to identify students' levels of OEs in five specific areas (intellectual, emotional, sensual, imaginal, psychomotor). The OEQ II is a 50-item questionnaire using a five-point Likert scale. The scale indicates the degree to which the respondent relates to the item (1=not at all like me, 2=not much like me, 3=somewhat like me, 4=a lot like me, 5=very much like me). Factor analysis conducted by the instrument authors on initial samplings of the OEQII (completed by individuals ranging in age from 10 to 76) indicated all items had loadings above .5 (Falk et al., 2000). Each item was measured for internal reliability using Cronbach's alpha. The alpha coefficients were in a range from .84 to .89.

Procedure

Korean students were administered the OEQ II at their home schools by Moon. US students were administered the OEQ II on the first day of an Ohio Summer Honors

Institute at a comprehensive private university in Ohio. Demographic data were recorded by the students during the administration.

Data analyses

A 2×2 between-subjects multiple analysis of variance (MANOVA) was performed on the OEQ II in order to examine the relationships among gender, place of education, and OEs. In other words, the five subscales of the OEQ represented five dependent variables: psychomotor OE (PS Scale), sensual OE (SE Scale), imaginal OE (IM Scale), intellectual OE (INT Scale), and emotional OE (EM Scale). The independent variables were gender (male or female) and place of education (America or Korea).

Scale reliabilities

The Korean form of the OEQ II was translated from English to Korean and then reverse translated to compare the results with the original English form. However, the reliabilities (Table 1) indicate that further translation may be needed, given the subtleties of language. Furthermore, additional confirmatory factor analyses may be necessary to determine whether the Korean version of the measure is commensurate with the English version. Scale reliabilities were determined using Cronbach's alpha, which range .80 to .88 for the English version (American) and .57 to .72 for the Korean version.

Results

Using the Wilks' criterion, the combined dependent measures (the subscales of the OEQ e II) were significantly affected by the gender and place of education interaction ($F(5,557)=14.559, p<.001$). The analysis revealed a significant effect for both gender ($F(3,95)=6.958, p<.001$) and place of education ($F(3,95)=3.350, p<.001$). Means and standard deviations are presented in Table 2. All groups, males and females, in both countries had mean scores above 3 (the mean for each scale). Males and females in Korea scored highest in psychomotor OE; males in the US scored highest in imaginal OE and females in the US scored highest in imaginal OE.

Effect size

Because a large sample can more easily yield statistical significance, effect sizes (Table 3) were examined by determining the partial eta or the gender \times place of

Table 1. Scale reliability for the Overexcitability Questionnaire II – English and Korean.

Scale	Cronbach's alpha – 10 items	
	American (English)	Korean
Psychomotor	.88	.57
Sensual	.87	.68
Imaginational	.82	.72
Intellectual	.86	.68
Emotional	.80	.66

Table 2. Overexcitability Questionnaire II means and standard deviations by gender and place of education.

	American students		Korean students	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male students				
Psychomotor scale	3.025	0.8616	3.698	0.4842
Sensual scale	3.649	0.7314	3.547	0.5320
Imaginational scale	3.776	0.6535	3.524	0.5435
Intellectual scale	3.147	0.7140	3.174	0.6082
Emotional scale	3.713	0.6206	3.613	0.5332
Female students				
Psychomotor scale	3.224	0.8644	3.715	0.3987
Sensual scale	3.317	0.9109	3.534	0.5040
Imaginational scale	3.940	0.6726	3.592	0.5243
Intellectual scale	3.057	0.7715	3.125	0.5515
Emotional scale	3.088	0.7351	3.623	0.4959

education interaction and each main effect. The differences associated with the interaction effect represented a modest effect size (partial $\eta^2 = .116$). The differences associated with gender represented a modest effect size (partial $\eta^2 = .131$), as did the differences associated with place of education (partial $\eta^2 = .278$).

Following the MANOVA analysis, separate univariate analyses were conducted to determine significant differences by the interaction of gender and country for each OE (Table 3). These univariate analyses revealed that unique contributions to the gender by place of education interaction were made by sensual OE ($F(1,561) = 7.697, p < .01$) and emotional OE ($F(1,561) = 38.284, p < .01$), while no significant contributions were made by psychomotor OE ($F(1,561) = 2.586, ns$), imaginational OE ($F(1,561) = .840, ns$), and intellectual OE ($F(1,561) = .130, ns$). The effect sizes were examined for these univariate analyses. The effect size for the contribution of sensual OE to the interaction effect was very small (partial $\eta^2 = .014$), while the effect size for the contribution of emotional OE to the interaction effect was small (partial $\eta^2 = .064$).

Gender

The univariate analyses revealed that unique relationships of gender to sensual OE ($F(1,561) = 8.973, p < .005$), imaginational OE ($F(1,561) = 4.910, p < .05$), and emotional OE ($F(1,561) = 35.932, p < .001$); while no significance was indicated by psychomotor OE ($F(1,561) = 3.635, ns$), and intellectual OE ($F(1,561) = 1.480, ns$). The effect sizes for these results were found to be quite small for each of these OEs: sensual OE (partial $\eta^2 = .016$), imaginational OE (partial $\eta^2 = .009$), and emotional OE (partial $\eta^2 = .060$).

Country

The univariate analyses indicated the unique relationships of place of education by psychomotor OE ($F(1,561) = 104.575, p < .001$), imaginational OE ($F(1,561) = 33.087, p < .001$), and emotional OE ($F(1,561) = 17.946, p < .001$), while no significant

Table 3. Summary table for multiple analysis of variance.

Source	SS	δf	MS	F	p	Partial η^2
Gender (G)						
PS Scale	1.488	1	1.488	3.635	.057 ns	.006
SE Scale	3.754	1	3.754	8.973	.003*	.016
IM Scale	1.689	1	1.689	4.910	.027*	.009
INT Scale	0.612	1	0.612	1.480	.224 ns	.003
EM Scale	11.994	1	11.994	35.932	.000*	.060
Place of education (P)						
PS Scale	42.804	1	42.804	104.575	.000*	.157
SE Scale	0.421	1	0.421	1.005	.317 ns	.002
IM Scale	11.384	1	11.384	33.087	.000*	.056
INT Scale	0.294	1	0.294	0.712	.339 ns	.001
EM Scale	5.990	1	5.990	17.946	.000*	.031
$G \times P$						
PS Scale	1.059	1	1.059	2.586	.108 ns	.005
SE Scale	3.220	1	3.220	7.697	.006*	.014
IM Scale	0.289	1	0.289	0.840	.360 ns	.001
INT Scale	0.054	1	0.054	0.130	.718 ns	.000
EM Scale	12.779	1	12.779	38.284	.000*	.064
Subjects/GP						
PS Scale	229.625	565	0.409			
SE Scale	234.715	565	0.418			
IM Scale	193.029	565	0.344			
INT Scale	231.959	565	0.413			
EM Scale	187.261	565	0.334			
Total						
PS Scale	7065.695	565				
SE Scale	7286.256	565				
IM Scale	7845.150	565				
INT Scale	5768.269	565				
EM Scale	7371.098	565				

PS, Psychomotor; SE, Sensual; IM, Imaginational; INT, Intellectual; EM, Emotional. *= <0.05 .

contributions were made by sensual OE ($F(1,561)=1.005$, ns), and intellectual OE ($F(1,561)=.712$, ns). The effect sizes for these results were found to be small for imaginational OE (partial $\eta^2=.056$) and emotional OE (partial $\eta^2=.031$); however, the effect size for the contribution of psychomotor OE was better (partial $\eta^2=.157$). Figures 1–5 provide a visual demonstration of the gender differences by country scores.

Discussion

The results showed the following conclusions: (1) Korean gifted high school students have less difference by gender in emotional OE and sensual OE than American gifted high school students; (2) American students have greater difference by gender than Korean students in imaginational OE (3) Korean students have greater psychomotor OE than American; (4) American and Korean students score similarly on intellectual OE. These conclusions will be discussed in turn.

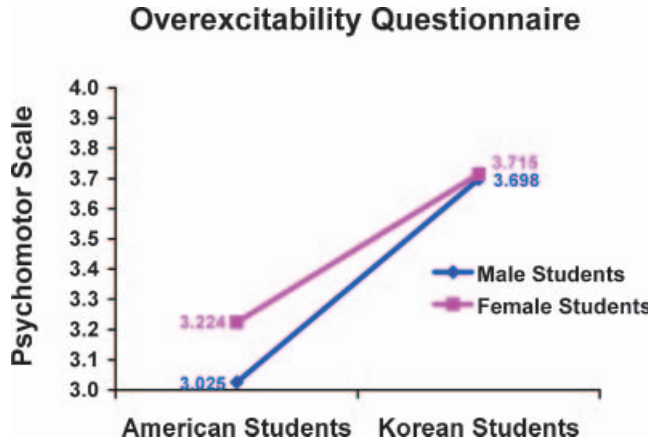


Figure 1. Psychomotor overexcitability.

First, demonstrating that Korean gifted high school students do not show the gender differences in emotional and sensual OE that American students do may reinforce stereotypes about schooling for Asian youth; that the schools encourage both males and females to be more stoic than western youth, and that they encourage students to possess a quality of introversion, which may depress sensual expression. American youth, on the other hand, are encouraged to express their feelings and thoughts in their schools, and in their lives and often we find females more willing to do so.

Second, in the case where American females demonstrate larger differences in imaginal OE from males than in the Korean situation, schooling may be an influence for the differences between the students of the two countries. Research has shown that general education teachers in Korea may not value the same creativity characteristics in classes as American teachers (Moon & Montgomery, 1994). Further, Korean parents value education in ways different from the American parents, placing a strong emphasis on academic achievement. Often Korean families

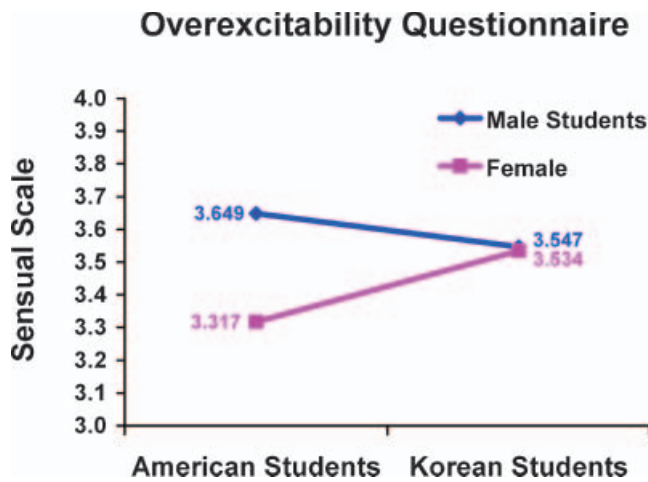


Figure 2. Sensual overexcitability.

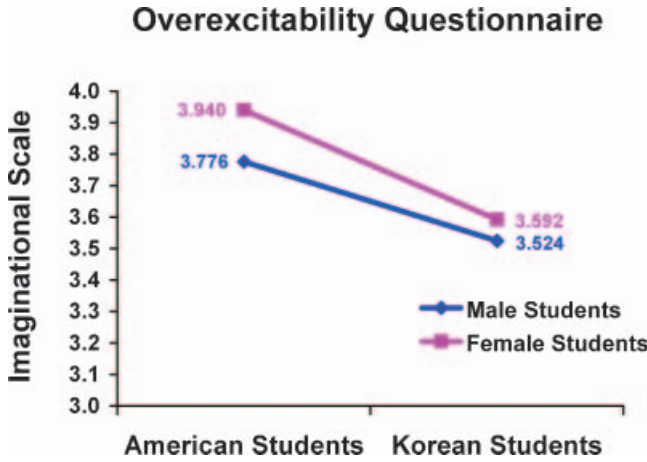


Figure 3. Imaginational overexcitability.

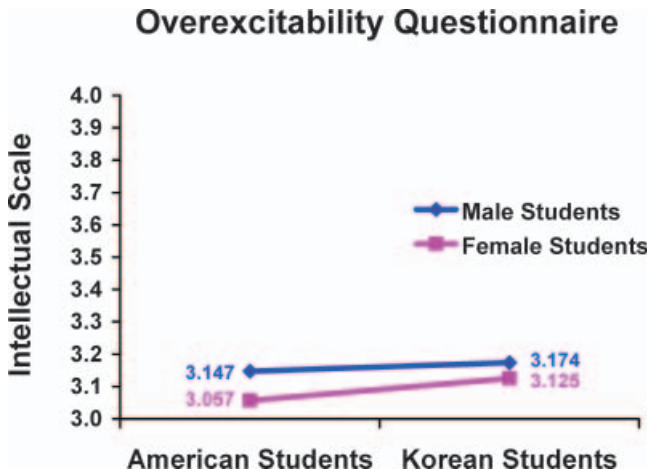


Figure 4. Intellectual overexcitability.

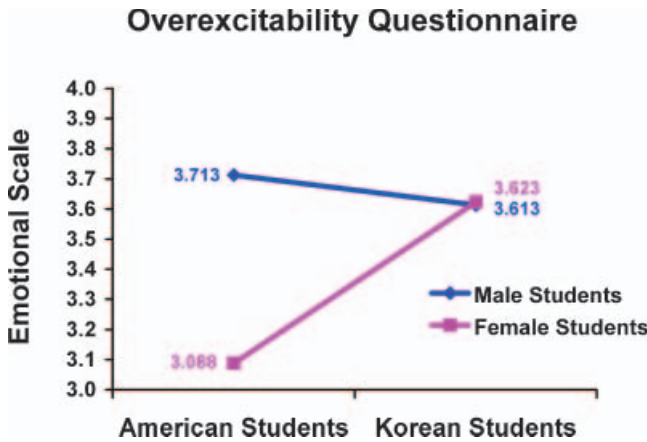


Figure 5. Emotional overexcitability.

make personal sacrifice for support of student achievement in school (Yu, 1988). Young Korean children are often expected to learn academic skills from family members at home before they enter the formal schooling system (Lee, Park, & Kim, 2000).

Third, the finding that psychomotor OE is higher in the Korean youth echoes a finding that Ackerman (1997b) made about Canadian gifted and talented high schoolers. That the gifted youth of two countries show greater psychomotor OE than US youth is interesting, which has also been documented for studies of gifted and nongifted comparisons (Mendaglio & Tillier, 2007). Reasons for this might have more to do with culture than ability, which begs the call for more cross-cultural, mixed ability research.

Fourth, the finding that both American and Korean youth possess high levels of intellectual OE is the strongest finding, and reasserts what the other studies mentioned above have found. The Dabrowski theory asserts that intellectual, imaginal, and emotional OEs are the necessities for a person to be able to rise on the developmental hierarchy. This study has not confirmed that this is an international reality among gifted and talented youth, but it does confirm that, at least, one of the three is present in youth of both countries.

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