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Perfectionism, School Motivation, Learning Styles and Academic Achievement of Gifted and Non-Gifted Students

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Abstract

The main aim of this study was to investigate whether predictors such as perfectionism, school motivation, learning styles and academic achievement could distinguish gifted students from non-gifted students. The sample consisted of 386 (Female=164, Male=222) gifted and 410 (Female=209, Male=201) non-gifted upper primary school students. Information Gathering Form, Positive-Negative Perfectionism, School Motivation and Learning Styles Scales were used as data gathering tools. Independent t-test, Pearson's coefficient and discriminant analysis were used to analyse data. Classification results show that the model correctly predicted 98.4% of gifted students and 81% of non-gifted students. This was also discussed in the light of the current literature.

Key words: *academic achievement; gifted; learning style; perfectionism; school motivation.*

Introduction

Giftedness means being above the average for mental or creative skills or in special areas such as music or sports (Strickland, 2001). In the literature, the terms of giftedness and being talented are frequently used interchangeably, and talent is mostly seen as a part of giftedness (Davis & Rimm, 2004). Giftedness cannot be only described with regard to special areas or academic skills, but also includes characteristics such as leadership, independence and intuitiveness besides curiosity, motivation, and realization of relationship and prolonged duration of attention. Gifted people are

individuals who can be creative and who approach a problem from multiple mental visualization viewpoints (thinking innovative) and present new solutions (Strickland, 2001). In the United States Education Committee's 1998 report with a focus on skills, gifted students were defined as individuals who are shown to perform at a higher level of intelligence, art, leadership capacity or special academic areas in comparison to their peers and need special care or activities which may not be given by school (Colangelo & Davis, 2003).

Gifted individuals differ from their non-gifted peers regarding their cognitive, physical, social and emotional characteristics (Long, 2000). Perfectionism is defined as a person's determination of extremely high standards of performance and behaviour (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) and it is seen as a prominent characteristic of gifted students (Schuler, 2000). According to Silverman (1997), perfectionism is a result of the asynchronous development of gifted children. Gifted children's mental development is very fast, for this reason, they determine high standards for themselves but these standards exceed their physical and social development. Greenspon (1998) argued that gifted individuals are more prone to perfectionism because they really have the capacity to make some things too perfect.

Some scientists considered perfectionism as the case of a pathological or a negative tendency (Hewitt & Flett, 1991). According to this approach, perfectionist people set unrealistic goals both to themselves and to others, usually worry about making a mistake and cannot be satisfied with their achievements (Frost, Marten, Lahart, & Rosenblat, 1990; Rimm, 2007). In recent years, some researchers have stated that perfectionism has two directions - positive and negative (Kottman, 2000). In this approach, positive perfectionism is defined as individual power to success. In this context, in contrast to negative perfectionists, positive perfectionists have high personal standards and a tendency to be flexible according to the current situation (Ashby & Rice, 2002; Rimm, 2007; Silverman, 2007).

The first studies that examined perfectionism of the gifted were focused on the negative direction (Greenspon, 2000; Pacht, 1984). However, later studies focused on the positive dimension and results of the studies that used new measurement tools supported this dimension (Rice & Slaney, 2002). Nevertheless, researchers argue different opinions about perfectionism of the gifted as positive or negative (Parker, 2000; Parker & Mills, 1996; Siegle & Schuler, 2000).

Gifted students have different learning styles as compared to their non-gifted peers (Milgram & Dunn, 1993). In general terms, learning style is described as the stable and characteristic approach of an individual to perception, processing and interpretation of stimulants (Şimşek, 2004). Classification and terminology of learning styles are varied (Dunn, 1984; Kolb & Kolb, 2005). Barbe, Swassing and Milone (1979) examined learning styles in three dimensions; visual, auditory and kinaesthetic. According to this approach, students utilizing a visual learning style prefer visual supplemental materials as compared to simple narration of topics. They learn better with visual

education materials such as maps, posters, models, schemas and graphs, and remember better with their help (Boydak, 2006). The ones having an auditory learning style are more sensitive to sounds during their adaptation to environment and information processing (Dunn & Milgram, 1993). Kinaesthetic students who prefer to learn by performing are those who have the most challenging class environment. They can be very active and cease learning if they are forced to stay immobile for a long time (Boydak, 2006).

Gifted students who can learn through multiple ability channels also have developed perceptual skills. They have advanced auditory, visual and kinaesthetic learning styles (Price & Milgram, 1993). Gifted individuals can be highly successful when provided with appropriate education which corresponds to their learning styles and interests (Dunn & Milgram, 1993). Also there is a relationship between independence and self-control states and motivational learning styles in gifted students (Stewart, 1981). Therefore, gifted students get bored with routine and rote learning tasks, prefer independent learning styles, actively participate in learning, and even organize their learning context. They can work in areas of interest for a very long time without having fatigue (Griggs, 1993).

Renzulli (2003) includes the concept of high motivation, in addition to mental ability and creativity, into the description of giftedness. There are many personal and environmental factors that can affect motivation, which is described as a condition that can stimulate, lead and maintain behaviour (Woolfolk, 1998). Gifted students have higher motivational levels than their non-gifted peers (Urhahne & Ortiz, 2011). Commitment to task, persistence, intrinsic and extrinsic curiosity, enthusiasm for learning and achievement instinct can be manifestations of the motivational state of gifted individuals (McNabb, 2003). Motivation is a key factor for high achievement and performance (Phillips & Lindsay, 2006). Motivation is an indispensable element of success in school, without optimal levels of motivation the best learning context has no utility (Stenberg, 2000). After studies on learning desire, the school motivation concept, which was built on the achievement goal theory, draws attention (Ames, 1992; McInerney, Roche, McInerney, & Marsh, 1997). There are many factors that affect motivation for learning. They are planned to focus on a goal, to be aware of what you will learn and to know how to learn (Woolfolk, 1998). Yeung and McInerney (2005) state that students' aims are extremely important for school motivation.

Challenge level of curriculum is a significant source of motivation for gifted students (Phillips & Lindsay, 2006). Inadequate and inappropriate curriculum and over-repetition of contents in classes can create boring environment for gifted students, so that their motivation levels can be negatively affected. This kind of a situation may cause lower success rates than optimal performances and decreased school motivation levels in gifted students (McNabb, 2003).

IQ scores were seen inadequate in identifying the gifted since 1950 and multiple identity system was introduced instead (Swassing, 1988). Defining different

characteristics of gifted students has a major role for determining programmes, counselling and contents of applications for gifted students. This study is aimed to investigate some of the factors associated with giftedness. In this context, the roles of perfectionism, school motivation, learning styles and academic achievement were examined taking into account the classification of gifted and non-gifted students based on discriminant analysis.

Methods

Participants

Participants were 386 gifted upper primary school students who continued their education in science and art centres in different cities in Turkey and 410 upper primary school non-gifted students who had regular education in different schools in Trabzon.

Science and Art Centres (SAC) are special education institutions for gifted students at pre-school, primary and secondary school level (Ministry of Education, 2007). Gifted students are selected with a three-step identifying process to SAC. The first step includes observations made by parents and teachers. In the second step, students take Mental Alertness Test developed by Thurstone and Thurstone (1952) and adapted to the Turkish culture by the Ministry of Education (2001). Mental Alertness Test measures an individual's ability to acquire skills quickly, adjust to new situations, understand complex or subtle relationships, and think flexibly. In the final step, students who have passed the second step are administered Wechsler Intelligence Scale for Children (WISC-R) by experts. WISC-R, based on verbal ability and performance, gives a standard IQ score (M=100, SD= 15). Individuals who get scores 130 and above are identified as gifted (Kaufman, 1975). Students who completed the steps successfully are identified as gifted and deserve to study at science and art centres as well as in their schools (Ministry of Education, 2007).

Gifted students in the current sample attended 20 science and art centres (SAC) located in different Turkish cities, and consisted of sixth, seventh and eighth grade students. Non-gifted students were selected randomly from 19 different primary schools in the city centre of Trabzon.

Data Collection Tools

Information Gathering Form

This form was developed by investigators to assess the demographic features and academic success of the students who participated in the study. Information regarding age, gender, class, socio-economic level of the family, final grades of the last academic year and education institution were collected with this form.

School Motivation Scale (SMS)

SMS, developed by Yavuz (2006) for the assessment of school motivation levels of primary school (second phase) students, was based on Renchler's (1992) studies. It consists of 34 items, measures one factor and describes 22.8% of the total variance. It

is a Likert type scale with 1-5 ratings. Some of the items were scored inversely (e.g., I'd like a life without school. School rules make me bored.) and some of them were scored positively (e.g., School is my second home. School is useful. A good thing is that I've got school.). The score ranges between 34 and 170, and higher scores indicate higher school motivation. Standard internal consistency alpha coefficient obtained by the reliability analyses of SMS was .90. Split half reliability was r= .81, while split half reliability coefficient was .89.

Learning Styles Scale (LSS)

It was constructed by Sever (2008) for the measurement of learning styles of sixth, seventh and eighth primary school grade students. The scale provides "yes", "no" and "partially" answers for each item. The total number of items is 17 and the scale includes three sub-factors: visual, kinaesthetic and auditory. An individual learning style is based on the comparison of the scores gathered from each sub-factor. The LSS factor analyses showed that 14.23% of the variance was explained by the visual sub-factor, 13.7% of the variance was explained by the auditory sub-factor, 12.05% the variance was explained by the kinaesthetic sub-factor, and 40.15% of the variance was explained by the complete scale. Item-total score correlations were between .26-.53 for each item of the scale, as determined by the scale reliability analyses. Cronbach Alpha internal consistency coefficient was .67 for each sub-factor (visual, auditory and kinaesthetic) of the scale.

Positive and Negative Perfectionism Scale (PNPS)

PNPS was developed by Kırdök (2004) to measure the characteristics of pre-adolescents' positive and negative perfectionism. It comprises 17 items in total and two sub-factors such as positive perfectionism and negative perfectionism. "I'm a tidy person" and "I don't postpone my tasks" are some of the positive perfectionism items and "I'm frustrated when I make a mistake" and "When I do something wrong, others think I'm incompetent" are some of the negative perfectionism items. PNPS is a Likert type scale with 1-4 ratings and there is not a total score. Higher scores indicate higher positive or negative perfectionism. As a result of the factor analysis, 18% of the variance was explained by positive perfectionism and 14% of the variance was explained by negative perfectionism. According to the reliability analyses of the scale, Cronbach Alpha internal consistency coefficient of positive perfectionism was .81 and Cronbach Alpha internal consistency coefficient of negative perfectionism was .78. Reliability coefficients obtained by test-retest analysis were .75 for positive perfectionism and .78 for negative perfectionism. Stability coefficients for the two sub-scales were significant at $p < .01$ level.

Procedure

After the required permissions were obtained from the National Ministry of Education, the scales with guidelines were sent to science and art centres. The data of gifted students were collected by the counsellors of science and art centres,

who had been informed by the researchers about the study. The data of non-gifted students randomly selected from the primary schools in Trabzon were collected by the researchers. The scales were applied with standard guidelines in classrooms, and each session took 20 minutes. Incomplete or incorrectly marked scales were not taken into consideration.

Data Analysis

Data were analyzed with SPSS 16.0 package programme. In this context, descriptive analysis techniques, independent *t*-test, Pearson Product Moment Correlation Coefficient (PPMCC) and discriminant analysis were used.

Results

Demographic Results

Mean ages of gifted students and non-gifted students were 12.81 (*SD* = 0.93) and 12.85 (*SD* = 0.87) respectively. Academic success rates of gifted students and non-gifted students, on the other hand, were 95.50 (*SD* = 5.03) and 71.40 (*SD* = 14.47) respectively. The large portion of families in both groups (Gifted = 81.1%, Non-gifted = 84.9%) belonged to the middle economic class. Other demographic information is summarized in Table 1. According to Table 1, 57.5% of the gifted students were male, and 42.5% of them were female. 51% of the non-gifted students were female and 49% of them were male. In each group, the number of sixth grade students was higher.

Table 1
Demographic Results

Variables	**Gifted Students** (n=386)		**Non-Gifted Students** (n=410)	
	f	%	f	%
Gender				
Female	164	42.5	209	51
Male	222	57.5	201	49
Grade Level				
Sixth Grade	157	40.7	165	40.2
Seventh Grade	146	37.8	145	35.4
Eighth Grade	83	21.5	100	24.4
Socio-Economic Status				
Low	10	2.6	24	5.9
Middle	313	81.1	348	84.9
High	63	16.3	38	9.2
	M	*SD*	*M*	*SD*
Age	12.81	0.93	12.85	0.87
Academic Grade Point	95.50	5.03	71.40	14.47

Differences among Gifted and Non-Gifted Students for Perfectionism, School Motivation, Learning Styles and Academic Achievement

There were significant differences between gifted and non-gifted students in terms of school motivation, as demonstrated in Table 2 (t = – 4.43, p<.05). School motivation scores of the non-gifted students (M = 118.31, SD = 26.14) were higher than those of their gifted peers (M = 109.77, SD = 28.29).

There were also significant differences between gifted and non-gifted students in terms of positive perfectionism (t = –6.08, p<.05) and negative perfectionism (t = –7.71, p<.05). Both positive perfectionism scores (M = 33.47, SD = 5.13) and negative perfectionism scores (M = 19.27, SD = 4.69) of non-gifted students were higher than their gifted peers' scores (Positive: M = 30.94, SD = 6.46; Negative: M = 16.52, SD = 5.31).

Learning styles were investigated in three dimensions (auditory, visual and kinaesthetic). Significant differences between the groups were observed in terms of visual learning styles (t = 2.85, p<.05). The scores considering visual learning styles of gifted students (M= 18.81, SD= 2.46) were higher than those of their non-gifted peers (M=18.37, SD=2.01). Significant differences between the groups were also observed for auditory learning styles (t=–5.24, p<.05). In this dimension, the scores of non-gifted students (M=8.80, SD=2.40) were higher than those of their gifted peers (M=7.84, SD=2.76). Significant differences between gifted and non-gifted students were also observed for kinaesthetic learning styles (t=9.23, p<.05). In this dimension, the scores of gifted students (M=12.54, SD= 3.48) were higher than those of their non-gifted peers (M=10.35, SD=3.20).

Significant differences between the groups were observed in terms of academic achievement means (t=31.74, p<.05). Mean of gifted students' academic scores (M=95.50, SD=5.03) was higher than that of their non-gifted peers' mean (M=71.40, SD=14.47).

Table 2

Differences among Gifted and Non-Gifted Students for Perfectionism, School Motivation, Learning Styles and Academic Achievement

Variables	Gifted		Non- Gifted		t	p	**Cohen's *d***
	M	SD	M	SD			
School Motivation	109.77	28.29	118.31	26.14	-4.43	.001	-0.31
Positive Perfectionism	30.94	6.46	33.47	5.13	-7.71	.001	-0.43
Negative Perfectionism	16.52	5.31	19.27	4.69	-4.43	.001	-0.55
Visual Learning Style	18.82	2.46	18.37	2.01	2.85	.005	0.20
Auditory Learning Style	7.84	2.76	8.80	2.40	-5.24	.001	-0.37
Kinaesthetic Learning Style	12.54	3.48	10.35	3.20	9.23	.001	0.66
Academic Grade Point	95.50	5.03	71.40	14.47	31.74	.001	2.22

Relationships Including Students' Perfectionism, School Motivation, Learning Styles and Academic Achievement.

PPMCC was applied to determine the problem of multi-collinearity between independent variables. As summarized in Table 3, the correlation between the variables is 0.44. Therefore, the problem of multi-collinearity was not found.

Table 3

Relationships Including Perfectionism, School Motivation, Learning Styles and Academic Achievement

	1	2	3	4	5	6	7	*M*	*SD*
1. AGP	1							83.09	16.29
2. PP	-.04	1						32.24	5.94
3. NP	-.22*	.23*	1					17.93	5.18
4. SM	.-.02	.44*	.06	1				114.17	27.52
5. VLS	.18*	.42*	.15*	.20*	1			18.59	2.25
6. ALS	.-.14*	.21*	.23*	.10*	.18*	1		8.34	2.62
7. KLS	.20*	-.28*	.03	-.40*	.03	.07	1	11.41	3.51

AGP: Academic Grade Point, PP: Positive Perfectionism, NP: Negative Perfectionism, SM: School Motivation, VLS: Visual Learning Style, ALS: Auditory Learning Style, KLS: Kinaesthetic Learning Style

* p< .01

Results of Gifted and Non-Gifted Students' Classification

Table 4

Results of Discriminant Analysis

Predictors	Standardized Function Coefficients	Correlations between Variables and Discriminant Function
Academic Grade Point	.92	.88
Positive Perfectionism	–.24	–.17
Negative Perfectionism	–.17	–.22
School Motivation	–.08	–.13
Visual Learning Style	.12	.08
Auditory Learning Style	–.13	–.15
Kinaesthetic Learning Style	.26	.26

Discriminant analysis was conducted to assess whether perfectionism, school motivation, learning styles and academic achievement predictors could distinguish gifted students from non-gifted students. Wilks' lambda was significant (λ=.39, χ^2=740.21, p<.001), which indicates that the model including the stated variables was able to significantly discriminate the two groups. Table 4 presents the standardized function coefficients, which mainly suggests that academic achievement contributes to distinguishing gifted from non-gifted students, using these predictors. Kinaesthetic learning style, positive perfectionism, negative perfectionism, school motivation,

auditory and visual learning styles were other significant predictors that followed academic achievement. The classification results show that the model correctly predicted 98.4% of gifted students and 81% of non-gifted students. 89.4% of the sample was classified correctly.

Discussion

Results have showed that perfectionism, school motivation, learning styles and academic achievement were significant predictors which distinguish gifted students from non-gifted students. Academic achievement was the most powerful distinguishing variable. In our study, academic success rates of gifted students were found to be significantly higher than those of their non-gifted peers. This result is parallel to findings from the literature indicating that gifted students have an exceptional success rate as compared to others (Feldhusen, Proctor, & Black, 2002), and they are more successful in academic environments (Tannenbaum, 2000). The gifted students in this particular study have pursued their education in both regular classrooms in their schools and science and art centres, and thus as it is highlighted in the literature, studying in the above-mentioned centre can be one of the contributing factors to the higher achievement of gifted students. Hedricks (2009) found a significant relationship between the academic achievement of gifted students and the time gifted students spend in homogenous class. Similarly, gifted students enrolled in honours programmes (Rinn, 2007) and accelerated learning activities (Lee, Olszewski-Kubilius, & Peternel, 2010) were found to be more successful in academic environment, and their academic self-concept was also more developed (Hoogeveen, Hell, & Verhoven, 2011).

In the present study, school motivation was a significant predictor to classify gifted and non-gifted students. Results of this study demonstrated that school motivation of non-gifted students was higher than that of their gifted peers. High motivation is one of the common features of gifted individuals (Gagne, 2004; Renzulli, 2003). There are other studies showing higher motivation levels for gifted individuals as compared to their non-gifted peers (Chan, 1996; Skollingsberg, 2003). Interestingly, these studies were focused on the sources of motivation or general motivation levels of gifted students but they did not assess school motivation directly. Gifted students get bored in the school environments designed for non-gifted students in which curriculum is not appropriate and topics are frequently repeated, so that their school motivation is negatively affected (Phillips & Lindsay, 2006; Subotnik, Olszewki-Kubilius, & Worrel, 2011). This kind of a learning process has detrimental effects for the school motivation of gifted students (Lee, Olszewski-Kubilius, & Peternel, 2010). Personal and social profiles of gifted students being educated in special classes are more favourable than in mixed type class education (Zeidner & Schleyer, 1999). These students have an increased academic self-concept and higher satisfaction levels for school environment (Shechtman & Silektor, 2012). The students participated in the present study were continuing their education in normal class settings and pursued to go to science and

art centres on some weekend days. Therefore, a relationship between lower school motivation and education in normal class settings may be considered. In contrast to these findings, Schneider, Clegg, Byrne, Ledingham and Crombie (1989) could not demonstrate any significant difference for attitudes toward school between gifted students having education in special classes and in normal class settings.

Perfectionism has been found to be significantly effective in the classification of gifted and non-gifted students. The fact that the difference between gifted and non-gifted students was in favour of non-gifted students conflicted with the findings of some studies (Baker, 1996; Guignard, Jacquet, & Lubart, 2012). The results of previous studies showed that perfectionism of gifted students was higher than perfectionism of their non-gifted peers (Chan, 2011; Roberts & Lovett, 1994). However, the results of this study are similar to the findings of Parker and Mills's (1996) study which compares perfectionism of gifted and non-gifted students. Parker and Mills (1996) found that the perfectionism scores of non-gifted students were higher than the perfectionism scores of gifted students in terms of positive and negative sub-scales. LoCicero and Ashby (2000) also found that the negative perfectionism scores of non-gifted students were significantly higher than those of their gifted peers.

There were significant differences between the groups in terms of visual, auditory and kinaesthetic learning styles. Visual and kinaesthetic learning style scores of gifted students were significantly higher than those of non-gifted students. However, non-gifted students got higher scores in auditory learning style. Therefore, gifted students preferred visual and kinaesthetic learning styles more than their non-gifted peers. These findings are consistent with the results of other studies showing that gifted students prefer kinaesthetic learning styles (Dunn, 1983; Price & Milgram, 1993). In their cross-cultural study including six countries (Israel, Korea, Philippines, United States, Canada, Guatemala), Price and Milgram (1993) found that gifted students strongly preferred kinaesthetic learning compared to non-gifted students and indicated that this preference could be used as their distinctive feature. It is established that gifted students have enhanced perceptual abilities and most of them can utilize visual, auditory and kinaesthetic learning styles at the same time (Price & Milgram, 1993). However, results of the studies showed that gifted students preferred kinaesthetic/tactile learning styles more than the other types (Dunn & Milgram, 1993). Auditory learning styles are emphasized in traditional education systems, crowded classes and economic difficulties prevent the use of kinaesthetic, experiential and applied learning styles. This type of education method is not compatible with the learning styles of gifted students, and although their academic success rate is high, their school motivation is decreased and they get bored in school.

Conclusions

Perfectionism, school motivation, learning styles and academic achievement were found as significant predictors which distinguish gifted students from non-

gifted students. 89.4% of the sample was classified correctly. Results of this study demonstrated that school motivation, perfectionism, auditory learning style of non-gifted students were higher than in case of their gifted peers. Academic achievement, visual and kinaesthetic learning style scores of gifted students were higher than in case of their non-gifted peers.

The fact that data gathering tools were administered by different teachers because of the locations of schools and centres and, thus in different sessions is thought to be one of the limitations of this study, even though the teachers who distributed and collected the scales had been previously informed. The scope of this study was also limited since it investigated only perfectionism, school motivation, learning styles and academic achievement variables. Thus, further research should consider detailed examination of learning styles, sources of intrinsic and extrinsic motivation, and different variables. Furthermore, longitudinal studies with these different variables are also recommended.

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Perfekcionizam, školska motivacija, stilovi učenja i akademski uspjeh darovitih i nedarovitih učenika

Sažetak

Glavni cilj ovog istraživanja bio je istražiti mogu li se daroviti učenici razlikovati od nedarovitih učenika prema prediktorima kao što su perfekcionizam, školska motivacija, stilovi učenja i akademski uspjeh. Uzorak se sastojao od 386 (ispitanice=164, ispitanici=222) darovitih i 410 (ispitanice=209, ispitanici=201) nedarovitih učenika osnovne škole. Obrazac za prikupljanje podataka, skale za određivanje pozitivnog-negativnog perfekcionizma, školske motivacije i stilova učenja upotrijebljeni su kao alati za prikupljanje podataka, a za njihovu su analizu upotrijebljeni nezavisni t-test, Pearsonov koeficijent i diskriminantna analiza. Rezultati pokazuju da taj model točno predviđa klasifikaciju u slučaju 98.4% darovitih i 81% nedarovitih učenika. Spomenuto je također razmatrano u svjetlu recentne literature.

Ključne riječi: *akademski uspjeh; darovitost; perfekcionizam; stil učenja; školska motivacija.*

Uvod

Darovitost znači biti iznadprosječan u mentalnim ili kreativnim vještinama, odnosno u određenim područjima kao što su glazba ili sport (Strickland, 2001). U literaturi se često naizmjenično javljaju pojmovi darovitost i talentiranost, ali se talent uglavnom smatra sastavnim dijelom darovitosti (Davis i Rimm, 2004). Darovitost se ne može opisivati samo u odnosu na određena područja ili akademske vještine, nego također obuhvaća obilježja kao što su sposobnost vođenja, neovisnost i intuitivnost, radoznalost, motivacija, ostvarenje odnosa i produženo djelovanje pažnje. Daroviti su ljudi pojedinci koji mogu biti kreativni, a problemu pristupaju s višestrukih aspekata mentalne vizualizacije (misliti inovativno) i tako predlažu nova rješenja (Strickland, 2001). U izvještaju s posebnim osvrtom na vještine, što ga je pripremio američki Odbor za obrazovanje 1998. godine, daroviti su učenici definirani kao pojedinci koji se u odnosu na svoje vršnjake prepoznaju po inteligentnijem djelovanju, umjetnosti,

vođenju ili specifičnim akademskim područjima pa zahtijevaju posebnu brigu ili aktivnosti koje im škola ne može pružiti (Colangelo i Davis, 2003).

Daroviti se pojedinci razlikuju od svojih nedarovitih vršnjaka po kognitivnim, fizičkim, društvenim i emocionalnim obilježjima (Long, 2000). Perfekcionizam se definira kao individualno određivanje iznimno visokih standarda aktivnosti ili ponašanja (Slaney, Rice, Mobley, Trippi, i Ashby, 2001) i smatra se istaknutim obilježjem darovitih učenika (Schuler, 2000). Silverman (1997) smatra da je perfekcionizam rezultat asinkronog razvoja darovite djece. Ona se mentalno vrlo brzo razvijaju, pa si zbog toga postavljaju visoke standarde, ali su ti standardi iznad njihova fizičkog i društvenog razvoja. Greenspon (1998) tvrdi kako su daroviti pojedinci skloniji perfekcionizmu jer doista raspolažu sposobnošću da neke stvari učine previše savršenim.

Neki autori misle da perfekcionizam predstavlja slučaj nekog patološkog ili negativnog nastojanja (Hewitt & Flett, 1991). Slijedom takvog stajališta, perfekcionisti postavljaju nerealne ciljeve i sebi i drugima, obično su zabrinuti da će pogriješiti i ne mogu biti zadovoljni svojim postignućima (Frost, Marten, Lahart, i Rosenblat, 1990; Rimm, 2007). U novije vrijeme neki autori tvrde da se perfekcionizam razvija u dva pravca kao pozitivni i negativi (Kottman, 2000). Pritom se pozitivni perfekcionizam određuje kao individualna moć za uspjehom. U tom kontekstu, za razliku od negativnih, pozitivni perfekcionisti imaju visoke standarde i nastoje biti fleksibilni s obzirom na situaciju u kojoj se trenutno nalaze (Ashby i Rice, 2002; Rimm, 2007; Silverman, 2007).

Prva istraživanja koja su se bavila perfekcionizmom darovitih bila su usredotočena na negativno usmjerenje (Greenspon, 2000; Pacht, 1984). Međutim, novija istraživanja usredotočena na pozitivnu dimenziju, kao i rezultati istraživanja u kojima su upotrijebljeni novi mjerni instrumenti potvrdila su tu dimenziju (Rice i Slaney, 2002). Znanstvenici, ipak, imaju različita mišljenja o perfekcionizmu darovitih, koja su pozitivna ili negativna (Parker, 2000; Parker i Mills, 1996; Siegle i Schuler, 2000).

Daroviti učenici imaju stilove učenja drukčije od nedarovitih vršnjaka (Milgram i Dunn, 1993). Stil učenja općenito se određuje kao stabilan i karakterističan pristup pojedinca percepciji, procesiranju i interpretaciji stimulansa (Şimşek, 2004). Postoje različite kategorije i pojmovi kada su u pitanju stilovi učenja (Dunn, 1984; Kolb i Kolb, 2005). Barbe, Swassing i Milone (1979) istraživali su stilove učenja u trima dimenzijama: vizualnoj, auditivnoj i kinestetičkoj. Prema tom stajalištu, učenici koji se koriste vizualnim stilom učenja, više vole dodatni vizualni materijal nego jednostavan narativni pristup sadržaju. Uče brže i bolje pamte s pomoću vizualnih nastavnih materijala, kao što su mape, posteri, modeli, sheme i grafikoni (Boydak, 2006). Učenici koje obilježava auditivni stil učenja osjetljiviji su na zvukove kada se prilagođuju sredini i obrađuju podatke (Dunn i Milgram, 1993). Kinestetički usmjereni učenici koji vole učiti tako što obavljaju neku aktivnost, jesu učenici koji imaju na raspolaganju razredno okruženje prepuno izazova. Mogu biti vrlo aktivni i prestaju učiti kada ih se duže prisili da budu nepokretljivi (Boydak, 2006).

Daroviti učenici koji uče tako što se koriste većim brojem kanala, imaju također razvijene perceptivne vještine. Obilježavaju ih napredni auditivni, vizualni i

kinestetički stilovi učenja (Price i Milgram, 1993). Mogu biti iznimno uspješni kada im je na raspolaganju odgovarajuće obrazovanje u sladu s njihovim stilovima učenja i zanimanjima (Dunn i Milgram, 1993). Kod darovitih se učenika pokazala povezanost između stanja neovisnosti i samokontrole i motivacijskih stilova učenja (Stewart, 1981). Darovitim je učenicima stoga dosadno kada izvršavaju rutinske i ponavljajuće zadatke, oni preferiraju neovisne stilove učenja i aktivno sudjelovanje u učenju, pa čak i u organizaciji konteksta učenja. Mogu vrlo dugo bez ikakvog umora raditi na onome što ih zanima (Griggs, 1993).

Renzulli (2003), osim mentalne sposobnosti i kreativnosti, opisu darovitosti pridodaje koncept velike motiviranosti. Brojni čimbenici koji potječu od osobe i okruženja mogu utjecati na motivaciju, što se opisuje kao uvjet koji može poticati, voditi i održavati takvo ponašanje (Woolfolk, 1998). Daroviti učenici raspolažu višom razinom motivacije nego njihovi nedaroviti vršnjaci (Urhahne i Ortiz, 2011). Predanost zadatku, ustrajnost, intrinzična i ekstrinzična radoznalost, entuzijazam za učenje i instinkt za uspjeh mogu biti pokazatelji motivacijskog stanja darovitih pojedinaca (McNabb, 2003). Motivacija je ključni čimbenik nekog velikog uspjeha i izvedbe (Phillips i Lindsay, 2006). Neodvojiva je od školskog uspjeha, pa je bez optimalne motivacije najbolji kontekst učenja beskoristan (Stenberg, 2000). Nakon istraživanja o želji za učenjem, pažnju autora privukao je koncept školske motivacije, nastao na teoriji o ostvarenju cilja (Ames, 1992; McInerney, Roche, McInerney, Marsh, 1997). Brojni su čimbenici koji utječu na motivaciju za učenje, a to podrazumijeva planirati kako se usredotočiti na cilj, biti svjestan što ćeš naučiti i znati kako to naučiti (Woolfolk, 1998). Yeung i McInerney (2005) tvrde da su učenički ciljevi iznimno važni za školsku motivaciju.

Razina na kojoj kurikul predstavlja izazov važan je izvor motivacije darovitih učenika (Phillips i Lindsay, 2006). Neodgovarajući i neprikladni kurikul, pretjerano ponavljanje sadržaja u učionici mogu učiniti ozračje dosadnim kada su u pitanju daroviti učenici, pa na njihovu motivaciju mogu negativno utjecati. Takva situacija može uzrokovati slabiji školski uspjeh i slabiju motivaciju darovitih učenika (McNabb, 2003).

Od 1950. godine smatra se da su rezultati koji se odnose samo na kvocijent inteligencije neodgovarajući za utvrđivanje darovitosti, tako da je prihvaćen višestruki sustav identifikacije (Swassing, 1988). Određivanje različitih obilježja darovitih učenika ima glavnu ulogu u izradi programa, davanju savjeta i određivanju sadržaja aplikacija namijenjenih darovitim učenicima. U ovom je istraživanju cilj utvrditi neke od čimbenika povezanih s darovitošću. U tom kontekstu istraživane su uloge perfekcionizma, školske motivacije, stilova učenja i akademskog uspjeha darovitih i nedarovitih učenika, koji su tako klasificiranih s pomoću diskriminantne analize.

Metode

Uzorak

U istraživanju je sudjelovalo 386 darovitih učenika viših razreda osnovne škole koji se nastavljaju obrazovati u znanstveno-umjetničkim centrima u različitim gradovima

Turske i 410 nedarovitih učenika viših razreda osnovne škole koji se regularno obrazuju u različitim školama u Trabzonu.

Znanstveno-umjetnički centri (ZUC) su posebne odgojno-obrazovne institucije za darovite učenike na predškolskoj, osnovnoškolskoj i srednjoškolskoj razini (Ministarstvo obrazovanja, 2007). Proces selekcije darovitih učenika za ZUC obuhvaća tri faze. Roditelji i učitelji prvo promatraju učenike, zatim učenici polažu test primarnih mentalnih sposobnosti koji su izradili Thurstone i Thurstone (1952), a Ministarstvo obrazovanja (2001) prilagodilo turskoj kulturi. Spomenuti test pomaže pri mjerenju individualne sposobnosti brzog usvajanja vještina, prilagođavanja novim situacijama, razumijevanja složenih ili suptilnih odnosa te fleksibilnog razmišljanja. U završnoj fazi stručnjaci su na učenicima koji prođu drugi korak primijenili Wechslerovu skalu za mjerenje inteligencije djece (WISC-R). Mjere dobivene uz pomoć spomenute skale, utemeljene na verbalnoj sposobnosti i izvedbi, daju standardni kvocijent inteligencije (M=100, SD=15). Pojedinci s rezultatom od 130 i više označeni su darovitima (Kaufman, 1975). Pojedinci koji su uspješno prošli sve faze procesa prepoznati su kao daroviti i zaslužuju obrazovanje u znanstveno-umjetničkim centrima, kao i u svojim školama (Ministarstvo obrazovanja, 2007).

Daroviti učenici iz tog uzorka pohađaju 20 znanstveno-umjetničkih centara (ZUC) u različitim turskim gradovima i učenici su šestog, sedmog i osmog razreda osnovne škole. Nedaroviti su učenici nasumce odabrani iz 19 različitih osnovnih škola u centru grada Trabzona.

Prikupljanje podataka

Obrazac za prikupljanje podataka

Obrazac su izradili autori istraživanja da bi odredili demografsku sliku i akademski uspjeh ispitanika. Na taj su način prikupljeni podaci o dobi, spolu, razredu, socio-ekonomskom statusu obitelji, zaključnim ocjenama u završnoj školskoj godini i odgojno-obrazovnoj instituciji.

Skala za školsku motivaciju (SŠM)

Njezin je autor Yavuz (2006), a služi za vrednovanje školske motivacije učenika osnovne škole u drugoj fazi. Temelji se na Renchlerovim (1992) istraživanjima. Sadrži 34 tvrdnje, mjeri jedan faktor i opisuje 22,8% ukupne varijance. Pripada Likertovu tipu (1-5). Neke su tvrdnje provjeravane obrnuto (npr. Volio bih život bez škole. Školska su mi pravila dosadna.), a neke su tvrdnje pozitivno vrednovane (npr. Škola je moj drugi dom. Škola je korisna. Dobro je da imam školu.). Rezultat pokazuje raspon od 34 do 170; bolji rezultati pokazuju veću školsku motivaciju. Standardni koeficijent interne konzistencije dobiven je s pomoću analize pouzdanosti SŠM i iznosi 0,90. Split-half pouzdanost (na osnovi dviju polovina testa) iznosi r= 0,81, a koeficijent split-half pouzdanosti 0,89.

Skala za stilove učenja (SSU)

Izradio ju je Sever (2008) radi mjerenja stilova učenja učenika šestog, sedmog i osmog razreda osnovne škole. Sadržavala je „da", „ne" i „djelomično" za svaku od

ukupno 17 tvrdnji. Skala se sastojala od tri subfaktora: vizualnog, kinestetičkog i auditivnog. Individualni stil učenja određuje se tako što se uspoređuju rezultati dobiveni na temelju svakog subfaktora. Njezina faktorska analiza pokazuje da 14,23% varijance objašnjava vizualnim, 13,7% auditivnim, 12,05% kinestetičkim subfaktorom, a 40,15% varijance objašnjava se kompletnom skalom. Korelacije za ukupni rezultat kreću se između 0,26 i 0,53 za svaku tvrdnju, što je utvrđeno uz pomoć analize pouzdanosti skale. Cronbachov koeficijent unutarnje konzistencije iznosi 0,67 za svaki subfaktor (vizualni, auditivni i kinestetički).

Skala za pozitivni i negativni perfekcionizam (SPNP)

SPNP izradio je Kırdök (2004) radi mjerenja karakteristika pozitivnog i negativnog perfekcionizma učenika u predadolescentskoj dobi. Skala se sastoji od ukupno 17 tvrdnji i dva subfaktora kao što su pozitivni i negativni perfekcionizam. „Ja sam uredna osoba" i „Ne odgađam svoje zadatke" primjeri su nekih tvrdnji za pozitivni perfekcionizam, a ,,Isfrustriran sam kada pogriješim" i ,,Kada pogriješim, drugi misle da nisam kompetentan" ilustriraju negativni perfekcionizam. Riječ je o skali Likertova tipa (1-4), bez ukupnog rezultata. Veći rezultati pokazuju višu razinu pozitivnog ili negativnog perfekcionizma. Kao što pokazuje faktorska analiza, 18% varijance objašnjeno je pozitivnim, 14% negativnim perfekcionizmom. U skladu s analizama pouzdanosti Cronbachov koeficijent interne konzistencije za pozitivni perfekcionizam iznosi 0,81, a za negativni perfekcionizam iznosi 0,78. Koeficijenti pouzdanosti koji su dobiveni uz pomoć test-retest analize iznose 0,75 za pozitivni perfekcionizam i 0,78 za negativni perfekcionizam. Koeficijenti stabilnosti za dvije subskale su na značajnoj $p < 0,01$ razini.

Postupak

Nakon što je dobiveno dopuštenje nacionalnog Ministarstva obrazovanja, skale su s uputama za primjenu poslane znanstveno-umjetničkim centrima. Podatke o darovitim učenicima prikupljali su savjetnici u znanstveno-umjetničkim centrima koje su autori upoznali s istraživanjem, a sami su autori prikupljali podatke o nedarovitim učenicima koji su nasumce odabrani u osnovnim školama u Trabzonu. Skale su se sa standardnim uputama primjenjivale u učionicama, a svaki je postupak trajao 20 minuta. Nepotpune ili netočno označene skale nisu uzimane u razmatranje.

Analiza podataka

Podaci su analizirani uz pomoć programskog paketa SPSS 16.0. U tom su kontekstu upotrijebljene tehnike deskriptivne analize, nezavisni t-test, Pearsonov koeficijent korelacije (PPMCC) i diskriminantna analiza.

Rezultati

Demografski rezultati

Prosječna dob darovitih i nedarovitih učenika iznosila je 12,81 ($SD = 0,93$), odnosno 12,85 ($SD = 0,87$). Stopa akademskog uspjeha darovitih i nedarovitih učenika, međutim,

iznosila je 95,50 (*SD* = 5,03), odnosno 71,40 (*SD* = 14,47). Najveći dio učeničkih obitelji u objema skupinama (Daroviti = 81,1%, Nedaroviti = 84,9%) pripadao je srednjem ekonomskom sloju. Ostali su demografski podaci sažeto prikazani u Tablici 1. Dakle, 57,5% darovitih učenika muškog je spola, 42,5% su učenice. 51% nedarovitih su učenice, a 49% učenici. U svakoj je skupini bilo više učenika šestog razreda.

Tablica 1.

Razlike između darovitih i nedarovitih učenika prema perfekcionizmu, školskoj motivaciji, stilovima učenja i akademskom uspjehu

Među darovitim i nedarovitim učenicima postoje znatn razlike kada je riječ o školskoj motivaciji, kao što pokazuje Tablica 2 ($t = -4{,}43$, $p<0{,}05$). Rezultati nedarovitih učenika u tom su pogledu veći ($M = 118{,}31$, $SD = 26{,}14$) kada se usporede s njihovim darovitim vršnjacima ($M = 109{,}77$, $SD = 28{,}29$).

Među darovitim i nedarovitim učenicima postoje također značajne razlike kada je riječ o pozitivnom perfekcionizmu ($t = -6{,}08$, $p<0{,}05$) i negativnom perfekcionizmu ($t = -7{,}71$, $p<0{,}05$). Oba rezultata, za pozitivni perfekcionizam ($M = 33{,}47$, $SD = 5{,}13$) i negativni perfekcionizam ($M = 19{,}27$, $SD = 4{,}69$), nedarovitih učenika imaju veće vrijednosti u odnosu na rezultate njihovih darovitih vršnjaka (Pozitivni: $M = 30{,}94$, $SD = 6{,}46$; Negativni: $M = 16{,}52$, $SD = 5{,}31$).

Stilovi učenja istraživani su u trima dimenzijama (auditivnoj, vizualnoj i kinestetičkoj). Značajne razlike pronađene su u odnosu na vizualne stilove učenja ($t = 2{,}85$, $p<0{,}05$). Rezultati darovitih učenika koji se na njih odnose ($M= 18{,}81$, $SD= 2{,}46$) veći su od rezultata njihovih nedarovitih vršnjaka ($M = 18{,}37$, $SD = 2{,}01$). Znatne razlike otkrivene su također i kada je riječ o auditivnim stilovima učenja ($t = -5{,}24$, $p< 0{,}05$). U tom su pogledu rezultati nedarovitih učenika ($M = 8{,}80$, $SD = 2{,}40$) bili veći od onih njihovih darovitih vršnjaka ($M = 7{,}84$, $SD = 2{,}76$). Značajne su razlike još postojale u odnosu na kinestetičke stilove učenja ($t = 9{,}23$, $p< 0{,}05$) pa su rezultati darovitih učenika u toj dimenziji bili veći ($M = 12{,}54$, $SD= 3{,}48$) od rezultata njihovih nedarovitih vršnjaka ($M = 10{,}35$, $SD = 3{,}20$).

Osim toga, znatne su razlike otkrivene u pogledu srednjih vrijednosti akademskog uspjeha ($t = 31{,}74$, $p<0{,}05$). Srednja vrijednost rezultata darovitih učenika ($M = 95{,}50$, $SD = 5{,}03$) bila je veća od one njihovih nedarovitih vršnjaka ($M = 71{,}40$, $SD = 14{,}47$).

Tablica 2.

Odnosi između perfekcionizma, školske motivacije, stilova učenja i akademskog uspjeha učenika

Upotrijebljen je Pearsonov koeficijent korelacije da bi se utvrdio problem multikolinearnosti nezavisnih varijabli. Kao što Tablica 3 sažeto prikazuje, korelacija između varijabli iznosi 0,44, pa nije utvrđen problem multikolinearnosti.

Tablica 3.

Rezultati klasifikacije darovitih i nedarovitih učenika

Provedena je diskriminantna analiza da bi se utvrdilo mogu li se daroviti učenici razlikovati od nedarovitih učenika prema prediktorima kao što su perfekcionizam, školska motivacija, stilovi učenja i akademski uspjeh. Wilksova lambda bila je značajna (λ= 0,39, χ^2= 740,21, p <0,001), što ukazuje na to da model koji sadrži spomenute varijable može značajno diskriminirati te dvije skupine. Tablica 4 prikazuje standardne koeficijente funkcije, što uglavnom upućuje na to da akademski uspjeh pridonosi razlikovanju darovitih od nedarovitih učenika, kada se koristi spomenuti prediktor. Kinestetički stil učenja, pozitivni i negativni perfekcionizam, školska motivacija, auditivni i vizualni stil učenja čine druge značajne prediktore koji slijede školski uspjeh. Rezultati klasifikacije pokazuju da taj model točno predviđa 98,4% darovitih učenika i 81% nedarovitih učenika. 89,4% uzorka klasificirano je točno.

Tablica 4.

Rasprava

Rezultati su pokazali da su perfekcionizam, školska motivacija, stilovi učenja i akademski uspjeh značajni prediktori koji utječu na razliku između darovitih i nedarovitih učenika. Akademski uspjeh bio je najsnažnija varijabla razlikovanja. U našem je istraživanju utvrđeno da je akademski uspjeh darovitih učenika značajno veći od uspjeha njihovih nedarovitih vršnjaka. Taj je rezultat paralelan nalazu iz literature koji pokazuje da daroviti učenici imaju iznimno visoku stopu uspjeha u usporedbi s drugima (Feldhusen, Proctor, i Black, 2002) i da su uspješniji u akademskim sredinama (Tannenbaum, 2000). Daroviti učenici, sudionici ovog istraživanja, tražili su obrazovanje i u redovitim razredima u svojim školama i u znanstveno-umjetničkim centrima, pa tako, kao što je istaknuto u literaturi, obrazovanje u spomenutim centrima može biti jedan od čimbenika koji pridonose većem uspjehu darovitih učenika. Hedricks (2009) je utvrdio značajan odnos između akademskog uspjeha darovitih učenika i vremena koje su daroviti učenici proveli u homogenom razredu. Slično tome, pokazalo se da su daroviti učenici upisani u programe za najbolje (Rinn, 2007) i aktivnosti brzog učenja (Lee, Olszewski-Kubilius, i Peternel, 2010) uspješniji u akademskom okruženju, a njihova je predodžba o sebi u akademskom okruženju razvijenija (Hoogeveen, Hell, i Verhoven, 2011).

U ovdje opisanom istraživanju školska se motivacija pokazala značajnim prediktorom kada je u pitanju razlikovanje darovitih od nedarovitih učenika. Rezultati su pokazali da je ona veća kod nedarovitih nego kod darovitih učenika. Visoka motivacija jedno je od zajedničkih obilježja darovitih pojedinaca (Gagne, 2004; Renzulli, 2003). U literaturi se spominju druga istraživanja koja ukazuju na veću razinu motivacije kod darovitih u odnosu na nedarovite pojedince (Chan, 1996; Skollingsberg, 2003). Zanimljivo je da su ta istraživanja usredotočena na izvore motivacije ili razine opće motivacije darovitih učenika, ali ona izravno ne vrednuju školsku motivaciju. Daroviti

se učenici dosađuju u školskim okruženjima predviđenim za nedarovite učenike u kojima kurikul nije odgovarajući, a teme se često ponavljaju, pa negativno utječu na njihovu školsku motivaciju (Phillips i Lindsay, 2006; Subotnik, Olszewki-Kubilius, i Worrel, 2011). Takva vrsta učenja ima štetne učinke za školsku motivaciju darovitih učenika (Lee, Olszewski-Kubilius, i Peternel, 2010). Osobni i društveni profili darovitih učenika koji se obrazuju u posebnim razredima povoljniji su od onih u kombiniranim razredima (Zeidner i Schleyer, 1999). Ti učenici imaju bolju sliku o sebi kao učenicima i zadovoljniji su školskim okruženjem (Shechtman i Silektor, 2012). Ispitanici u ovom istraživanju i dalje su se obrazovali u normalnim razredima, a u pojedinim danima vikenda odlazili su u znanstveno-umjetničke centre. Stoga bi se mogao uzeti u razmatranje odnos između slabije školske motivacije i obrazovanja u normalnim razrednim sredinama. Suprotno nalazima, Schneider, Clegg, Byrne, Ledingham i Crombie (1989) nisu mogli istaknuti značajnu razliku u stavovima prema školi između darovitih učenika koji se obrazuju u posebnim i normalnim razredima.

Perfekcionizam se pokazao kao značajno učinkovit pri klasifikaciji darovitih i nedarovitih učenika. Činjenica da razlika između te dvije skupine ide u korist nedarovitih učenika, u suprotnosti je s rezultatima nekih istraživanja (Baker, 1996; Guignard, Jacquet, i Lubart, 2012). Rezultati prijašnjih istraživanja pokazali su da je perfekcionizam darovitih učenika na višoj razini u odnosu na perfekcionizam njihovih nedarovitih vršnjaka (Chan, 2011; Roberts i Lovett, 1994). Međutim, rezultati ovog istraživanja slični su rezultatima što su ih dobili Parker i Mills (1996) kada su uspoređivali obilježja perfekcionizma darovitih i nedarovitih učenika. Parker i Mills (1996) utvrdili su da su rezultati perfekcionizma nedarovitih učenika bolji u usporedbi s rezultatima darovitih učenika kada se uzmu u obzir pozitivna i negativna subskala. LoCicero i Ashby (2000) također su utvrdili da su rezultati za negativni perfekcionizam nedarovitih učenika značajno bolji od onih njihovih darovitih vršnjaka.

Zabilježene su značajne razlike između spomenutih skupina kada je riječ o vizualnom, auditivnom i kinestetičkom stilu učenja. Rezultati za vizualni i kinestetički stil darovitih učenika značajno su bolji od onih nedarovitih učenika. No, nedaroviti učenici postigli su bolje rezultate kada se analizira auditivni stil učenja. Daroviti učenici, dakle, više vole vizualni i auditivni stil od njihovih nedarovitih vršnjaka. Navedeni rezultati odgovaraju rezultatima drugih istraživanja koji pokazuju da daroviti učenici preferiraju kinestetički stil (Dunn, 1983; Price i Milgram, 1993). Price i Milgram (1993) su u svom interkulturalnom istraživanju provedenom u šest zemalja utvrdili da daroviti učenici snažno prihvaćaju kinestetički stil u usporedbi s nedarovitim učenicima (Izrael, Koreja, Filipini, SAD, Kanada, Gvatemala) i ukazali su na to da se ta preferencija može iskoristiti kao njihovo distinktivno obilježje. Utvrđeno je da daroviti učenici imaju bolje perceptivne sposobnosti i da mnogi od njih mogu istodobno primjenjivati vizualni, auditivni i kinestetički stil učenja (Price i Milgram, 1993). Rezultati istraživanja ipak pokazuju da daroviti učenici više vole kinestetički/taktilni stil u odnosu na druge vrste učenja (Dunn i Milgram, 1993). Auditivni stilovi

izraženi su u tradicionalnim školskim sustavima, prenatrpani razredi i ekonomske poteškoće onemogućuju primjenu kinestetičkih stilova, kao i stilova iskustvenog i primijenjenog učenja. Taj tip obrazovne metode nije kompatibilan sa stilovima učenja darovitih učenika; unatoč tome što je stopa njihova akademskog uspjeha visoka, njihova je motivacija oslabljena i u školi im je dosadno.

Zaključci

Perfekcionizam, školska motivacija, stilovi učenja i akademski uspjeh pokazali su se kao značajni prediktori po kojima se razlikuju daroviti i nedaroviti učenici. 89,4% uzorka pravilno je klasificirano. Rezultati ovog istraživanja pokazuju da su školska motivacija, perfekcionizam i auditivni stil učenja nedarovitih učenika na višoj razini od onih njihovih darovitih vršnjaka. Rezultati za akademski uspjeh, zatim vizualne i kinestetičke stilove učenja darovitih učenika bili su bolji od rezultata nedarovitih učenika.

Jednim od ograničenja opisanog istraživanja smatra se činjenica da su alate za prikupljanje podataka primjenjivali različiti učitelji zbog lokacije škola i centara, to jest u različitim prigodama, iako su učitelji koji su distribuirali i prikupljali skale bili unaprijed informirani. Raspon istraživanja bio je također ograničen jer se istraživanje usredotočilo samo na perfekcionizam, školsku motivaciju, stilove učenja i akademski uspjeh kao varijable. U budućim bi istraživanjima stoga trebalo detaljno razmotriti stilove učenja, izvore intrinzične i ekstrinzične motivacije i druge varijable. Štoviše, preporučuju se također longitudinalna istraživanja s različitim varijablama.