

Girls' and Boys' Achievements Differences in the School Context: An Overview of Possible Explanations

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Abstract

Since the 1990s until today there has been an increasing number of empirical evidence about girls' higher achievements within the educational system in the majority of developed countries. This trend is still present, even in school areas and subjects in which boys have traditionally been considered to be more successful. This article presents a critical analysis of the existing research as well as a summary of the existing findings with their possible explanations. A few groups of explanations can be separated, i.e. differences in specific abilities, personality traits, learning styles, ability to satisfy desired learning methods and differences in the interaction with teachers. Finally, this article presents findings from a wide band of research studies which presume the negative effect of teacher gender on pupils' academic achievement. The explanations of gender differences provide only a part of the possible reasons. Reviews of the existing research clearly show the lack of comprehensive, satisfactory and nonambiguous explanation of the reasons for girls' higher academic achievement.

Key words: *elementary school; gender differences in academic achievement; pupil gender.*

Introduction

In the current educational systems, especially those in the most developed countries, girls are more successful than boys in various fields of school achievement. This trend has been present since the 1990s (Davis, 2007). This is also evident in the academic areas and subjects which have traditionally been believed to be more

of a boys' domain, such as mathematics (Penner & Paret, 2007). In the field of both mother tongue and foreign language (Meece, Bower Glienke, & Burg, 2006), and reading and writing (Gurian, Stevens, Henley, & Trueman, 2011; Mead, 2006) girls continue to be more successful, which was documented in previous research studies (Allred, 1990; Engelhard, Siddle Walker, Gordon, & Gabrielson, 1994). Therefore, it is not surprising that the reasons for these conditions are a prominent issue in the scientific and professional discussions (Sadowski, 2010).

Several explanations of the reasons for the academic differences being in favour of girls can be found by using critical analysis of the existing and available scientific research. They are based on the potential influence of biological, psychological and social factors or on their mutual interweaving and joint effect in the school context. Individual empirical research studies have considered the effect of general or specific cognitive abilities, personality traits, the role of general motivation or school-related motivation, the significance of social and behavioural skills and the identification of desirable or damaging consequences of certain socialization processes. Besides studies related to the pupils' characteristics and behaviour, there is also a significant amount of research which explains girls' better academic achievement as a consequence of differences in learning styles, differently structured school processes or the appropriateness of the school curriculum regarding pupils' gender. Another interesting group of research studies is concentrated on the understanding of the quality and structure of the interaction regarding pupils' and teachers' gender and its possible correlation to academic achievement.

In this review we primarily present insights into the correlation of a variety of psychological characteristics with girls' and boys' academic achievements. Nowadays, educational research is very abundant and numerous studies are being published. As a matter of fact, according to the number of published studies it is close to second most important group of research, i.e. the research focused on class curriculum, teaching content and processes, teachers' education and their behaviour. In spite of a great number of research studies in the latter group, the focus of this review is not completely on a more detailed examination of the effect of class or teacher factors on boys' and girls' academic achievement. Systematization and evaluation of the attained knowledge in that area requires a separate review.

At the beginning of this article we present research results which explain the differences between boys' and girls' academic achievement in terms of their different biological factors, different cognitive processes or different ways of processing information. After that, we focus on demonstrating the knowledge about the relation between specific important personality traits and the measured academic achievement of boys and girls. As a third important group of research studies we single out the possible influence of pupils' various social and behavioural competencies on their school achievement. We continue to demonstrate the knowledge gained in that research further in the article. We present several

explanations which link the empirically established differences in girls' and boys' academic achievements to their learning styles and strategies. Finally, we demonstrate the results of several research approaches which focused on teachers' gender as a starting point, i.e. the fact that the majority of teachers are female may explain boys' lower academic achievement. More specifically, these studies proceed from the implicit hypothesis that female teachers in the school context do not structure their relations and interactions in the same way with both girls and boys. This can result in the boys' lower academic achievement. In other words, the female teachers' approach may prefer girls in a certain way which represents an explanation for their better school achievements.

The Role of Biological and Cognitive Factors in Explaining the Differences between the Academic Achievement of Boys and Girls

The differences in boys' and girls' academic achievement can originate from their biological differences, primarily those related to the differences in maturation and cognitive development. The presented expectations about gender differences in the academic achievement, which result from pupils' biological differences, represent the eldest explanations of the aforementioned differences. Therefore, it is not surprising that a large number of empirical studies followed this direction, i.e. the clarification of the role of biological factors in explaining the differences in achievement. Many questions were asked about whether the gender differences in speed and dynamics of the development or the differences in the structure of a mental apparatus can explain the differences in their academic achievements. Thereby, the popular belief about girls' earlier maturation was widespread (Marceau, Ram, Houts, Grimm, & Susman, 2011). If the differences in the biological development of girls and boys were essential, they would clearly have significant implications regarding their personalities (Cohn, 1991; Klimstra, Hale III, Raaijmakers, Branje, & Meeus, 2009), especially when we speak about boys' and girls' social functioning (Barbu, Cabanes, & Le Maner-Idrissi, 2011) while keeping in mind that the process of maturation is very complex, layered and includes multiple dimensions and facets (Oswalt, 2013).

It is not surprising that the largest number of research attempts is focused on the consideration of general intelligence and its role in the academic achievement of girls and boys. The potential cause and acceptable explanation of gender differences was attempted to be attributed to the differences in the capacity of general intelligence. Although general intelligence (IQ) is strongly correlated with an individual's academic achievement, it does not represent the basic trait which provides a satisfactory explanation of boys' and girls' differences in academic achievement (Calvin, Fernandes, Smith, Visscher, & Deary, 2010). The reason for this is quite simple – it is difficult to find gender differences in general intelligence and that is why they are rarely detected in empirical research. Even if they were found in some

research studies, they were very small, which makes their role insignificant in the context of explaining gender differences in academic achievement (Gang & Guiyang, 2000; Johnson, Carothers, & Deary, 2009; Lohman & Lakin, 2009; Vista & Care, 2011).

Furthermore, the focus of research studies was shifted from general intelligence to the roles of various individual and specific abilities. Research in this area is more focused on explaining the roles of specific cognitive processes which overlap with specific intellectual abilities such as self-discipline (Duckworth & Seligman, 2005, 2006; Hicks, Johnson, Iacono, & McGue, 2008; Steinmayr & Spinath, 2008), self-regulation (Cleary & Chen, 2009; Matthews, Cameron, Ponitz, & Morrison, 2009), disruptive behaviour for classroom work and learning (Dilalla, Marcus, & Wright-Phillips, 2004; Gibb, Fergusson, & Horwood, 2008) as well as the attitude towards school, learning and teachers (Buzhigeeva, 2004; Dilalla et al., 2004; Kenney-Benson, Pomerantz, Ryan, & Patrick, 2006; Resing et al., 1999; Yarborough & Johnson, 1980).

Regarding the specific abilities, the most studied gender differences are in the spatial (Baron-Cohen, 2005; Crucian & Berenbaum, 1998), numeric (Baron-Cohen, 2005; Calvin et al., 2010; Hyde, 2005) and verbal abilities as well as memory processes (Baron-Cohen, 2005; Gang & Guiyang, 2000). Numerous individual research results are very demanding to describe and present. What they have in common is the belief and knowledge based on the traditional findings in this area, i.e. that the girls show advantage in the area of verbal abilities while boys are better in the area of numeric and spatial abilities. These expectations are modestly supported in the current academic context.

In brief, besides the more important role of specific cognitive abilities in explaining gender differences in learning languages and mathematics, a number of gender differences in other types of academic achievement still remain unexplained (Calvin et al., 2010; Spinath, Spinath, & Plomin, 2008). This suggests that the general reach of the inspection of the role of specific cognitive abilities was not particularly far-fetched in explaining the overall gender differences in academic achievement. Besides, when we take into consideration the results of the newest studies, especially in the field of developmental psychology where the effect of age is carefully controlled, the degree of cognitive differences between boys and girls becomes insignificant (Ardila, Rosselli, Matute, & Inozemtseva, 2011). Therefore, it is clear that the cognitive basis does not explain the gender differences in the academic achievement (Calvin et al., 2010; Spinath et al., 2008). Reasons for this can be found in the assumption and expectation that current pupils' school demands are less directly and comprehensively related to their cognitive abilities when compared to earlier school demands. Confirmation of the presented expectation can be indirectly found by means of the analysis of the conducted empirical studies' results. While observing the structure and values of statistical quantities, it can be noted that the direct correlation between pupils' cognitive capacities and their school achievement is rather low, i.e. various mediation effects can be perceived.

Inability to convincingly demonstrate the relation between the cognitive capacity and academic achievement is a common result of individual studies. For example, even though girls are usually better in test results which include verbal abilities, this advantage still does not explain their better overall success in school (Deary, Strand, Smith, & Fernandes, 2007). Likewise, some research results show boys' advantage in the tasks which require numerical abilities (Hyde, 2005) but there is still not sufficient explanation for the fact that girls in general have better grades in mathematics (Hyde, Fennema, Ryan, Frost, & Hopp, 1990). These are all intriguing questions which demand stronger research engagement as well as a multidimensional approach to understanding the academic achievement phenomenon. First of all, it is necessary to remise the earlier expectations that individual traits in school achievement can provide a satisfactory explanation for the studied phenomenon.

The necessity for a multidimensional approach can be noticed through the deflection regarding the usage of conceptual and terminological vocabulary. In more current research, the term 'competencies' is often discussed and it represents a construct which is developed through experience with a mediating effect of individuals' general and specific abilities. In this article, we present the extent of the ability to explain gender differences in school achievement through differences in the competencies. But firstly, we present the significance and role of personality traits. Understanding the role of personality is very important because of the expectation that it is a very significant basis for the formation of pupils' competencies.

Boys' and Girls' Personality Traits Related to Their Academic Achievement

The psychological term 'personality' refers to a central system which comprises all the experience and behaviour of an individual and indicates who someone is, how s/he is usually perceived, how s/he wants to be perceived by others, i.e. how s/he expects others to typically see him/her (Burušić, 2012). This type of research commonly studies persistent tendencies of an individual to be subject to a particular form of perception and behaviour. They are called personality traits or dimensions. The earliest attempts at the consideration and explanation of the academic achievement phenomena, e.g. Cattell and Butcher's (1968) studies, have focused on these personality traits. They usually tried to explain general academic achievement with a combination of the influence of personality traits and intelligence. Over time, as knowledge about personality traits increased, especially about the possible personality differences between boys and girls, efforts were made to comprehend the mechanism of gender differences in school achievements (Laidra, Pullmann, & Allik, 2007).

Since the number of potentially important personality traits is rather large, the research has primarily tried to provide better understanding and explanation of the role of fundamental personality factors in the formation and maintenance of gender

differences in school achievements. In doing so, personality traits were largely considered and they were conceptually described within the most dominant and current *five factor model of personality*. Within this model, the most discussed roles were the dimensions of conscientiousness (De Fruyt, Van Leeuwen, De Bolle, & De Clercq, 2008; Hakimi, Hejazi, & Lavasani, 2011) and agreeableness (Laidra et al., 2007; Steinmayr & Spinath, 2008). Among other more specific features of personality, most attention has been paid to the study of different types of motivation that occur within the school context (Bätz, Wittler, & Wilde, 2010; Gang & Guiyang, 2000; Steinmayr & Spinath, 2008).

According to some studies, conscientiousness as a personality trait has almost the same significance as general intelligence (Bratko, Chamorro-Premuzic, & Saks, 2006; Poropat, 2009). Besides that, conscientiousness can also explain gender differences in the academic achievements since the results of particular studies demonstrate that conscientiousness is more pronounced in girls than boys (Resing et al., 1999; Steinmayr & Spinath, 2008). Another important fact is that a link between achievement and conscientiousness has been proven to be quite stable for all education levels (Poropat, 2009). More conscientious pupils are more responsible, diligent and they have higher aspirations to be successful. Also, expectations that more conscientious pupils are generally more successful in school have been confirmed (Bratko et al., 2006; Hakimi et al., 2011; Poropat, 2009). Independent contribution of conscientiousness in explaining academic achievement is enhanced in an interactive way in schools where there is a specific form of education. The majority of school activities are still structured in a way that requires strict fulfilment of certain school commitments such as regular class attendance, conscientious schoolwork completion, regular completion of homework, etc. Since this represents everyday school occurrence, it is obvious that the more conscientious pupils show advantage in terms of academic success.

Besides conscientiousness, another significant personality trait is agreeableness (Hair & Graziano, 2003; Laidra et al., 2007). Some studies suggest that this personality trait is more distinguished in girls than boys (Laidra et al., 2007; Steinmayr & Spinath, 2008). This characteristic mainly reflects the pronounced capacity and focus on maintaining good relations with other pupils and teachers. In their research, Hair and Graziano (2003) suggest the importance of the agreeableness trait and they show that pronounced agreeableness contributes to successful school adjustment, which in turn leads to better academic achievement in primary education. In addition, not only is it possible to predict pupils' academic achievement in a certain school period based on the agreeableness trait, but it is also possible to predict achievement in higher levels of education (such as high school) based on the levels of agreeableness measured at the lower educational levels (for example in primary school).

The agreeableness trait represents a significant capital for girls in their successful mastering of purely educational requirements. Also, in some ways it helps them to meet the other requirements and so it indirectly affects their school

performance (Hair & Graziano, 2003; Laidra et al., 2007). The pupils who have a more pronounced agreeableness trait are less likely to interfere with lectures, and teachers find them more pleasant to work with (Steinmayr & Spinath, 2008). School grades are an aggregated, composite indicator of cognitive factors and they are also under the influence of non-cognitive factors, such as following the teachers' instructions, conforming to the expectations and caring to fulfil the obligations or be neat in carrying out school-related activities. Therefore, gender differences in school achievements can be explained to some extent by these differences in the agreeableness personality trait (De Fruyt et al., 2008).

In addition to the basic personality traits (especially conscientiousness and agreeableness) an attempt has been made to explain gender differences in school achievements through the impact of various additional and more specific features of personality. This primarily refers to the components of motivation which are closely interrelated with learning. This relationship has been repeatedly demonstrated in the school context (Steinmayr & Spinath, 2008).

In their attempts to explain the gender differences, researchers have tried to consider the type of individual motivation and their strength in girls and boys, beginning with the expectations that the school behaviour of pupils is the result of extrinsic factors (for example, their wish to obtain good grades or the need to meet the expectations of their parents) or intrinsic motivational forces (for example, their interest in a particular subject itself or the inner desire to acquire a certain type of knowledge) (Lijun, 2011). It has been repeatedly demonstrated that better academic results are greatly connected with various forms of intrinsic motivation rather than a result of extrinsic motivation (Bätz et al., 2010; Booth, 2013). Therefore, it is no surprise that researchers attempted to explain the gender differences in school achievements by the differences in motivation. The initial expectation was that the girls have more pronounced intrinsic motivation for languages whilst boys have more pronounced intrinsic motivation for mathematics (Spinath et al., 2008). And, while such expectations may provide an explanation for success in some school areas, primarily for the differences in languages and mathematics, the obvious disadvantage is that they by themselves cannot provide a convincing explanation for why girls are generally more successful than boys in today's schools.

In summary, as well as in other attempts to explain the gender differences in academic achievement, accomplishments of personality as the basis for the existing gender differences are still limited and ambiguous. Some researchers have only partially succeeded in explaining different educational achievements of boys and girls based on the differences in their personality traits (Laidra et al., 2007; Resing et al., 1999; Steinmayr & Spinath, 2008), i.e. based on their differences in school-related motivation (Freudenthaler et al., 2008; McHale et al., 1999; Spinath et al., 2008).

The situation is similar in numerous specific personality traits and their importance in explaining gender differences in school achievement. Most of the

time partial explanations are provided, which is not enough to generally understand the phenomenon of gender differences in the achievement in the context of today's school. For example, higher aspiration to success or better self-control are specific features which are more pronounced in girls. They are relevant because they contribute to better school achievement (Hicks et al., 2008). On the other hand, personality traits such as emotional stability or intellect can largely predict boys' school performance (Nguyen, Allen, & Fraccastoro, 2005).

Overall, numerous studies related to personality are basically not successful enough in providing a more significant explanation for gender differences in academic achievement. Moreover, some research in this field has resulted in outcomes that are more in favour of the pronounced similarities and congruence in the characteristics between girls and boys rather than pointing out the differences in personalities (De Fruyt et al., 2008; Furnham & Monsen, 2009; Hakimi et al., 2011; Hyde, 2005). This partially explains why personality differences do not provide a satisfactory explanation for the existing gender differences in the academic achievement.

Competencies of Girls and Boys as a Mediator of Differences in School Achievement

In addition to complex and comprehensive constructs, such as general intellectual ability or basic personality traits, some researchers tried to explain the identified gender differences in the academic achievement of boys and girls with particular and more specific capacities which can be referred to as the pupils' competencies and skills. Pupils can develop a rather large number of competencies and skills which lead to the fact that their explanations are necessarily heterogeneous (Duckworth & Seligman, 2006).

In this review we point out a number of personal, behavioural and social skills which have been considered important in explaining educational achievement in the previous analyses (DiPrete, & Jennings, 2012). These are, for example, self-discipline (Duckworth & Seligman, 2005, 2006; Hicks, Johnson, Iacono, & McGue, 2008; Steinmayr & Spinath, 2008), self-regulation (Cleary & Chen, 2009; Matthews, Cameron Ponitz, & Morrison, 2009), disruptive behaviour for class and learning (Dilalla, Marcus, & Wright-Phillips, 2004; Gibb, Fergusson, & Horwood, 2008) and attitude towards school, learning and teachers (Buzhigeeva, 2004; Dilalla et al., 2004; Kenney-Benson, Pomerantz, Ryan, & Patrick, 2006; Resing et al., 1999; Yarborough & Johnson, 1980). These competencies, as well as a number of others, can present a good basis for the explanation and understanding of gender differences in academic achievement.

Pupils who show adaptive learning behaviour manage to develop competencies and skills such as self-confidence, attention, perseverance and flexibility so they simply have a higher probability of success in school and generally in education (Yen, Konold, & McDermott, 2004). Previous research proves that girls, in addition to having more positive attitudes toward school (Gray & McLellan, 2006; Orr, 2011),

also tend to have more pronounced competencies that are predictors of better school performance. Girls tend to express more positive social behaviour, have more pronounced interpersonal skills and a greater degree of self-control. In addition, a significant number of studies point to the more pronounced self-discipline in girls than in boys (Duckworth & Seligman, 2006; Hicks et al., 2008), as well as a higher capacity of self-regulation (Cleary & Chen, 2009; Matthews, Cameron Ponitz, & Morrison, 2009). Girls have less likelihood of developing problems in attention and learning, such as ADD and ADHD, and are generally more likely to comply with school discipline and avoid violent behaviour (Gurian et al., 2011).

Some studies suggest that girls are more often focused on skill acquisition and also put more effort into doing their homework. This, together with the abandonment of the teaching distracting behaviour, certainly increases their overall academic achievement (Kenney-Benson et al., 2006). DiPrete and Jennings (2012) have demonstrated that social and behavioural skills play an important role in explaining gender differences in achievements even at kindergarten age. Also, girls have more advanced skills than boys since the very beginning of formal schooling which eventually enhances in formal education. According to these authors, this advantage is not only beneficial for girls in adopting and adjusting to school norms but it also has a significant impact on the improvement of the learning process which leads to more favourable outcomes and consequences.

According to Duckworth and Seligman (2006), self-discipline, which is more pronounced in girls, has an important role in explaining school achievement. Self-discipline contributes to the careful listening to what the teacher says, persistence with more demanding and/or uninteresting tasks as well as to the completion of homework on time. Also, self-discipline generally comes into play in situations when there is a conflict between the prescribed and expected activities that are not desirable and activities that are more fun, accessible and require less work. In addition to self-discipline, self-regulation also plays an important role in achieving academic success (Cohen, 2012). Self-regulation is an indicator of the capacity of thinking about yourself, self-reflection, controlling your own thoughts, as well as emotions and actions. More specifically, in the school context self-regulation may indicate the capacity of pupils to set their learning goals and monitor their own progress, i.e. the general ability to develop control strategies which enhance learning (Ramdass & Zimmerman, 2011).

Research regarding social and behavioural skills makes a particularly interesting group of studies, especially due to the fact that these skills are more present in girls than in boys (Cleary & Chen, 2009; DiPrete & Jennings, 2012; Duckworth & Seligman 2006; Hicks et al., 2008; Kenney-Benson et al., 2006; Matthews et al., 2009). On the other hand, a number of disruptive behaviours is more frequently present in boys than in girls (Buzhigeeva, 2004; Dilalla et al., 2004; Gibb et al., 2008). With this knowledge, it is quite justified to assume that these specific skills can be a strong

source of differences in academic performance, especially if we consider the fact that most of the traditionally-designed forms of teaching, which are still prevalent in school practice, may not accommodate girls and boys equally. Traditionally designed classes are not congruent with the competencies and skills of girls and boys in an identical manner. As a matter of fact, their structure, dynamics and set requirements put boys in an unfavourable position when it comes to their skills.

Several research efforts have focused on reviewing the indirect effects of the benefits of self-regulation, social, interpersonal and other competencies which can make an impact on pupils' academic achievement, especially on the achievement of girls. Specifically, as found in some research studies, teachers tend to describe boys as more restless, less attentive and perceive them as more aggressive (Gibb et al., 2008). These descriptions are beginning to emerge even in the preschool period (Dilalla et al., 2004). Girls are more often described as more vibrant and emotionally expressive (Carrier, 2009) and it is believed that they have a better attitude towards school (Resing et al., 1999; Yarborough & Johnson, 1980). In addition, girls are perceived as more adapted to the learning demands than boys who are perceived as more impulsive and more physically aggressive (Buzhigeeva, 2004).

If we keep in mind that the existence of biases in perception was demonstrated in a series of social-psychological research studies, with the attribution of the causes of those biases to the behaviour of others (which is labelled as the concept of attribution error in the scientific literature), then it is quite reasonable to believe that such biases are present in teachers. Therefore, this damages the boys in the school context. Namely, in everyday school situations, one of the important teacher's roles is to systematically and continuously record pupils' achievements with numerical and/or descriptive grades. So the teacher's job is to assess and attribute how much of the pupils' achievement is a result of their learning, effort, interest, coincidence or a consequence of some other specific factors. Expression of achievements by some form of school evaluation, or through some other form of the evaluation of achievement, is under the influence of observations and subjective judgements and the attribution of causes and consequences of the stated behaviour. Therefore, there is an objective and convincing reason why all known forms of biases and errors in the attribution could be present when it comes to evaluating school achievement. It is possible that the desirable competencies influence the process of presenting achievement which can adversely come into play when it comes to expressing the boys' success.

Boys' and Girls' Learning Styles: Matching of the Expressed and the Desirable Behaviour as a Potential Explanation of the Differences in Their Achievements

The stated expectations lead us to the next group of possible explanations of the differences in the average achievements of boys and girls. They are based on the considerations of how today's schools are structured in terms of their demands

on the pupils, especially with regard to how righteous they are when it comes to equal accommodation of boys' and girls' abilities. It is necessary to bear in mind the developmental and other features that characterize both girls and boys. Also, during the analysis of school requirements, conformity criteria can relate to the expectations within the school and to the analysis of the actual possibilities of boys' and girls' performance.

Another possible explanation for the gender differences in school achievements is based on analyzing the actual in-school behaviours of girls and boys, which has attempted to examine the compliance of the expressed and expected behaviour. In fact, in girls, better school achievement may be the result of different learning styles preferences. More specifically, it can be the result of their better compatibility between the desired and the expressed learning styles. Besides the behaviour directly related to learning, gender differences in the compliance of other behaviours with the set expectations in the immediate school environment can also be included in this band of research.

Learning styles represent a very complex and extensive field of research which is characterized by different starting points and attitudes. Coffield, Moseley, Hall and Ecclestone (2004) have conducted an extensive analysis and formulated a classification system consisting of five branches of learning styles' origins within the continuum on which researchers believe the learning styles are fixed. The branches are: *constitutionally-based learning styles and preferences, cognitive structure, stable personality type, 'flexibly stable' learning preferences and learning approaches and strategies*. Research studies which place great emphasis on genetic factors are on the one side of the continuum, while research studies which place a greater emphasis on personal and environmental factors are on the other side.

Girls and boys express different preferences in their learning styles. However, it is still not entirely clear whether it is biological or social causes that underlie these individual preferences (Francis & Skelton, 2005). For a better understanding, it is necessary to clearly indicate that there is no tendency of a particular gender towards a universally better specific learning style. In other words, both girls and boys express certain strengths and weaknesses in their learning ways and possibilities. According to some studies, girls have a better capacity of thinking in images, whilst boys have a slight advantage regarding abstract thinking (Gang & Guiyang, 2000). It is also assumed that boys prefer shorter periods of learning, practical work as well as working in pairs or in groups, i.e. the learning which includes interpersonal dynamics (Noble & Bradford, 2002).

Boys have more difficulties in writing skills compared to girls but they have more confidence in school tasks that require oral presentations and expositions. Both boys and girls find the use of computers useful in achieving their learning goals. Boys use them more frequently for the purpose of creation in practical and active learning, while girls use computers for problem solving and communication

(Noble & Bradford, 2002). As a new learning medium in the 21st century, the Internet provides pupils with numerous new possibilities, depending on its usage. Searching for information as a desirable activity on the Internet positively affects the school outcomes of both boys and girls (Chen & Fu, 2009). Other researchers have also tried to find individual differences in boys' and girls' preferred learning styles. The differences between the visual and auditory learning have also been discussed (Wiens, 2006), as well as inductive and deductive learning styles (Gurian et al., 2011), i.e. differences between the more monotone and more dynamic content.

One of the more interesting findings of the previous studies is that boys often tend to feel a sense of boredom in the school context. This is, according to some authors, due to the differences in the arousal of the nervous system (Ellis, 2011). Boys have a more aroused nervous system and they need to have more diverse and powerful environmental stimuli to help them maintain optimal levels of arousal. If the school environment is not able to provide a sufficient number of optimal stimuli, then this increases the likelihood that pupils will become bored in this environment. In that case, not only will they give up on learning, but they will quite certainly start to behave in a way that interferes with the teaching goals and processes. If we know that boys need more space and more movement during the learning process (Gurian et al., 2011), then we can arrive at another assumption about the possible reasons for their poorer academic achievement. Carrier (2009) conducted a research study on outdoor learning strategies which have confirmed these expectations to a certain extent. This research study has pointed out the advantages of such strategies for both boys and girls. The results indicated that the introduction of several outdoor activities in the primary school curriculum would certainly improve the boys' achievement and grades.

As we indicated earlier, both boys and girls have certain advantages as well as certain disadvantages in their learning abilities and strategies (Gang & Guiyang, 2000). By their combined influence, these advantages and disadvantages are sometimes contradictory in their activities. Findings of a significant number of research studies are crucial for understanding the current educational practice and for a better planning of educational policies. These research studies have demonstrated that, in the current circumstances, the learning style used by the girls is very similar to the preferred and proclaimed learning style that is required in school. For the aforementioned reasons, girls have an academic advantage compared to the boys and it is easier for them to reach the set learning outcomes (Ellis, 2011; Gurian et al., 2011).

Therefore, it can be concluded that girls, because of their characteristics and preferences, are better adapted to today's teaching environment and to the school requirements. If the curriculum covered more activities to suit the boys' learning styles, such as practical work, outdoor learning and similar activities, one can assume that, in that case, the boys would achieve better academic outcomes. Therefore, it is not surprising that some experts propose introduction of a differentiation in the

teaching strategies with regard to pupils' gender in order to meet the needs of both boys and girls, as well as guarantee them equal opportunities and conditions for success. This would undoubtedly open a number of new questions and issues which are not covered in this paper and we do not review them here. It is certain that all the presented evidence indicates a legitimate need for this important issue in the field of education to be considered with even greater extent and to be empirically verified (Magon, 2009).

The Quality of Interaction as the Basis of Pupils' Academic Achievement

Finally, we present another potential explanation for the difference between boys and girls in school achievement which is based on the structural changes which have occurred in the recent decades in the majority of educational systems. Namely, the majority of today's educational systems demonstrate quite a strong trend of gender unification in the teaching profession where, according to the available statistics, women are substantially more represented regarding male/female teachers' ratio (Francis & Skelton, 2005). This statistical fact, in the light of the present knowledge that girls are more academically successful than boys, opens the door to an intriguing explanation for the gender differences in the academic achievement. This explanation is based on the expectation that the female teachers, prevalent at all levels of primary and secondary schools, are affecting the achievement of boys in an unfavorable way. In other words, female teachers may have a stimulating effect on girls' better school achievements to a certain degree.

Several attempts have been made to explain the exact mechanism of the influence of female teachers on boys' and girls' academic achievement. The first one is based on the differences in the interaction generated by the girls and boys with their male and female teachers in the school context. In fact, some studies have shown that male and female teachers structure their interactions with girls and boys in a different manner (Drudy & Ui Chatain, 2002; Duffy, Warren, & Walsh, 2001; Koca, 2009). The direction of the conclusions is not identical when it comes to the desirable preferences. Results of some studies suggest that interaction is more preferred with boys (Duffy, Warren, & Walsh, 2001) while passivity is more encouraged in girls which leads to less verbal communication with them in the school context (La France, 2001). Furthermore, Einarsson and Granstrom (2002) concluded that only female teachers tend to pay more attention to boys while male teachers tend to pay more attention to girls, which gradually increases as they get into higher classes. Contrary to this explanation, other research has shown that girls achieve more positive reactions, as well as more verbal interaction from both male and female teachers (Davis, 2000).

In addition to the amount of interaction that occurs in the school environment, it is possible that the quality and type of communication of male and female teachers

with girls and boys is more important for a possible explanation for these gender differences in the pupils' achievements. In addition, male and female teachers have the social meaning as a role model for boys and girls. This can also encourage or discourage their performance in school. The research conducted by Dee (2006) showed that girls perform better if they are taught by a female teacher and boys perform better if they are taught by a male teacher. Similarly, Ammermüller and Dolton (2006) concluded that the presence of male teachers had a particularly beneficial effect on the success of boys in science and mathematics.

Some studies attempted to empirically verify the basis of the presented expectations and hypotheses but they failed to demonstrate the significance of the teachers' gender on boys' and girls' educational attainments (Burušić, Babarović, & Šerić, 2012; Carrington, Francis, Hutchings, Skelton, Read, & Hall, 2007; Driessen, 2007; Francis, Skelton, Carrington, Hutchings, Read, & Hall, 2008; Marsh, Martin, & Cheng, 2008).

Whilst taking into account the results of these studies, it is clear that they are not a sufficient reason for rejecting the assumption about the important influence of teachers' gender on boys' and girls' academic achievement. In fact, they are an incentive for further research because of the current situation where female teachers are dominant in the educational system, a fact which will certainly not change significantly in the near future.

Future research seeking to understand and explain the 'teacher-pupil' interaction should take into account a greater number of other potentially important features in a more comprehensive review. This has been quite a drawback in the majority of previous studies. Apart from pupils' and teachers' gender, the importance of the characteristics such as the ability of teachers, the level of teaching and interpersonal skills associated with better outcomes should be investigated. Finally, the role that teachers' experiences can have in the process of education should be considered in more detail (Carrington et al., 2007).

Conclusion

This paper presents the findings of a large number of studies of boys' and girls' school behaviour. Their analysis and comparison shows that it is possible to find six extensive groups of potential reasons that explain the better performance of girls as opposed to boys in terms of academic achievement. Each of these explanations provides a certain view of the phenomenon of the gender differences that can be used to explain some of the reasons why they occur, i.e. the mechanisms which maintain the established differences.

The most commonly discussed differences relate to the pupils' achievement in mathematics and language and they are often used to explain the differences in specific cognitive abilities. Although boys are usually better at spatial tasks (Baron-Cohen, 2005; Crucian & Berenbaum, 1998) and have higher numerical skills (Baron-

Cohen, 2005; Calvin et al., 2010; Hyde, 2005) whilst girls perform better at verbal skills tasks (Baron-Cohen, 2005; Gang & Guiyang, 2000), the gender differences in the overall school achievement cannot be fully explained solely by means of the aforementioned capabilities (Calvin et al., 2010; Spinath et al., 2008). In addition to the cognitive skills, the research focus was also on the gender differences in personality, especially in the conscientiousness and the understanding of the school-related motivation. It has been found that these constructs are of great importance to the pupils' academic outcomes (Bätz et al., 2010; Bratko et al., 2006; Hair & Graziano, 2003; Hakimi et al., 2011; Laidra et al. 2007; Poropat, 2009; Steinmayr & Spinath, 2008) but results related to the explanation of the gender differences are often ambiguous.

As most of the studies have been conducted in the US, the UK or Australia, the present findings about this issue are primarily related to the educational contexts of these countries. Only a smaller part of the presented and available empirical experiences has been gained outside of these systems. This situation is basically the result of the development of the research community in the field of education in different parts of the world. Studies outside of these countries generally point to a similar situation elsewhere in the world which supports most of these findings (Demie, 2001).

This paper also discusses the assumption that a possible answer to the question of gender differences in school achievement lies in a more specific and narrowly defined pupils' skills and competencies. The results obtained in this area of research are very clear and most experts agree that girls are more often characterized by traits such as self-discipline (Duckworth & Seligman, 2006; Hicks et al., 2008) and self-regulation (Cleary & Chen, 2009; Matthews et al., 2009). Girls also invest more effort in carrying out school obligations and are less prone to disruptive behavior in class (Kenney-Benson et al., 2006). Since these specific skills are of great importance to academic outcomes (Blair & Peters Razza, 2007), they also represent a future area of research in order to fully clarify the differences between boys and girls in their educational achievement. It is necessary to use multiple research approaches and methods as well as to provide data from multiple sources in order to reach appropriate conclusions (Duckworth & Seligman, 2005).

Somewhat more controversial findings are the results gained by Dee (2006), which suggest that girls perform better if they are taught by a female teacher and that boys perform better if they are taught by a male teacher. Similar results were obtained by Ammermüller and Dolton (2006). Since there is a significantly higher number of female than male teachers in today's schools, these results, if confirmed to be correct, are very disturbing for boys' school achievement (Dee, 2006). But the results of many other studies imply an insignificant impact of the teachers' gender on the academic achievement of boys and girls (Burušić et al., 2012; Carrington et al., 2007; Driessen, 2007; Francis et al., 2008; Marsh et al., 2008).

Finally, this review has the value of providing a cross-section of previous research of a certain phenomenon. It also has an incentive value for future research. From a full examination of all exposed knowledge it is clear that there remains a need in this field for an examination of the mediating influences of other features that might be important for an understanding of the achievement of the pupils' academic outcomes. Future considerations should certainly explore the impact of other characteristics such as teachers' training, skills, experience and competencies, as well as a range of features that indicate the complex dynamics of family and social relationships. In addition, future research and consideration of the phenomenon of gender differences in school achievement should more closely engage the influence of interaction and the consideration of a large number of characteristics at the same time, which is an obvious disadvantage of the majority of current research.

References

- Allred, R. A. (1990). Gender Differences in Spelling Achievement in Grades 1 through 6. *Journal of Educational Research*, 83(4), 187-93. <http://dx.doi.org/10.1080/00220671.1990.10885955>
- Ammermüller, A., & Dolton, P. (2006). Pupil-Teacher Gender Interaction Effects on Scholastic Outcomes in England and the USA. *Center for European Economic Research*. Discussion Paper No. 06-060. <http://dx.doi.org/10.2139/ssrn.927689>
- Ardila, A., Rosselli, M., Matute, E., & Inozemtseva, O. (2011). Gender Differences in Cognitive Development. *Developmental Psychology*, 47(4), 984-990. <http://dx.doi.org/10.1037/a0023819>
- Barbu, S., Cabanes, G., & Le Maner-Idrissi, G. (2011). Boys and Girls on the Playground: Sex Differences in Social Development Are Not Stable across Early Childhood. *Plos One*, 6(1), 1-7. <http://dx.doi.org/10.1371/journal.pone.0016407>
- Baron-Cohen, S. (2005, January). The essential difference: The male and female brain. In *Phi Kappa Phi Forum* (Vol. 85, No. 1, pp. 23-27). National Forum: Phi Kappa Phi Journal.
- Bätz, K., Wittler, S., & Wilde, M. (2010). Differences between boys and girls in extracurricular learning settings. *International Journal of Environmental & Science*, 5(1), 51-64.
- Blair, C., & Peters Razza, R. (2007). Relating Effortful Control, Executive Function, and False Belief Understanding to Emerging Math and Literacy Ability in Kindergarten. *Child Development*, 78(2), 647- 663. <http://dx.doi.org/10.1111/j.1467-8624.2007.01019.x>
- Booth, E. (2013). A Recipe for Artful Schooling. *Educational Leadership*, 70(5), 22-27.
- Bratko, D., Chamorro-Premuzic, T., & Saks, Z. (2006). Personality and school performance: Incremental validity of self- and peer-ratings over intelligence. *Personality and Individual Differences*, 41, 131-142. <http://dx.doi.org/10.1016/j.paid.2005.12.015>

- Burušić, J., Babarović, T., & Šerić, M. (2012). Differences in elementary school achievement between girls and boys: Does the teacher gender play a role? *European Journal of Psychology of Education, 27*(4), 523-538. <http://dx.doi.org/10.1007/s10212-011-0093-2>
- Burušić, J. (2012). Znanje o sebi i znanje drugih kao temelj psihologije ličnosti: što su nam pružila istraživanja samopredstavljanja? In J. Kolenović-Đapo, I. Fako, M. Koso-Drljević, & B. Mirković (Eds.), *Zbornik radova 2. Kongresa psihologa Bosne i Hercegovine* (pp. 39-51). Banja Luka: Društvo psihologa BH.
- Buzhigeeva, M. I. (2004). Gender characteristics of children in the primary stage of instruction. *Russian Education and Society, 46*, 76-88.
- Calvin, C. M., Fernandes, C., Smith, P., Visscher, P. M., & Deary, I. J. (2010). Sex, intelligence and educational achievement in a national cohort of over 175,000 11-year-old schoolchildren in England. *Intelligence, 38*, 424-432. <http://dx.doi.org/10.1016/j.intell.2010.04.005>
- Carrier, S. J. (2009). Environmental education in the schoolyard: Learning styles and gender. *The Journal of Environmental Education, 40*(3), 2-12. <http://dx.doi.org/10.3200/JOEE.40.3.2-12>
- Carrington, B., Francis, B., Hutchings, M., Skelton, C., Read, B., & Hall, I. (2007). Does the gender of the teacher really matter? Seven- to eight-year-olds' accounts of their interactions with their teachers. *Educational Studies, 33*(4), 397-413. <http://dx.doi.org/10.1080/03055690701423580>
- Cattell, R. B., & Butcher, J. (1968). *The prediction of achievement and creativity*. Indianapolis, Ind.: BobbsMerrill.
- Chen, S. Y., & Fu, Y.-C. (2009). Internet Use and Academic achievement: Gender Differences in Early Adolescence. *Adolescence, 44*(176), 797-812.
- Cleary, T. J., & Chen, P. P. (2009). Self-regulation, motivation, and math achievement in middle school: Variations across grade level and math context. *Journal of School Psychology, 47*, 291-314. <http://dx.doi.org/10.1016/j.jsp.2009.04.002>
- Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). *Learning styles and pedagogy in post 16 learning: a systematic and critical review*. The Learning and Skills Research Centre.
- Cohen, M. T. (2012). The Importance of Self-regulation for College Student Learning. *College Student Journal, 46*(4), 892-902.
- Cohn, L. D. (1991). Sex Differences in the Course of Personality Development: A Meta-Analysis. *Psychological Bulletin, 109*(2), 252-266. <http://dx.doi.org/10.1037/0033-2909.109.2.252>
- Conrad-Curry, D. (2011). A Four-Year Study of ACT Reading Results: Achievement Trends Among Eleventh-Grade Boys and Girls in a Midwestern State. *Journal of Education, 191*(3), 27-37.
- Crucian, G. P., & Berenbaum, S. A. (1998). Sex Differences in Right Hemisphere Tasks. *Brain and cognition, 36*, 377-389. <http://dx.doi.org/10.1006/brcg.1998.0999>
- Davis, K. L. (2000). A case study in gender equity for basic instruction programs. *Physical Educator, 57*(1), 46-56.
- Davis, M. R. (2007). Gender gap in GPAs seen as linked to self-discipline. *Education Week, 26*(23), 8-8.

- Deary, I. J., Strand, S., Smith, P., & Fernandes, C. (2007). Intelligence and educational achievement. *Intelligence*, 35, 13-21. <http://dx.doi.org/10.1016/j.intell.2006.02.001>
- Dee, T. S. (2006). The why chromosome: How a teacher's gender affects boys and girls. *Education Next*, 6(4), 1-7.
- De Fruyt, F., Van Leeuwen, K., De Bolle, M., & De Clercq, B. (2008). Sex differences in school performance as a function of conscientiousness, imagination and the mediating role of problem behavior. *European Journal of Personality*, 22, 167-184. <http://dx.doi.org/10.1002/per.675>
- Demie, F. (2001). Ethnic and gender differences in educational achievement and implications for school improvement strategies. *Educational Research*, 43, 91-106. <http://dx.doi.org/10.1080/00131880110040968>
- Dilalla, L. F., Marcus, J. L., & Wright-Phillips, M. V. (2004). Longitudinal effects of preschool behavioral styles on early adolescent school performance. *Journal of School Psychology*, 42, 385-401. <http://dx.doi.org/10.1016/j.jsp.2004.05.002>
- DiPrete, T. A., & Jennings, J. L. (2012). Social and behavioral skills and the gender gap in early educational achievement. *Social Science Research*, 41, 1-15. <http://dx.doi.org/10.1016/j.ssresearch.2011.09.001>
- Driessen, G. (2007). The feminization of primary education: effects of teachers' sex on pupil achievement, attitudes and behavior. *The Review of Education*, 53, 183-203. <http://dx.doi.org/10.1007/s11159-007-9039-y>
- Drudy, S., & Ui Chatain, M. (2002). Gender Effects in Classroom Interaction: Data Collection, Self-Analysis and Reflection. *Evaluation and Research in Education*, 16(1), 34-50. <http://dx.doi.org/10.1080/09500790208667005>
- Duckworth, A. L., & Seligman, M. E. P. (2005). Self-Discipline Outdoes IQ in Predicting Academic Performance of Adolescents. *Psychological Science*, 16(12), 939-944. <http://dx.doi.org/10.1111/j.1467-9280.2005.01641.x>
- Duckworth, A. L., & Seligman, M. E. P. (2006). Self-Discipline Gives Girls the Edge: Gender in Self-Discipline, Grades, and Achievement Test Scores. *Journal of Educational Psychology*, 98, 198-208. <http://dx.doi.org/10.1037/0022-0663.98.1.198>
- Duffy, J., Warren, K., & Walsh, M. (2001). Classroom interactions: Gender of teacher, gender of student, and classroom subject. *Sex Roles*, 45, (9/10), 579-593. <http://dx.doi.org/10.1023/A:1014892408105>
- Einarsson, C., & Granstrom, K. (2002). Gender-biased Interaction in the Classroom: the influence of gender and age in the relationship between teacher and pupil. *Scandinavian Journal of Educational Research*, 46(2), 117-127. <http://dx.doi.org/10.1080/00313830220142155>
- Ellis, L. (2011). Evolutionary Neuroandrogenic Theory and Universal Gender Differences in Cognition and Behavior. *Sex Roles*, 64, 707-722. <http://dx.doi.org/10.1007/s11199-010-9927-7>
- Engelhard, G., Siddle Walker, E. V., Gordon, B., & Gabrielson, S. (1994). Writing Tasks and Gender: Influences on Writing Quality of Black and White Students. *Journal of Educational Research*, 87(4), 197-209. <http://dx.doi.org/10.1080/00220671.1994.9941244>

- Francis, B., & Skelton, C. (2005). *Reassessing gender and achievement: Questioning contemporary key debates*. New York: Routledge. <http://dx.doi.org/10.4324/9780203412923>
- Francis, B., Skelton, C., Carrington, B., Hutchings, M., Read, B., & Hall, I. (2008). A perfect match? Pupils' and teachers' views of the impact of matching educators and learners by gender. *Research Papers in Education*, 23(1), 21-36. <http://dx.doi.org/10.1080/02671520701692510>
- Freudenthaler, H. H., Spinath, B., & Neubauer, A. C. (2008). Predicting School Achievement in Boys and Girls. *European Journal of Personality*, 22, 231-245. <http://dx.doi.org/10.1002/per.678>
- Furnham, A., & Monsen, J. (2009). Personality traits and intelligence predict academic school grades. *Learning and Individual Differences*, 19, 28-33. <http://dx.doi.org/10.1016/j.lindif.2008.02.001>
- Gang, C., & Guiyang, X. (2000). Gender Differences in Academic Achievement and the Educational Implications. *Chinese Education and Society*, 33(2), 44-49. <http://dx.doi.org/10.2753/CED1061-1932330244>
- Gibb, S. J., Fergusson, D. M., & Horwood, L. J. (2008). Gender differences in educational achievement to age 25. *Australian Journal of Education*, 52(1), 63-80. <http://dx.doi.org/10.1177/000494410805200105>
- Gray, J., & McLellan, R. (2006). A matter of attitude? Developing a profile of boys' and girls' responses to primary schooling. *Gender and Education*, 18(6), 651-672. <http://dx.doi.org/10.1080/09540250600980238>
- Gurian, M., Stevens, K., Henley, P., & Trueman, T. (2011). *Boys and girls learn differently: a guide for teachers and parents*. San Francisco: Jossey-Bass.
- Hair, E. C., & Graziano, W. G. (2003). Self-Esteem, Personality and Achievement in High School: A Prospective Longitudinal Study in Texas. *Journal of Personality*, 71(6), 971-994. <http://dx.doi.org/10.1111/1467-6494.7106004>
- Hakimi, S., Hejazi, E., & Lavasani, M. G. (2011). The Relationships Between Personality Traits and Students' Academic Achievement. *Procedia - Social and Behavioral Sciences*, 29, 836-845. <http://dx.doi.org/10.1016/j.sbspro.2011.11.312>
- Hicks, B. M., Johnson, W., Iacono, W. G., & McGue, M. (2008). Moderating Effects of Personality on the Genetic and Environmental Influences of School Grades Helps to Explain Sex Differences in Scholastic Achievement. *European Journal of Personality*, 22, 247-268. <http://dx.doi.org/10.1002/per.671>
- Hyde, J. S. (2005). The Gender Similarity Hypothesis. *American Psychological Association*, 60, 581-592. <http://dx.doi.org/10.1037/0003-066X.60.6.581>
- Hyde, J. S., Fennema, E., Ryan, M., Frost, L. A., & Hopp, C. (1990). Gender Comparison of Mathematics Attitudes and Affect. *Psychology of Women Quarterly*, 14, 299-324. <http://dx.doi.org/10.1111/j.1471-6402.1990.tb00022.x>
- Johnson, W., Carothers, A., & Deary, I. J. (2009). A Role for the X Chromosome in Sex Differences in Variability in General Intelligence? *Perspectives on Psychological Science*, 4(6), 598-611. <http://dx.doi.org/10.1111/j.1745-6924.2009.01168.x>
- Kenney-Benson, G., Pomerantz, E. M., Ryan, A. M., & Patrick, H. (2006). Sex Differences in Math Performance: The Role of Children's Approach to Schoolwork. *Developmental Psychology*, 42(1), 11-26. <http://dx.doi.org/10.1037/0012-1649.42.1.11>

- Klimstra, T.A., Hale III, W.W., Raaijmakers, Q.A.W., Branje, S.J.T., & Meeus, W.H.J. (2009). Maturation of Personality in Adolescence. *Journal of Personality and Social Psychology*, 96(4), 898-912. <http://dx.doi.org/10.1037/a0014746>
- Koca, C. (2009). Gender Interaction in Coed Physical Education: A Study in Turkey. *Adolescence*, 44 (173), 165-185.
- La France, M. (2001). The School of Hard Knocks: Nonverbal Sexism in the Classroom. *Theory into Practice*, 24, 40-44. <http://dx.doi.org/10.1080/00405848509543144>
- Laidra, K., Pullmann, H., & Allik, J. (2007). Personality and intelligence as predictors of academic achievement: A cross-sectional study from elementary to secondary school. *Personality and Individual Differences*, 42, 441-451. <http://dx.doi.org/10.1016/j.paid.2006.08.001>
- Lijun, Y. (2011). The Investigation of Learning Motivation and Strategy in the Normal Undergraduates. *Cross-cultural Communication*, 7(3), 126-131.
- Lohman, D. F., & Lakin, J. M. (2009). Consistencies in sex differences on the Cognitive Abilities Test across countries, grades, test forms, and cohorts. *British Journal of Educational Psychology*, 79, 389-407. <http://dx.doi.org/10.1348/000709908X354609>
- Magon, A. J. (2009). *Gender, the brain and education: do boys and girls learn differently?* (Doctoral dissertation, University of Victoria).
- Marceau, K., Ram, N., Houts, R. M., Grimm, K. J., & Susman, E. J. (2011). Individual Differences in Boys' and Girls' Timing and Tempo of Puberty: Modeling Development with Nonlinear Growth Models. *Developmental Psychology*, 47(5), 1389-1409. <http://dx.doi.org/10.1037/a0023838>
- Marsh, H. W., Martin, A. J., & Cheng, J. H. S. (2008). A multilevel perspective on gender in classroom motivation and climate: Potential benefits of male teachers for boys? *Journal of Educational Psychology*, 100(1), 78-95. <http://dx.doi.org/10.1037/0022-0663.100.1.78>
- Matthews, J. S, Cameron Ponitz, C., & Morrison, F. J. (2009). Early Gender Differences in Self-Regulation and Academic Achievement. *Journal of Educational Psychology*, 101(3), 689-704. <http://dx.doi.org/10.1037/a0014240>
- McHale, S. H., Crouter, A. C., & Tucker, C. J. (1999). Family Context and Gender Role Socialization in Middle Childhood: Comparing Girls to Boys and Sisters to Brothers. *Child Development*, 70(4), 990-1004. <http://dx.doi.org/10.1111/1467-8624.00072>
- Mead, S. (2006). *The Evidence Suggests Otherwise: Truth About Boys and Girls*. Education Sector /online/. Retrieved on 12th December 2013 from http://www.educationsector.org/analysis/analysis_show.htm?doc_id378705
- Meece, J. L., Bower Glienke, B., & Burg S. (2006). Gender and motivation. *Journal of School Psychology*, 44, 351-373. <http://dx.doi.org/10.1016/j.jsp.2006.04.004>
- Miller Campbell, S., & Collaer, M. L. (2009). Stereotype Threat and Gender Differences in Performance on a Novel Visuospatial Task. *Psychology of Women Quarterly*, 33, 437-444. <http://dx.doi.org/10.1111/j.1471-6402.2009.01521.x>
- Noble, W., & Bradford, C. (2002). *Getting it Right for Boys ... and Girls*. New York: Routledge.
- Nguyen, N. T., Allen, L. C., & Fraccastoro, K. (2005). Personality Predicts Academic Performance: Exploring the moderating role of gender. *Journal of Higher Education Policy and Management*, 27(1), 105-116. <http://dx.doi.org/10.1080/13600800500046313>

- Orr, A. J. (2011). Gendered Capital: Childhood Socialization and the “Boy Crisis” in Education. *Sex Roles*, 65, 271-284. <http://dx.doi.org/10.1007/s11199-011-0016-3>
- Oswalt, A. (n.d.). *Adolescent Cognitive Development* /online/. Retrieved on 16th June 2013 from http://info.emergencehealthnetwork.org/poc/view_doc.php?type=doc&id=41156&cn=1310
- Penner, A. M., & Paret, M. (2007). Gender differences in mathematics achievement: Exploring the early grades and the extremes. *Social Science Research*, 37, 239-253. <http://dx.doi.org/10.1016/j.ssresearch.2007.06.012>
- Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research*, 31, 459-470. [http://dx.doi.org/10.1016/S0883-0355\(99\)00015-4](http://dx.doi.org/10.1016/S0883-0355(99)00015-4)
- Poropat, A. E. (2009). A Meta-Analysis of the Five-Factor Model of Personality and Academic Performance. *Psychological Bulletin*, 135, 322-338. <http://dx.doi.org/10.1037/a0014996>
- Ramdass, D., & Zimmerman, B. J. (2011). Developing self-regulation skills: The important role of homework. *Journal of Advanced Academics*, 22, 194-218. <http://dx.doi.org/10.1177/1932202X1102200202>
- Resing, W. C. M., Bleichrodt, N., & Dekker, P. H. (1999). Measuring Personality Traits in the Classroom. *European Journal of Personality*, 13, 493-509. [http://dx.doi.org/10.1002/\(SICI\)1099-0984\(199911/12\)13:6<493::AID-PER355>3.0.CO;2-V](http://dx.doi.org/10.1002/(SICI)1099-0984(199911/12)13:6<493::AID-PER355>3.0.CO;2-V)
- Sadowski, M. (2010). Putting the ‘Boy in Context. Finding solutions to boys’ reading problems may require looking beyond gender. *Harvard Education Letter*, 26, 4-6.
- Sax, L. (2006). Six Degrees of Separation: What Teachers Need to Know about the Emerging Science of Sex Differences. *Educational Horizons*, 84, 190-212.
- Spinath, F. M., Spinath, B., & Plomin, R. (2008). The Nature and Nurture of Intelligence and Motivation in the Origins of Sex Differences in Elementary School Achievement. *European Journal of Personality*, 22, 211-229. <http://dx.doi.org/10.1002/per.677>
- Steinmayr, R., & Spinath, B. (2008). Sex Differences in School Achievement: What Are the Roles of Personality and Achievement Motivation? *European Journal of Personality*, 22, 185-209. <http://dx.doi.org/10.1002/per.676>
- Strand, S., Deary, I. J., & Smith, P. (2006). Sex differences in Cognitive Abilities Test scores: A UK national picture. *British Journal of Educational Psychology*, 76, 463-480. <http://dx.doi.org/10.1348/000709905X50906>
- Trautwein, U., & Köller, O. (2003). The Relationship Between Homework and Achievement – Still Much of a Mystery. *Psychology Review*, 15(2), 115-145.
- Tzuriel, D., & Egozi, G. (2010). Gender Differences in Spatial Ability of Young Children: The Effects of Training and Processing Strategies. *Child Development*, 81(5), 1417-1430. <http://dx.doi.org/10.1111/j.1467-8624.2010.01482.x>
- Van de Gaer, E., Pustjens, H., Van Damme, J., & De Munter, A. (2006). The Gender Gap in Language Achievement: The Role of School-Related Attitudes of Class Groups. *Sex Roles*, 55, 397-408. <http://dx.doi.org/10.1007/s11199-006-9092-1>
- Vista, A., & Care, E. (2011). Gender differences in variance and means on the Naglieri Non-verbal Ability Test: Data from the Philippines. *British Journal of Educational Psychology*, 81, 292-308. <http://dx.doi.org/10.1348/000709910X514004>

- Wargacki, J. E. (2008). *High-stakes testing and the gender gap: A study of fourth grade reading performance on the Ohio achievement test* (Doctoral dissertation, Bowling Green State University).
- Weiss, E. M., Kemmler, G., Deisenhammer, E. A., Fleischhacker, W. W., & Delazer, M. (2003). Sex differences in cognitive functions. *Personality and Individual Differences*, 35, 863-875. [http://dx.doi.org/10.1016/S0191-8869\(02\)00288-X](http://dx.doi.org/10.1016/S0191-8869(02)00288-X)
- Wiens, K. (2006). The New Gender Gap: What Went Wrong? *The Journal of Education*, 186(3), 11-27.
- Yarborough, B. H., & Johnson, R. A. (1980). A six year study of sex differences in intellectual functioning, reading/language arts, achievement and affective development. *The Journal of Psychology*, 106, 55-61. <http://dx.doi.org/10.1080/00223980.1980.9915171>
- Yen, C.-J., Konold, T. R., & McDermott, P. A. (2004). Does learning behavior augment cognitive ability as an indicator of academic achievement? *Journal of School Psychology*, 42, 157-169. <http://dx.doi.org/10.1016/j.jsp.2003.12.001>

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Postignuća djevojčica i dječaka u školskom kontekstu: pregled mogućih objašnjenja utvrđenih razlika

Sažetak

Od devedesetih godina do danas sve je više empirijskih dokaza kako su u obrazovnim sustavima većine razvijenih zemalja djevojčice uspješnije od dječaka. Taj je trend danas prisutan i u školskim područjima i u predmetima za koje se tradicionalno vjerovalo da su u njima dječaci uspješniji. Rad donosi pregled kritički analiziranih postojećih istraživanja te povezuje postojeće spoznaje uz moguća objašnjenja utvrđenih razlika. Moguće je izdvojiti nekoliko skupina objašnjenja kao što su razlike u određenim sposobnostima, obilježjima ličnosti, stilovima učenja, mogućnosti udovoljavanja poželjnim načinima učenja, odnosno razlike u interakciji s učiteljima. Na kraju, u radu su izložene i spoznaje koje polaze od pretpostavki da u pogledu školskih postignuća učenika postoji nepovoljan utjecaj spola učitelja. Objašnjenja spolnih razlika u školskim postignućima pružaju samo dio mogućih razloga. Pregledom postojećih istraživanja jasno je kako još uvijek nemamo sveobuhvatnog objašnjenja koje na svima prihvatljiv i nedvosmislen način objašnjava razloge razlika u školskim postignućima učenica i učenika u korist učenica.

Ključne riječi: osnovna škola; spolne razlike u školskim postignućima; učenice; učenici.

Uvod

U današnjim obrazovnim sustavima, posebno onima u industrijski najrazvijenijim zemljama, djevojčice su uspješnije od dječaka u različitim područjima školskih postignuća. Taj je trend primjetan od devedesetih godina prošlog stoljeća do danas (Davis, 2007). Evidentan je i u školskim područjima i predmetima za koja se tradicionalno smatralo i vjerovalo da su u njima dječaci uspješniji, kao što je na primjer matematika (Penner i Paret, 2007). U području materinskog i stranih jezika (Meece, Bower Glienke, i Burg, 2006), čitanja i pisanja (Gurian, Stevens, Henley, i Trueman, 2011; Mead, 2006) djevojčice su zadržale bolji školskih uspjeh,

što je prije dokumentirano istraživanjima (Allred, 1990; Engelhard, Siddle Walker, Gordon, i Gabrielson, 1994). Stoga nije iznenađujuće da se u znanstvenim i stručnim raspravama počelo sve glasnije postavljati pitanje o mogućim razlozima i uzrocima takva stanja (Sadowski, 2010).

Kritičkom analizom postojećih studija i dostupnih znanstvenih istraživanja moguće je pronaći nekoliko objašnjenja za pojavu razlika u školskim postignućima i potencijalnih razloga zbog kojih razlike idu u korist djevojčica. Razlozi se temelje na potencijalnom utjecaju bioloških, psiholoških i niza socijalnih faktora, ili na njihovu međusobnom isprepletanju i zajedničkom utjecaju u školskom kontekstu. Kada je riječ o pojedinačnim empirijskim istraživanjima, ona su se bavila razmatranjem utjecaja općih ili specifičnih intelektualnih sposobnosti, crta ličnosti, rasvjetljavanjem uloge pojedinih vrsta opće ili školskih motivacija, objašnjenjem važnosti socijalnih i ponašajnih vještina do prepoznavanja poželjnih ili štetnih posljedica nekih socijalizacijskih procesa. Uz istraživanja koja se odnose na obilježja i ponašanje učenika, nisu zanemariva ni istraživanja u kojima se bolja postignuća i uspjeh učenica nastojalo sagledati kao posljedicu razlika u stilovima učenja, različito strukturiranih školskih procesa ili u kontekstu primjerenosti školskih kurikula i nastavne prakse učenicama, odnosno učenicima. Također, zanimljivu skupinu čine istraživanja usmjerena na razumijevanje interakcije koju učenici i učenice ostvaruju s učiteljima i učiteljicama te mogućom povezanosti kvalitete i strukture interakcija sa školskim postignućima.

U ovom pregledu izložit ćemo primarno spoznaje o povezanosti niza psiholoških obilježja sa školskim postignućima učenika i učenica. Danas su istraživanja u obrazovanju prilično zastupljena te se po ukupnom broju objavljenih radova približavaju drugoj najvažnijoj skupini, tj. istraživanjima u kojima se osvjetljavaju pitanja vezana uz nastavne kurikule, nastavne sadržaje i procese, način obrazovanja nastavnika ili njihova ponašanja. Unatoč impresivnom broju istraživanja ove druge skupine, u ovom radu nije nam namjera detaljnije se baviti pitanjem kako ti nastavni i učiteljski faktori i procesi utječu na školska postignuća učenika i učenica. Sistematiziranje i evaluiranje dosegnutih spoznaja u tom području zaslužuje zaseban pregled.

Ovdje ćemo najprije prikazati ishode istraživanja koja su razlike u postignućima djevojčica i dječaka nastojala pripisati različitim biološkim procesima, različitosti u strukturiranju kognitivnih procesa ili razlikama u procesiranju informacija djevojčica odnosno dječaka. Nakon toga, usmjerit ćemo se na izlaganje spoznaja o odnosu pojedinih važnih crta ličnosti i izmjerenih školskih postignuća djevojčica i dječaka. Kao treću skupinu istraživanja koja zaslužuju pozornost, izdvojit ćemo istraživanja o mogućem utjecaju različitih socijalnih i ponašajnih kompetencija učenika na školska postignuća. Spoznaje do kojih se unutar tih istraživanja došlo, nastavit ćemo izlagati kroz petu i šestu cjelinu ovog rada, gdje ćemo prikazati nekoliko objašnjenja koja empirijski utvrđene razlike između djevojčica i dječaka u školskim postignućima

primarno vezuju uz strategije, stilove i načine usvajanja učenog gradiva. Na kraju, u radu ćemo izložiti i spoznaje nekoliko istraživačkih pristupa koji, polazeći od činjenice da u postojećim obrazovnim sustavima većinu čine učiteljice, prosječno lošiju uspješnost dječaka pripisuju tom obilježju obrazovnih sustava. Naime, takve studije polaze od implicitne hipoteze kako učiteljice u školskom kontekstu ne strukturiraju svoje odnose i interakcije na isti način s učenicima odnosno učenicima, što za posljedicu može imati smanjenje školske uspješnosti učenika. Ili, oblikovano na drugačiji način, pristup učiteljica u nekoj mjeri može preferirati učenice i predstavljati mehanizam objašnjenja njihove bolje školske uspješnosti.

Uloga bioloških i kognitivnih faktora u nastanku razlika u školskom postignuću djevojčica i dječaka

Razlike između dječaka i djevojčica u školskom kontekstu mogu proisteći iz bioloških razlika, primarno onih koje se odnose na razlike u procesu sazrijevanja i kognitivnom razvoju. Izložena očekivanja o biološki proizvedenim razlikama u postignućima djevojčica i dječaka na neki način predstavljaju najstarija objašnjenja spolnih razlika u školskim postignućima. Zbog toga ne čudi da su i brojna empirijska istraživanja išla upravo u smjeru osvjetljavanja uloge bioloških procesa u razlikama u postignuću. Postavljala su se pitanja mogu li razlike u brzini i dinamici razvoja ili razlike u strukturi mentalnog aparata djevojčica i dječaka objasniti školska postignuća, pri čemu se na neki način stvorilo rašireno vjerovanje kako djevojčice sazrijevaju ranije od dječaka (Marceau, Ram, Houts, Grimm, i Susman, 2011). Ako bi razlika u biološkom razvoju bila suštinska, jasno je da bi ona imala implikacije i kada je riječ o ličnosti (Cohn, 1991; Klimstra, Hale III, Raaijmakers, Branje, i Meeus, 2009), osobito kada je riječ o socijalnom funkcioniranju djevojčica i dječaka (Barbu, Cabanes, i Le Maner-Idrissi, 2011) imamo li u vidu kako je proces razvoja složen, slojevit te podrazumijeva više dimenzija i faceta (Oswalt, 2013).

Vjerujemo da nije nimalo iznenađujuće ako navedemo da je ovdje najveći broj istraživačkih pokušaja bio usmjeren na razmatranja opće intelektualne sposobnosti, inteligencije i njezine uloge u školskim postignućima. Potencijalne uzroke te prihvatljivo objašnjenje spolnih razlika u postignućima nastojalo se pripisati razlikama u općem intelektualnom kapacitetu. Opća inteligencija (IQ), premda je snažno povezana sa školskim, općenito s obrazovnim postignućem pojedinca, u osnovi ne predstavlja obilježje kojim je moguće zadovoljavajuće objašnjavati spolne razlike u školskim postignućima (Calvin, Fernandes, Smith, Visscher, i Deary, 2010). Razlog tomu prilično je jednostavan – teško je očekivati spolne razlike u općoj inteligenciji, pa su one u empirijskim istraživanjima rijetko detektirane. Ako su u pojedinim istraživanjima kojim slučajem i zabilježene, po iznosima su bile malene, što ih u kontekstu njihove uloge objašnjenja razlika u školskim postignućima čini zanemarivim (Gang i Guiyang, 2000; Johnson, Carothers, i Deary, 2009; Lohman, i Lakin, 2009; Vista i Care, 2011).

Stoga nimalo ne čudi da se istraživačka usmjerenost s vremenom usmjerila s opće intelektualne sposobnosti na razumijevanje uloge niza pojedinačnih i specifičnih sposobnosti. Istraživanja su sve više usmjeravana na objašnjenje uloge pojedinačnih kognitivnih procesa koji se u nekoj mjeri preklapaju sa specifičnim intelektualnim sposobnostima kao što su samodisciplina (Duckworth i Seligman, 2005, 2006; Hicks, Johnson, Iacono i McGue, 2008; Steinmayr i Spinath, 2008), samoregulacija (Cleary i Chen, 2009; Matthews, Cameron, Ponitz i Morrison, 2009), ometajuća ponašanja za nastavu i učenje (Dilalla, Marcus i Wright-Phillips, 2004; Gibb, Fergusson i Horwood, 2008), odnos prema školi, učenju i nastavnicima (Buzhigeeva, 2004; Dilalla, i sur., 2004; Kenney-Benson, Pomerantz, Ryan i Patrick, 2006; Resing i sur., 1999; Yarborough, i Johnson, 1980).

Kada je riječ o specifičnim sposobnostima, najviše su istraživane spolne razlike u spacijalnim (Baron-Cohen, 2005; Crucian i Berenbaum, 1998) numeričkim (Baron-Cohen, 2005; Calvin i sur., 2010; Hyde, 2005) i verbalnim sposobnostima, kao i spolne razlike u strukturiranju procesa pamćenja (Baron-Cohen, 2005; Gang i Guiyang, 2000). Brojne pojedinačne nalaze do kojih su došla pojedinačna istraživanja u ovom području bilo bi prilično zahtjevno opisati i izložiti. Ono što im je zajedničko jesu uvjerenje i očekivanja oblikovana na spoznajama tradicionalnih istraživanja u ovom području, da su učenice u prednosti kada je riječ o verbalnim sposobnostima, a da su učenici u boljoj poziciji kada je riječ o numeričkim i spacijalnim sposobnostima. U kontekstu današnjih škola ta su očekivanja skromno potkrijepljena empirijskim potvrdama.

Ukratko, osim važnije uloge navedenih specifičnih kognitivnih sposobnosti u objašnjenju razlika u jezicima i matematici između učenika i učenica, priličan broj spolnih razlika koje danas u drugim školskim postignućima postoje između učenica i učenika ostao je nerazriješen (Calvin i sur., 2010; Spinath, Spinath, i Plomin, 2008). To je upućivalo na zaključak da opći doseg provjeravanja uloge specifičnih sposobnosti nije bio osobito velik u objašnjenju ukupne razlike u postignućima između djevojčica i dječaka. Uz to, uzmemo li u obzir kako se u pojedinim novijim studijama, posebno onima unutar razvojne psihologije gdje je pažljivo kontroliran utjecaj dobi, stupanj kognitivnih razlika između dječaka i djevojčica sve više po iznosu proglašavao neznačajnim (Ardila, Rosselli, Matute, i Inozemtseva, 2011), još je jasnije kako kognitivna osnovica u zadovoljavajućoj mjeri ne objašnjava razlike između učenica i učenika u školskom postignuću (Calvin i sur., 2010; Spinath, i sur., 2008). Razlozi za to leže u pretpostavci i očekivanju da su današnji školski zahtjevi koji se postavljaju pred učenike na manje izravan i opažaču razumljiv način povezani s kognitivnim mogućnostima učenika, nego što je to, po svemu sudeći, ranije bio slučaj. Potvrdu izloženih očekivanja moguće je indirektno tražiti u analizi rezultata provedenih empirijskih istraživanja. Promatramo li strukturu i iznose statističkih veličina koje se danas dobivaju, sve je češće moguće primijetiti slabljenje izravne veze između učeničkih kognitivnih kapaciteta i školskih postignuća jer se u istraživanjima prije svega detektiraju raznovrsni medijacijski efekti.

Nemogućnost uvjerljivog demonstriranja veze između kognitivnih kapaciteta i školskih postignuća čest je ishod u pojedinačnim studijama. Na primjer, premda su učenice obično bolje u testovnim zadacima koji uključuju iskazivanje verbalnih sposobnosti, navedena prednost još uvijek ne može objasniti njihovu sveukupno bolju izvedbu u školi (Deary, Strand, Smith, i Fernandes, 2007). Isto tako, premda neka istraživanja još uvijek svjedoče o tome kako su učenici obično bolji u zadacima utemeljenim na numeričkim sposobnostima (Hyde, 2005), nedovoljno je utemeljenih objašnjenja zbog kojih u današnjim školama učenice u pravilu dobivaju više ocjene iz matematike (Hyde, Fennema, Ryan, Frost, i Hopp, 1990). To su intrigantna pitanja koja pozivaju na snažniji istraživački angažman, te ukazuju na to da je razumijevanju fenomena školskog postignuća potrebno pristupiti višedimenzionalno. Potrebno je prije svega odustati od prije postavljenih očekivanja kako pojedinačna obilježja u školskim postignućima mogu ponuditi zadovoljavajuće objašnjenje.

Potreba višedimenzionalnog pristupa u novijim empirijskim istraživanjima može se primijetiti i preko otklona do kojeg je došlo u uporabi konceptualnog i terminološkog nazivlja. U istraživanjima se u terminološkom smislu počinju sve više razmatrati 'kompetencije', konstrukt za koji se smatra da se razvija putem iskustva, uz posredujući utjecaj općih i specifičnih sposobnosti pojedinca. Prije nego što u ovom radu izložimo u kojoj je mjeri moguće spolne razlike u školskim postignućima objasniti razlikama u kompetencijama, pozornost ćemo usmjeriti na prikazivanje značaja i uloge obilježja ličnosti. Razumijevanje uloge ličnosti je važno i zbog očekivanja da obilježja ličnosti predstavljaju bitnu osnovu za oblikovanje učeničkih kompetencija.

Obilježja ličnosti dječaka i djevojčica povezana sa školskom izvedbom

Psihološki pojam „ličnost“ ukazuje na središnji sustav koji obuhvaća sva doživljavanja i ponašanja nekog pojedinca, a ukazuje na to što netko jest, kako se uobičajeno doživljava, kakvim drugima želi izgledati, odnosno kakvim očekuje da ga drugi tipično vide (Burušić, 2012). U istraživanjima se uobičajeno proučavaju trajne sklonosti pojedinca prema određenom obliku doživljavanja i ponašanja i nazivaju se crte ili dimenzije ličnosti. Najraniji pokušaji sagledavanja i objašnjenja fenomena školskog uspjeha, kao što su na primjer studije Cattella i Butchera (1968), posvetili su pozornost crtama ličnosti, te se, u pravilu, uz inteligenciju njima nastojao objasniti opći školski uspjeh. S vremenom se, kako su se povećavale spoznaje o crtama ličnosti, osobito one o mogućim razlikama u crtama ličnosti djevojčica i dječaka, time nastojalo razumjeti mehanizam spolnih razlika u školskim postignućima (Laidra, Pullmann, i Allik, 2007).

Budući da je broj potencijalno važnih crta ličnosti velik, istraživanja su prije svega nastojala što bolje razumjeti i objasniti ulogu temeljnih crta ličnosti u nastanku i održavanju spolnih razlika u školskim postignućima. Pri tome su u najvećoj mjeri

razmatrane crte ličnosti, konceptualno opisane unutar peterofaktorskog modela ličnosti, kao danas dominirajućeg modela. Unutar peterofaktorskog modela najviše je razmatrana uloga savjesnosti (De Fruyt, Van Leeuwen, De Bolle, i De Clercq, 2008; Hakimi, Hejazi, i Lavasani, 2011) i ugodnosti (Laidra i sur., 2007; Steinmayr i Spinath, 2008) kao temeljnih crta ličnosti. Među drugim, specifičnijim obilježjima ličnosti, najviše se pozornosti posvećivalo istraživanju različitih vrsta motivacija koje se javljaju unutar školskog konteksta (Bätz, Wittler, i Wilde, 2010; Gang i Guiyang, 2000; Steinmayr, i Spinath, 2008).

Prema nekim autorima savjesnost kao crta ličnosti ima u školskom kontekstu gotovo jednaku važnost kao i opća inteligencija (Bratko, Chamorro-Premuzic, i Saks, 2006; Poropat, 2009). Osim toga, crtom savjesnosti moguće je objasniti i razlike između djevojčica i dječaka u školskim postignućima, budući da rezultati pojedinih istraživanja svjedoče o tome kako je savjesnost izraženija kod djevojčica nego kod dječaka (Resing i sur., 1999; Steinmayr i Spinath, 2008). Također, ne manje važno, povezanost postignuća i savjesnosti pokazala se prilično stabilnom u svim obrazovnim razinama (Poropat, 2009). Savjesnije učenike i učenice krase odgovornost, veća marljivost i izraženija težnja prema uspjehu, a prilično su potvrđena i očekivanja da su savjesniji učenici u školi općenito i uspješniji (Bratko i sur., 2006; Hakimi i sur., 2011; Poropat, 2009). Samostalni doprinos crte savjesnosti u objašnjenju školskog uspjeha, po svemu sudeći, interakcijski se pojačava u školama u kojima je prisutan određen oblik nastave. Naime, kako je većina školskih aktivnosti još uvijek strukturirana na način da zahtijeva striktno slijedenje školskih, učeničkih obveza – kao što su redoviti dolasci, savjesno ispunjavanje školskih zadataka, redovito ispunjavanje domaćih zadaća, što predstavlja školsku svakodnevicu, u prednosti su učenici koji imaju izraženiju crtu savjesnosti.

U kontekstu školskog uspjeha u odnosu na savjesnost, nešto manje važna, ali još uvijek prilično značajna, jest crta ličnosti koja se naziva ugodnost (Hair i Graziano, 2003; Laidra i sur., 2007). Kako pojedina istraživanja sugeriraju, to obilježje ličnosti više odlikuje djevojčice nego dječake (Laidra i sur., 2007; Steinmayr i Spinath, 2008). Crta ugodnosti uglavnom ukazuje na izražen kapacitet i usmjerenost održavanja dobrih odnosa s drugim učenicima i učiteljima. Hair i Graziano (2003) u svom istraživanju upućuju upravo na važnost crte ugodnosti te su pokazali kako izražena ugodnost doprinosi kvalitetnoj školskoj prilagodbi, što posljedično vodi boljem školskom postignuću tijekom osnovne škole. Štoviše, na temelju crte ugodnosti ne samo da je moguće predviđati školsko postignuće učenika u određenom školskom razdoblju već je na temelju utvrđenog stupnja ugodnosti izmjerenom na nižim obrazovnim razinama, na primjer tijekom osnovne škole, moguće predviđati školski uspjeh na višim obrazovnim razinama, tj. tijekom srednje škole.

Crta ugodnosti učenicama predstavlja značajan kapital u uspješnijem savladavanju samo školskih zahtjeva, ali na određen način pomaže udovoljavanju drugih zahtjeva, što indirektno ima posljedice po školski uspjeh (Hair i Graziano, 2003; Laidra i sur., 2007). Učenici izraženije crte ugodnosti manje su skloni ometanju nastave te

je učiteljima s njima ugodnije raditi (Steinmayr i Spinath, 2008). Kako su školske ocjene agregirani, kompozitni pokazatelj kognitivnih, ali istodobno i pod utjecajem nekognitivnih faktora, kao što su slijeđenje uputa učitelja, konformiranje očekivanjima, briga za ispunjavanje postavljenih obveza ili urednost u školskim aktivnostima, onda je spolne razlike u školskim postignućima u određenoj mjeri moguće objasniti upravo na temelju razlika u obilježjima kao što je crta ugodnosti (De Fruyt i sur., 2008).

Uz temeljne crte ličnosti, prije svega savjesnost i ugodnost, u pokušaju objašnjenja spolnih razlika u školskim postignućima razmatran je i utjecaj nekoliko daljnjih obilježja ličnosti, nešto niže razine općenitosti. To se prije svega odnosi na sastavnice motivacije koja je tijesno međusobno povezana s učenjem i ta je veza u školskom kontekstu višekratno demonstrirana (Steinmayr i Spinath, 2008).

U pokušajima objašnjenja spolnih razlika nastojalo se prije svega razmotriti vrstu pojedinih motivacija i njihovu snagu kod djevojčica i dječaka, počevši od očekivanja da je školsko ponašanje učenika rezultat ekstrinzičnih faktora – na primjer želje za dobivanjem dobrih ocjena ili potrebe udovoljavanja očekivanjima roditelja, odnosno intrinzičnih motivacijskih silnica, kao što su zanimanje po sebi za određene sadržaje ili unutarnja želja za stjecanjem određene vrste znanja (Lijun, 2011). Kako je višekratno pokazano da su bolji školski rezultati u većoj povezanosti s različitim oblicima intrinzične motivacije od rezultata djelovanja ekstrinzične motivacije (Bätz i sur., 2010; Booth, 2013), ne čudi da su se razlike između djevojčica i dječaka u školskom postignuću nastojale objasniti i razlikama u motivaciji. Tu su polazna očekivanja bila da je kod djevojčica izraženija intrinzična motivacija za jezike, a kod dječaka za matematiku (Spinath i sur., 2008). I dok bi takva očekivanja možda i mogla pružiti objašnjenje uspjeha u pojedinim školskim područjima, prije svega u jezicima i matematici, očit je nedostatak u tome da ona sama po sebi ne mogu pružiti uvjerljivo objašnjenje zbog čega su djevojčice općenito uspješnije u odnosu na dječake u današnjim školama.

Ukupno, kao i u drugim pokušajima objašnjenja spolnih razlika u školskim postignućima, dosezi istraživanja ličnosti kao osnove za objašnjenje postojećih spolnih razlika ograničeni su i nejednoznačni. Pojedini istraživači uspjeli su tek djelomično objasniti različita *obrazovna* postignuća dječaka i djevojčica temeljem razlika u crtama ličnosti (Laidra i sur., 2007; Resing i sur., 1999; Steinmayr i Spinath, 2008), odnosno na temelju razlika u motivaciji vezanoj uz školu (Freudenthaler i sur., 2008; McHale i sur., 1999; Spinath i sur., 2008).

Slično je stanje, kao i kada je riječ o temeljnim crtama ličnosti, i u pogledu niza specifičnih obilježja ličnosti i njihove važnosti u objašnjenju spolnih razlika u školskim postignućima. Većinom se dolazilo do parcijalnih objašnjenja, što je u kontekstu današnjih škola po sebi nedovoljno da bi se općenito razumio fenomen spolnih razlika u postignućima. Na primjer, viša težnja za uspjehom ili bolja samokontrola specifična su obilježja izraženija u djevojčica i važna su jer doprinose boljem školskom postignuću (Hicks i sur., 2008). Ili pak, s druge strane, crte ličnosti

kao što su emocionalna stabilnost ili intelekt mogu u većoj mjeri predvidjeti školski uspjeh dječaka (Nguyen, Allen i Fraccastoro, 2005).

No, gledajući cjelovito, brojna istraživanja koja se odnose na ličnost u osnovi su nedovoljno uspješna u značajnijem objašnjenju spolnih razlika u školskim postignućima. Štoviše, kako su neka istraživanja u području ličnosti rezultirala ishodima koji više idu u prilog izraženijoj sličnosti i podudaranju u obilježjima među djevojčicama i dječacima nego što ukazuju na to da postoje razlike u ličnosti (De Fruyt i sur., 2008; Furnham i Monsen, 2009; Hakimi i sur., 2011; Hyde, 2005), dijelom je jasnije zbog čega još uvijek time moguće zadovoljavajuće objasniti postojeće spolne razlike u školskim postignućima djevojčica i dječaka.

Kompetencije dječaka i djevojčica kao posrednik razlika u školskim postignućima

Osim kompleksnih i sveobuhvatnih konstrukta, kao što su opća intelektualna sposobnost ili temeljne crte ličnosti, dio istraživača je utvrdene razlike između dječaka i djevojčica u školskim postignućima nastojao objasniti pojedinim specifičnijim kapacitetima, s mogućim zajedničkim nazivom: kompetencije i vještine učenika. Prilično je velik broj kompetencija i vještina koje neki učenik može razviti, što nužno vodi tomu da su objašnjenja, koja se na njima temelje, nužno heterogena (Duckworth i Seligman, 2006).

U ovom pregledu ukazat ćemo na nekoliko osobnih, ponašajnih i socijalnih kompetencija za koje se u dosadašnjim razmatranjima smatra da mogu biti važne u objašnjenju školskih postignuća (DiPrete i Jennings, 2012). To su, na primjer, samodisciplina (Duckworth i Seligman, 2005, 2006; Hicks, Johnson, Iacono i McGue, 2008; Steinmayr i Spinath, 2008), samoregulacija (Cleary i Chen, 2009; Matthews, Cameron Ponitz i Morrison, 2009), ometajuća ponašanja za nastavu i učenje (Dilalla, Marcus i Wright-Phillips, 2004; Gibb, Fergusson i Horwood, 2008), odnos prema školi, učenju i nastavnicima (Buzhigeeva, 2004; Dilalla i sur., 2004; Kenney-Benson, Pomerantz, Ryan i Patrick, 2006; Resing i sur., 1999; Yarborough i Johnson, 1980). Te kompetencije, a i niz drugih, mogu predstavljati dobru osnovu za objašnjenje i razumijevanje spolnih razlika u školskim postignućima.

Učenici koji iskazuju adaptivno ponašanje u učenju, uspijevaju razviti kompetencije i vještine kao što su samouvjerenost, pozornost, upornost i fleksibilnost, oni jednostavno imaju veću vjerojatnost uspjeha u školi i općenito u obrazovanju (Yen, Konold i McDermott, 2004). Dosadašnja istraživanja svjedoče o tome kako djevojčice, uz to što imaju pozitivnije stavove prema školi (Gray i McLellan, 2006; Orr, 2011), u pravilu imaju i izraženije kompetencije koje su prediktivne za bolji školski uspjeh. Djevojčice češće izražavaju pozitivna socijalna ponašanja, imaju izraženije interpersonalne vještine i veći stupanj samokontrole. Uz to, značajan broj istraživanja ukazao je i na izraženiju samodisciplinu kod djevojčica nego kodu dječaka (Duckworth i Seligman, 2006; Hicks i sur., 2008), kao i veći kapacitet

samoregulacije (Cleary, i Chen, 2009; Matthews, Cameron Ponitz i Morrison, 2009). Kod djevojčica je manja vjerojatnost pojave problema u pozornosti i učenju, kao što su ADD i ADHD, pa su djevojčice uglavnom sklonije poštivati školsku disciplinu i izbjegavati nasilnička ponašanja (Gurian i sur., 2011).

Neke studije sugeriraju kako su djevojčice češće orijentirane na stjecanje vještina, više se trude oko domaćih zadaća, što im zajedno s odricanjem za nastavu ometajućih ponašanja zasigurno povećava sveukupno školsko postignuće (Kenney-Benson, i sur., 2006). DiPrete i Jennings (2012) su pokazali kako socijalne i ponašajne vještine imaju značajnu ulogu u objašnjenju spolnih razlika u postignućima još od vrtićke dobi i da djevojčice već na početku formalnog školovanja imaju naprednije vještine od dječaka, što se s vremenom provedenim u formalnom obrazovanju pojačava. Prema tim autorima ta prednost ne samo da je od koristi djevojčicama u usvajanju i prilagođavanju školskim normama već ima utjecaja i na poboljšavanje procesa učenja, vodeći povoljnijim ishodima i posljedicama.

Prema Duckworth i Seligmanu (2006) značajnu ulogu u objašnjenju školskih postignuća može imati samodisciplina, koja je izraženija kod djevojčica. U školskoj okolini samodisciplina doprinosi pažljivijem slušanju onoga što nastavnik govori, upornosti u rješavanju zahtjevnijih i/ili nezanimljivih zadataka, pravodobnom ispunjavanju domaćih zadaća i općenito dolazi do izražaja u situacijama kada se javlja konflikt između propisanih i očekivanih aktivnosti koje nisu poželjne i aktivnosti koje su lakše dostupne, zahtijevaju manji angažman i zabavnije su. Uz samodisciplinu u doseganju školskih postignuća važnu ulogu ima i samoregulacija (Cohen, 2012), kao pokazatelj kapaciteta razmišljanja o sebi, samorefleksije, upravljanja svojim mislima, emocijama i akcijama. Specifično, u školskom kontekstu samoregulacija može ukazivati na kapacitet učenika da postavlja ciljeve u učenju, prati vlastiti napredak, da je općenito u stanju razviti strategije regulacije koje pospješuju učenje (Ramdass i Zimmerman, 2011).

Posebno zanimljivu skupinu čine istraživanja socijalnih i ponašajnih vještina, osobito zbog činjenice da su prisutnije kod djevojčica (Cleary i Chen, 2009; DiPrete i Jennings, 2012; Duckworth i Seligman 2006; Hicks i sur., 2008; Kenney-Benson i sur., 2006; Matthews i sur., 2009), odnosno kako su brojna ometajuća ponašanja prisutnija kod dječaka (Buzhigeeva, 2004; Dilalla i sur., 2004; Gibb i sur., 2008). Uz tu spoznaju moguće je prilično utemeljeno pretpostaviti da takve specifične vještine mogu biti snažan izvor razlika u školskoj uspješnosti, posebno imamo li u vidu kako većina tradicionalno dizajniranih oblika nastave, koji još uvijek prevladavaju u školskoj praksi, ne odgovara u jednakoj mjeri djevojčicama i dječacima. Tradicionalno dizajnirana nastava nije na jednak način kongruentna s kompetencijama i vještinama djevojčica i dječaka i po svemu sudeći svojom strukturom, dinamikom i postavljenim zahtjevima dječake stavlja u nepovoljniji položaj kada su u pitanju njihove vještine.

Uz razmatranje izravne koristi koje samoregulacijske, socijalne, interpersonalne i druge kompetencije u školskom kontekstu mogu donositi učenicima, a posebno učenicama, nekoliko je istraživačkih pokušaja bilo usmjereno na razmatranje neizravnih utjecaja. Naime, kako svjedoče pojedina razmatranja, učitelji opisuju dječake nemirnim, manje pažljivim i doživljavaju ih agresivnijim (Gibb i sur., 2008), što su opisi koji se počinju javljati još od predškolskog razdoblja (Dilalla i sur., 2004). Djevojčice se češće opisuju kao izražajnije, emocionalno ekspresivnije (Carrier, 2009) i za njih se vjeruje da imaju bolji odnos prema školi (Resing i sur., 1999; Yarborough i Johnson, 1980). Uz to ih se doživljava više prilagođenima zahtjevima učenja u odnosu na dječake koji se doživljavaju impulzivnijim i fizički agresivnijim (Buzhigeeva, 2004).

Ako znamo kako je u nizu socijalno-psihologijskih istraživanja demonstrirano postojanje pristranosti u percipiranju, uz pripisivanje uzroka tome ponašanjima drugih, (što je u znanstvenoj literaturi označeno pojmom atribucijske pogreške), onda je sasvim opravdano vjerovati kako od takvih pristranosti nisu imuni ni učitelji, pri čemu u školskom kontekstu to, po svemu sudeći, ide na štetu dječaka. Naime, u svakodnevnom školskim situacijama jedna od važnih aktivnosti učitelja jest da sustavno i kontinuirano brojčanim i/ili opisnim ocjenama iskazuju učenička postignuća. Učiteljev zadatak jest da procijeni i pripiše koliko je iskazano postignuće nekog konkretnog učenika rezultat učenja, uloženog truda, zainteresiranosti, slučajnosti ili djelovanja nekih specifičnih čimbenika. Iskazivanje postignuća nekim oblikom školskog ocjenjivanja ili nekim drugim oblikom vrednovanja postignuća, pod utjecajem je opažanja i subjektivnih prosudbi pa je i posljedica pripisivanja uzroka iskazanom ponašanju. Stoga nema ni jednog objektivnog i uvjerljivog razloga zbog kojih svi poznati oblici pristranosti i pogrešaka u atribuiranju ne bi bili prisutni i kada je riječ o vrednovanju školskih postignuća, u kojem je moguće da poželjne kompetencija utječu na proces iskazivanja postignuća, što posebno negativno može doći do izražaja kada je u pitanju iskazivanje postignuća dječaka.

Stilovi učenja dječaka i djevojčica: podudaranje iskazanih i poželjnih ponašanja kao moguće objašnjenje razlika u postignućima

Izložena očekivanja vode nas sljedećoj skupini mogućih objašnjenja utvrđenih razlika u prosječnim postignućima djevojčica i dječaka, polazeći od razmatranja na koji su način današnje škole strukturirane u pogledu zahtjeva koje postavljaju pred učenike, osobito koliko su oni pravedni u pogledu mogućnosti da im djevojčice i dječaci na jednak način udovolje. Pri tome je potrebno imati u vidu razvojne i druge značajke koje odlikuju djevojčice i dječake, a u analizi školskih zahtjeva kriteriji usklađenosti mogu se odnositi na očekivanja unutar škole i analizu stvarnih mogućnosti izvedbe dječaka i djevojčica.

Jedno od objašnjenja spolnih razlika u školskim postignućima krenulo je od analize stvarnih školskih ponašanja djevojčica i dječaka, pri čemu se nastojala

razmotriti usklađenost iskazanih i očekivanih ponašanja. Naime, bolja školska postignuća djevojčica mogu biti i posljedica različitih preferencija u stilovima učenja, odnosno, nešto specifičnije, rezultat bolje usklađenosti poželjnih i iskazanih stilova učenja kod djevojčica. Toj skupini objašnjenja moguće je, uz ponašanja izravno povezana s učenjem, pridodati i razlike u usklađenosti ostalih ponašanja djevojčica i dječaka s postavljenim očekivanjima u neposrednom školskom okruženju.

Stilovi učenja predstavljaju vrlo složeno i opsežno područje istraživanja koje karakteriziraju različita polazišta i stavovi. Coffield, Moseley, Hall i Ecclestone (2004) u svojoj su opsežnoj analizi oblikovali klasifikacijski sustav od pet grana podrijetla unutar kontinuuma, u skladu s mišljenjem istraživača o fiksiranosti stilova učenja. To su: *konstitucijski utemeljen stil i preferencija učenja, kognitivno strukturni tip učenja, tip stabilne ličnosti, tip "fleksibilno stabilne" preferencije učenja i pristupi i strategije učenja*. Na jednoj strani kontinuuma jesu istraživanja koja stavljaju veliki naglasak na genetske čimbenike, a drugu stranu predstavljaju istraživanja u kojima je veći naglasak na osobne i okolišne čimbenike.

Djevojčice i dječaci iskazuju različite preferencije u stilovima učenja iako još uvijek nije u potpunosti jasno radi li se o biološkim ili o socijalnim uzrocima koji stoje u podlozi pojedinih preferencija (Francis i Skelton, 2005). Zbog detaljnijeg razumijevanja ovdje je potrebno jasno naznačiti da ne postoji sklonost pojedinog spola određenom stilu učenja koji je univerzalno bolji, odnosno da i djevojčice i dječaci iskazuju određene prednosti, ali i slabosti u načinima i mogućnostima učenja. Učenice imaju bolji kapacitet razmišljanja u slikama, a, prema nekim studijama, tamo gdje je dominantan zahtjev učenja razmišljanje u apstraktnim konstruktima, neznatna je prednost učenika (Gang i Guiyang, 2000). Također je pretpostavljeno da dječacima više odgovaraju kratka razdoblja učenja, praktičan rad, rad u paru ili u grupama, odnosno učenje u kojem je prisutna interpersonalna dinamika (Noble i Bradford, 2002).

Dječaci u odnosu na djevojčice imaju više poteškoća kod pismenog izražavanja, ali imaju više sigurnosti u školskim zadacima koji zahtijevaju usmene prezentacije i izlaganja. I dječacima i djevojčicama je uporaba računala korisna u postizanju ciljeva učenja, s time da se dječaci njime češće koriste s ciljem kreacije, u praktičnom i aktivnom učenju, a djevojčice za rješavanje zadataka i za komunikaciju (Noble i Bradford, 2002). Internet, kao novi medij za učenje u 21. stoljeću, pruža učenicima brojne nove mogućnosti, ovisno o načinu njegova korištenja. Traženje informacija kao poželjna aktivnost na internetu pozitivno utječe na školske ishode i dječaka i djevojčica (Chen i Fu, 2009). I druga su istraživanja pokušavala pronaći pojedinačne razlike u preferiranim stilovima učenja djevojčica i dječaka. Razmatrale su se još razlike u vizualnom i auditornom učenju (Wiens, 2006), induktivnom i deduktivnom stilu učenja (Gurian i sur., 2011), odnosno razlike monotonijim i dinamičnijim sadržajima.

Jedna od zanimljivijih spoznaja dosadašnjih istraživanja jest da dječaci u školskom kontekstu češće imaju osjećaj dosade, što je po nekim autorima posljedica razlika

u pobuđenosti živčanog sustava (Ellis, 2011). Dječaci imaju pobuđeniji živčani sustav, pa trebaju raznolikije i snažnije podražaje iz okoline kako bi im se održala optimalna razina pobuđenosti. Ako školska okolina nije u mogućnosti ponuditi dovoljan broj optimalnih podražaja, raste vjerojatnost da će učeniku u takvoj okolini postati dosadno. Tada ne samo da će odustati od učenja već je prilično izvjesno da će se početi ponašati na način koji će biti u interferenciji s ciljevima i procesom nastave. Znamo li kako je dječacima tijekom učenja potrebno više prostora i više kretanja (Gurian i sur., 2011), onda dolazimo do još jedne pretpostavke o mogućim razlozima slabijeg školskog uspjeha dječaka. Rezultati istraživanja o strategijama učenja na otvorenom, koje je provela Carrier (2009), potvrđuju u određenoj mjeri ta očekivanja. Ovo je istraživanje ukazalo na prednosti takvih strategija i za dječake i za djevojčice, pri čemu su rezultati upućivali na to da bi uvođenje više aktivnosti na otvorenom u kurikulum osnovnih škola zasigurno popravilo ocjene dječaka.

Kao što je naznačeno, i dječaci i djevojčice imaju određene prednosti ali i određene nedostatke u mogućnostima i načinima učenja (Gang i Guiyang, 2000). Po međusobnom utjecaju, te prednosti i nedostaci su ponekad i suprotstavljeni u svome djelovanju. Za razumijevanje postojeće obrazovne prakse, a posebno za bolje planiranje obrazovne politike, presudne su spoznaje značajnog broja istraživanja. U njima je demonstrirano da je u trenutnim okolnostima stil učenja koji preferiraju djevojčice u većoj mjeri sličan proklamiranom, poželjnom stilu učenja koji se od učenika traži u školi. Djevojčice su, među ostalim, i zbog tih razloga u odnosu na dječake u određenoj prednosti i lakše dosežu postavljene obrazovne ishode (Ellis, 2011; Gurian i sur., 2011).

Dakle, može se zaključiti kako su djevojčice, zbog obilježja i preferencija koje posjeduju, bolje prilagođene današnjoj nastavnoj okolini i postojećim školskim zahtjevima. Ako bi nastavni kurikulum obuhvaćao više aktivnosti koje odgovaraju stilu učenja dječaka, kao što je na primjer praktičan rad, učenje na otvorenom i slično, moguće je pretpostaviti da bi u tom slučaju dječaci dosežali bolje školske ishode. Ne iznenađuje stoga što pojedini stručnjaci sve glasnije predlažu da se uvede diferencijacija strategija poučavanja s obzirom na spol učenika, kako bi se zadovoljile potrebe i dječaka i djevojčica, te im zajamčile jednake pretpostavke i uvjete za uspjeh. To bi zasigurno otvorilo niz novih pitanja i problema, koji nisu obuhvaćeni ovim radom i nećemo se na njih ovdje osvrutati. Ono što je sasvim sigurno jest da sve iznesene spoznaje upućuju na opravdanu potrebu da se u području obrazovanja to važno pitanje u još većoj mjeri razmotri i empirijski provjeri (Magon, 2009).

Kvalitet interakcije kao osnova školskog postignuća učenika

Naposljetku, izložiti ćemo još jedno potencijalno objašnjenje razlika u školskom postignuću dječaka i djevojčica, koje polazi od strukturalnih promjena do kojih je posljednjih desetljeća došlo u većini obrazovnih sustava. Naime, u većini današnjih

obrazovnih sustava prilično je izražen trend spolnog unificiranja učiteljskog poziva jer po dostupnim statističkim podacima žene postaju značajna većina unutar učiteljskog korpusa (Francis i Skelton, 2005). Ta statistička činjenica u svjetlu postojećih spoznaja kako su djevojčice uspješnije od dječaka u današnjim školama otvara prostor za intrigantno objašnjenje spolnih razlika u postignućima djevojčica i dječaka koje se temelji na očekivanju da učiteljice, koje prevladavaju na svim razinama osnovne i srednje škole, utječu na postignuća dječaka na nepovoljan način, odnosno obratno, da u nekoj mjeri utječu stimulirajuće na bolja školska postignuća djevojčica.

Nekoliko je pokušaja da se objasni točan mehanizam tog utjecaja učiteljica na postignuća djevojčica i dječaka. Prvi se temelji na razlikama u interakciji koje u školskom kontekstu ostvaruju učenice, odnosno učenici sa svojim učiteljima i učiteljicama. Naime, pojedine su studije pokazale da učitelji, odnosno učiteljice različito strukturiraju vlastite interakcije s učenicama i učenicima (Drudy i Ui Chatain, 2002; Duffy, Warren i Walsh, 2001; Koca, 2009). Kada je riječ o poželjnim preferencijama, smjer zaključaka nije jednak. Rezultati pojedinih istraživanja ukazuju na mogućnost da se u interakciji preferiraju učenici (Duffy, Warren i Walsh, 2001) i da se u slučaju djevojčica potiče pasivnost, što u školskom kontekstu potiče praksu da se s njima manje verbalno komunicira (La France, 2001). Nešto određenije, Einarsson i Granstrom (2002) u svom istraživanju smatraju kako su samo učiteljice te koje posvećuju više pozornosti dječacima, a učitelji pozornost posvećenu djevojčicama povećavaju s porastom školskih razreda. Suprotno tom objašnjenju, neka druga istraživanja su pokazala da djevojčice ostvaruju više pozitivnih reakcija, kao i više verbalne interakcije, i kod učitelja i kod učiteljica (Davis, 2000).

Uz količinu interakcije do koje dolazi u školskom okruženju, za moguće objašnjenje spolnih razlika u postignućima možda je još važnija kvaliteta i vrsta komunikacije učitelja, odnosno učiteljica s učenicama i učenicima. Dodatno, socijalno značenje koje učitelj ili učiteljica kao svojevrsni modeli mogu predstavljati dječacima i djevojčicama, može također poticati ili prigušivati njihovu bolju izvedbu u školi. Istraživanje koje je proveo Dee (2006) pokazalo je da djevojčice ostvaruju bolje rezultate ako ih podučava učiteljica, a dječaci ako ih podučava učitelj. Slično navedenome, Ammermüller i Dolton (2006) zaključili su kako prisustvo učitelja ima posebno povoljan efekt na uspjeh dječaka u znanosti i matematici.

Nastojeći empirijski provjeriti utemeljenost iznesenih očekivanja i hipoteza, pojedina istraživanja nisu uspjela demonstrirati značajnost utjecaja spola nastavnika na obrazovna postignuća dječaka i djevojčica (Burušić, Babarović i Šerić, 2012; Carrington, Francis, Hutchings, Skelton, Read i Hall, 2007; Driessen, 2007; Francis, Skelton, Carrington, Hutchings, Read i Hall, 2008; Marsh, Martin i Cheng, 2008).

Uzimajući u obzir ishode tih istraživanja, sasvim je jasno da oni po sebi nisu dovoljan razlog za odbacivanje pretpostavke o važnom utjecaju spola učitelja na

postignuća učenica i učenika, već su poticaj za daljnja istraživanja, tim više jer se postojeće stanje u kojem u obrazovnim sustavima dominiraju učiteljice zasigurno u skorije vrijeme neće značajnije promijeniti.

U budućim istraživanjima koja će nastojati razumjeti i objasniti interakciju 'učitelj-učenik', zbog potpunijeg uvida, u obzir bi trebalo svakako uzeti veći broj potencijalno važnih obilježja, što je predstavljalo priličan nedostatak u većini dosadašnjih istraživanja. Uz spol učenika i učitelja u tom bi odnosu trebalo utvrditi i važnost utjecaja obilježja kao što su sposobnosti učitelja, razine nastavnčkih i interpersonalnih vještina povezanih s boljim ishodima učenja ili, recimo detaljnije, razmotriti ulogu koju učiteljska iskustva mogu imati u nastavi (Carrington i sur. 2007).

Zaključak

U radu su izložene spoznaje većeg broja istraživanja i studija o školskom ponašanju djevojčica i dječaka. Njihovim analiziranjem i uspoređivanjem vidljivo je kako je moguće pronaći šest opširnijih skupina potencijalnih razloga koji objašnjavaju bolju uspješnost učenica u odnosu na učenike. Svako od tih objašnjenja pruža određeni pogled na fenomen spolnih razlika kojim je moguće osvijetliti jedan dio razloga zbog kojih do njih dolazi, odnosno mehanizama kako se uspostavljene razlike održavaju.

Najčešće su razmatrane razlike u postignućima iz matematike i jezika zbog čega ih se često nastojalo objasniti s pomoću razlika u specifičnim kognitivnim sposobnostima. Iako su dječaci obično bolji u specijalnim zadacima (Baron-Cohen, 2005; Crucian i Berenbaum, 1998), i imaju više numeričke sposobnosti (Baron-Cohen, 2005; Calvin i sur., 2010; Hyde, 2005), a djevojčice postižu bolje rezultate u zadacima verbalnih sposobnosti (Baron-Cohen, 2005; Gang i Guiyang, 2000), spolne razlike u sveukupnom školskom postignuću i dalje se ne mogu u potpunosti objasniti navedenim sposobnostima (Calvin i sur., 2010; Spinath i sur., 2008). Osim kognitivnih sposobnosti fokus istraživanja bio je i na spolnim razlikama u ličnosti, posebno u savjesnosti, te na razumijevanju motivacije vezane uz školu. Utvrđeno je da su navedeni konstrukti od velike važnosti za školske ishode (Bätz i sur., 2010; Bratko i sur., 2006; Hair i Graziano, 2003; Hakimi i sur., 2011; Laidra i sur., 2007; Poropat, 2009; Steinmayr i Spinath, 2008), ali su rezultati vezani uz objašnjenje spolnih razlika često nejednoznačni.

Kako je većina istraživanja provedena u SAD-u, Ujedinjenom Kraljevstvu ili Australiji, današnje spoznaje o tom problemu primarno su vezane uz obrazovne kontekste tih zemalja, a tek su manjim dijelom iznesena i dostupna empirijska iskustva dobivena izvan tih sustava. Takvo je stanje u osnovi rezultat razvijenosti istraživačkih zajednica u području obrazovanja u pojedinim dijelovima svijeta. Istraživanja izvan navedenih zemalja u pravilu upućuju na sličnu situaciju i drugdje u svijetu, što ide u prilog općitnosti navedenih spoznaja (Demie, 2001).

U radu je razmotrena i pretpostavka da je mogući odgovor na pitanje o spolnim razlikama u školskim postignućima između djevojčica i dječaka u specifičnijim, uže definiranim vještinama i kompetencijama. U ovom području istraživanja dobivaju se vrlo jasni rezultati, pa se većina stručnjaka slaže kako djevojčice češće karakteriziraju osobine kao što su samodisciplina (Duckworth i Seligman, 2006; Hicks i sur., 2008) i samoregulacija (Cleary i Chen, 2009; Matthews i sur., 2009). Djevojčice također ulažu više truda u izvršavanju školskih obveza i manje su sklone ponašanju koje je ometajuće za nastavu (Kenney-Benson i sur., 2006). Budući da su te specifične vještine od velike važnosti za školske ishode (Blair i Peters Razza, 2007), one ujedno predstavljaju buduće područje istraživanja u kojem bi se potpuno razjasnile razlike između dječaka i djevojčica u obrazovnom postignuću. Pri tome se treba koristiti većim brojem istraživačkih pristupa i metoda, zbog čega je potrebno osigurati podatke iz više izvora kako bi se došlo do odgovarajućih zaključaka (Duckworth i Seligman, 2005).

Nešto kontroverzniju spoznaju čine rezultati koje je u svojem istraživanju dobio Dee (2006), a koji sugerira da djevojčice ostvaruju bolje rezultate ako ih podučava učiteljica, a dječaci ako ih podučava učitelj. Slične rezultate dobili su i Ammermüller i Dolton (2006). Budući da u današnjim školama radi znatno veći broj učiteljica nego učitelja, ti su rezultati, ako se potvrde točnima, zabrinjavajući za školski uspjeh dječaka (Dee, 2006). No, rezultati brojnih drugih istraživanja govore o neznačajnosti utjecaja spola učitelja na školska postignuća dječaka i djevojčica (Burušić i sur., 2012; Carrington i sur., 2007; Driessen, 2007; Francis i sur., 2008; Marsh i sur., 2008). Na kraju, ovaj pregledni rad osim vrijednosti koja se očituje u pružanju presjeka dosadašnjih istraživanja određenog fenomena, ima i stanovitu poticajnu vrijednost za buduća istraživanja. Temeljitim razmatranjem svih izloženih spoznaja, više je nego jasno kako se nameće potreba da se u ovom području počnu razmatrati i posredujući utjecaji drugih obilježja koji bi mogli biti značajniji za razumijevanje školskih ishoda učenika i učenica. U budućim razmatranjima bi svakako trebalo istražiti utjecaj obilježja kao što su obrazovanje učitelja uz njihove sposobnosti, iskustvo, kompetencije i vještine, kao i niz obilježja koja ukazuju na složenu dinamiku obiteljskih i socijalnih odnosa. Osim toga, buduća istraživanja i razmatranja fenomena spolnih razlika u školskim postignućima djevojčica i dječaka trebala bi se u većoj mjeri zaokupiti interakcijskim utjecajem i razmatranjem većeg broja obilježja istodobno, što je očiti nedostatak većine dosadašnjih istraživanja.