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SELF-EFFICACY AND ACHIEVEMENT GOALS AS PREDICTORS OF HIGH-SCHOOL STUDENTS' ACADEMIC PERFORMANCE

Summary: *It has long been recognized that students' school performance is determined not only by their cognitive abilities, but even more importantly by their motivation, achievement goals and perceived self-efficacy. The present study explored the relationship between academic self-efficacy, school achievement and four achievement goals of high-school students. The obtained results indicated a significant effect of age on students' grade point average as well as significant effects of gender on students' performance in the Croatian language, their grade point average, self-efficacy and three achievement goals (mastery, performance and social relations). Furthermore, the obtained results indicated a high correlation between self-efficacy and mastery goal orientation, while self-efficacy was once again identified as the most important predictor of school performance in all researched areas.*

Keywords: *academic self-efficacy, achievement goals, motivation, school achievement.*

1. Introduction

In accordance with modern educational theories based on the co-constructivist curriculum and the creative-innovative humanistic education paradigm, a holistic

approach to monitoring student achievements is advocated in the field of school evaluations and testing (*National Curriculum Framework*, 2010). This means that student interests and abilities should be considered both during teaching and evaluating student accomplishments. Consequently, the recently defined Croatian national educational curriculum (*National Curriculum Framework*, 2010) states that, in addition to qualitative and quantitative appraisal of all, both written and oral student reports, their abilities, efforts, motivation and displayed participation should also be valued. In this context, some authors argue that school achievement can be explained using two outlooks, one of which refers to the external perspective based on academic success or grades, and the second, internal, which is based on subjective appraisal of one's achievement in academic, personal and interpersonal situations (Bašić, Kranželić Tavra, 2004; Buljubašić Kuzmanović, Botić, 2012). These suggestions reflect the idea that student success is determined not only by their cognitive abilities, but also by motivation, social relations in school, personality traits, self-efficacy as well as some developmental idiosyncrasies. Therefore, in order to develop modern classrooms that promote individualized learning and teaching, as well as individualized goals, contents and activities necessary for meeting the abilities and interests of all students (Matijević, Radovanović, 2011), it is important to define and study key elements that contribute to both internal and external aspects of school success. Also, it is important to study how these factors' contributions depend on student demographic characteristics, such as age and gender, as well as the teaching content, namely different school subjects. For example, students' learning motivation changes during development, and this may lead to a shift in interests as well as academic self-image and self-efficacy in different school subjects. In order to design school programs that will meet such changed interests and make the best use of students' internal motivation, it is important to determine which factors contribute to learning quality, academic achievement and student self-image. Given that these changes may be most pronounced during adolescence when children experience profound biological, personal and social changes, the current study focused on students of this developmental stage. Specifically, it addressed the importance of self-efficacy and achievement goals in explaining individual differences in school performance of high-school students.

Numerous studies dedicated to self-efficacy and motivation in an academic

context have shown that motivation, self-efficacy and achievement goals represent some of the most important factors of academic behavior that are strongly linked with individuals' attributions of own success, safety and well-being, demonstrating that student self-image is crucial for success and failure in the academic context (Pajares, 2003; Nielsen, 2009). Furthermore, it has repeatedly been demonstrated that higher perceived self-efficacy leads to higher academic motivation allowing the individual to choose more challenging goals and tasks, and that students with high self-efficacy are more dedicated to completing their goals and achieving more in an academic context (Bandura, 1993, 1999; Schunk, 1991; Ferla et al., 2009; Pintrich, De Groot, 1990; Schunk, 1995; Pajares, 1996; Chemers et al., 2001). Self-efficacy also correlates with self-regulation, especially with the ability to appropriately choose efficient learning strategies (Schunk, Pajares, 2001). Specifically, self-regulation skills are not beneficial if the individual himself/herself is not convinced of his/her abilities and the potential for applying his/her skills in stressful, demanding and challenging situations, thus implying that higher degrees of motivation, activity and success are more dependent on personal beliefs regarding own abilities than the objective level of those abilities itself (Bandura, 1993, 1999). In addition, it has been shown that beliefs about self-efficacy can influence individuals' commitment to achieving the desired goals (Zimmerman, 1995). Specifically, individuals with low self-efficacy for achieving tasks and goals avoid these more often than those who believe in own abilities and are willing to participate in completing the chosen tasks (Bandura, 1993). Different studies have shown that individuals with low self-efficacy are more prone to using avoidance strategies, while high self-efficacy individuals are more directed towards solving problems, using different sources of information and actively searching for help during problem solving, which predisposes them to higher achievement in the academic context (Lane et al., 2004). Individuals with a sense of high self-efficacy work more, persist more when faced with difficulties, are more prosocial, more popular and feel less rejected by colleagues in contrast to low self-efficacy individuals (Bandura, 1977, 1993, 1997).

Together with self-efficacy, motivation and achievement goals represent additional factors that contribute to better school achievement. Based on results showing that understanding individual motivation for achieving certain

learning goals is crucial for efficient learning and achieving success in the academic context, it can be concluded that during class planning and teaching one has to give special attention to students' feelings and their satisfaction during learning in order to make that learning longer, more intensive and effective (Pintrich, De Groot, 1990; Glynn et al., 2005). Also, students' motivation is important because personal beliefs regarding task relevance and interest influence their use of metacognitive strategies and the invested effort in performing the task at hand (Pintrich, De Groot, 1990). One of the most influential approaches for understanding students' motivation for achieving different academic learning goals, the achievement goal approach, defines a set of motivational beliefs that develop under the influence of parents', teachers' and peers' values and expectations and represent goals in achievement situations (Rupčić, Kolić Vehovec, 2004). In accordance with this approach, modern theories view academic motivation as a multidimensional concept in which personal incentives and individual's wishes are equally important as environmental and social factors (Maehr, 1984; Glynn et al., 2005). For instance, personal investment theory (Maehr, 1984; Maehr, Braskamp, 1986) describes how students' motivation is influenced by personal characteristics and situational factors, and defines individual investment as the amount of one's true commitment to performing certain activities. This theory includes four fundamental components of motivation that include personal incentives, self-image and perceived abilities of the individual, specific context in which the individual is set, as well as the satisfaction with the accomplished work and professional dedication. Goals are defined as students' perception and beliefs regarding the meaning and purpose of academic work, achievement and success, and they represent an important explanation of student motivation (Urdan, Maehr, 1995). This theory distinguishes four motivational goals that include mastery, performance, social solidarity (social relations) and extrinsic goals (Maehr, 1984; McInerney et al., 1997; McInerney et al., 2003). These are relatively stable across different situations and represent achievement goals that guide students in various contexts (Urdan, Maehr, 1995). These judgments then influence other motivational beliefs such as causal attributions, emotions and behavior. Among these, social relations achievement goal is correlated with gaining others' approval, feeling of belongingness to a group and caring for

others. Performance or ego-goals are competitive in nature, and are correlated with achieving socially determined standards and striving for leadership within a group. Extrinsic achievement goal (token and praise) is correlated with rewards and praises received from others, while mastery orientation includes goals directed at learning, knowledge, task and effort. Most researchers emphasize the relevance of this goal and refer to it as a "learning or knowledge orientation" because students who use it utilize self-regulated learning as well as deep processing strategies, recognize success as the result of own work, experience more positive emotional experiences and self-appraisals, and are more likely to take responsibility for own failure (Rupčić, Kolić Vehovec, 2004; Covington, 2000; Urdan, Maehr, 1995).

2. Aim of the study

The aim of this study was to investigate the relationship between academic self-efficacy, four different types of achievement goals and school achievement of high-school students. Specifically, we investigated differences in academic self-efficacy, achievement goals and school achievement among adolescents of different age and gender. In addition, we aimed to determine the relative contributions of academic self-efficacy and different achievement goals to adolescents' three target school performance indicators.

3. Methods

Among 234 adolescents, high-school students in first (33%) and fourth grades (67%) who participated in this study, 35% were male and 65% female. They were approached at school where they completed the prepared questionnaires. Several questionnaires were used in this study: a *General Demographics Questionnaire, Morgan-Jinks Student Efficacy Scale and The Inventory of School Motivation.*

In the *General Demographics Questionnaire*, information regarding participants' gender, age (attended grade) and several school performance indices (individual grades in Mathematics and Croatian language, and grade point average) were collected.

The *Morgan-Jinks Student Efficacy Scale* (MJSES, Jinks, Morgan, 1999) is a questionnaire designed for measuring academic self-efficacy of young adolescents whose original form includes three subscales (talent, context and effort). In the present study a short, 16-item form of the scale was used (Dimmitt, 2007) in which participants rated their agreement with each item using a 4-point scale. Four items that showed unsatisfactory loadings on identified factors were excluded from the analysis and participants' scores were calculated based on the remaining twelve items. Possible range of scores on this scale was 12-48, with an average score of 35.7 (SD=4.78), and its reliability measured using Cronbach α coefficient was 0.77.

The Inventory of School Motivation (ISM; McInerney, Sinclair, 1991, 1992; McInerney et al., 1997; McInerney, Yeung, McInerney, 2001) is a 43-item questionnaire that measures four types of achievement goal orientations: mastery (task and effort), performance (competition and social power), social relations (affiliation and social concern), and extrinsic goals (praise and token). Participants' scores were calculated for each of these goal types using participants' ratings on 4-point items belonging to each ISM subscale. Mastery subscale consisted of 11 items, performance and extrinsic goals subscales consisted of 12 items each, and finally, social relations subscale consisted of 8 items. Obtained range of scores on the subscale for mastery goal was 19-44, with an average score of 32.6 (SD=5.10), and its reliability measured using Cronbach α coefficient was 0.84. Range of scores on the subscale for performance goal was 12-43, with an average score of 23.9 (SD=6.13), and its reliability measured using Cronbach α coefficient was 0.85. Range of scores on the subscale for social relations goals was 11-36, with an average score of 28.2 (SD=4.14), and its reliability measured using Cronbach α coefficient was 0.79. Finally, range of scores on the subscale for external goals was 11-44, with an average score of 25.5 (SD=7.10), and its reliability measured using Cronbach α coefficient was 0.89.

4. Results

In order to examine differences in academic self-efficacy, achievement goals and school achievements among adolescents of different age and

gender several two-way analyses of variance (two-way ANOVAs) were used. First, the effects of age and gender were calculated on dependent variables representing four types of achievement goals (mastery, performance, social relations and extrinsic goals). The obtained results are presented in table 1. They indicate statistically significant main effects of gender on three achievement goals: mastery, performance and social relations goals. Specifically, girls showed higher social relations and mastery, and lower performance achievement goals than boys.

Table 1 – *Results of two-way ANOVAs used for testing the effects of gender and age on four achievement goals*

			N	M	SD	F
MASTERY	Gender	Male	81	2.77	0.48	22.71**
		Female	153	3.06	0.42	
						(1,230)
	Age	1. grade	78	2.97	0.51	0.08
		4. grade	156	2.96	0.44	
						(1,230)
	Interaction	Male, 1. grade	31	2.75	0.55	0.94
		Female, 1. grade	47	3.12	0.44	
		Male, 4. grade	50	2.79	0.44	
		Female, 4. grade	106	3.04	0.42	(1,230)
			N	M	SD	F
PERFORMANCE	Gender	Male	81	2.15	0.48	8.13**
		Female	153	1.91	0.51	
						(1,230)
	Age	1. grade	78	2.10	0.53	2.82
		4. grade	156	1.93	0.49	(1,230)
	Interaction	Male, 1. grade	31	2.16	0.54	
		Female, 1. grade	47	2.05	0.53	1.79
		Male, 4. grade	50	2.14	0.45	(1,230)
		Female, 4. grade	106	1.84	0.48	
			N	M	SD	F
SOCIAL RELATIONS	Gender	Male	81	2.97	0.45	12.24**
		Female	153	3.22	0.44	
						(1,230)
	Age	1. grade	78	3.12	0.47	0.09
		4. grade	156	3.14	0.46	(1,230)
	Interaction	Male, 1. grade	31	3.03	0.42	
		Female, 1. grade	47	3.18	0.49	1.62
		Male, 4. grade	50	2.93	0.47	(1,230)
		Female, 4. grade	106	3.24	0.42	
			N	M	SD	F
EXTRINSIC GOALS	Gender	Male	81	2.40	0.73	1.46
		Female	153	2.27	0.59	
						(1,230)
	Age	1. grade	78	2.44	0.66	3.23
		4. grade	156	2.26	0.63	
						(1,230)
	Interaction	Male, 1. grade	31	2.49	0.75	
		Female, 1. grade	47	2.40	0.59	0.06
		Male, 4. grade	50	2.35	0.73	(1,230)
		Female, 4. grade	106	2.22	0.58	

*p<.05; **p<.01

In addition, the effects of age and gender were calculated on additional four dependent variables, namely self-efficacy and three school performance indicators (grades in Mathematics, Croatian language and grade point average). The obtained results presented in table 2 indicate a significant effect of gender on self-efficacy, as well as students' performance in Croatian language and their grade point average (GPA). Specifically, girls showed higher academic self-efficacy and had better GPA and grades in Croatian language. In addition, age showed a significant effect on GPA and grades in Mathematics: younger students had higher scores on both variables. Finally, a significant interaction effect was obtained for Croatian language: while girls had better school performance in Croatian in the first grade, there was no significant difference between girls' and boys' performance in fourth grade.

Table 2 – *Results of two-way ANOVAs used for testing the effects of gender and age on academic self-efficacy and school performance in Croatian, Mathematics and grade point average*

			N	M	SD	F
SELF-EFFICACY	Gender	Male	81	2.88	0.48	9.59**
		Female	153	3.03	0.35	
						(1,230)
	Age	1. grade	78	2.99	0.43	0.008
		4. grade	156	2.97	0.39	
						(1,230)
	Interaction	Male, 1. grade	31	2.83	0.51	2.25
		Female, 1. grade	47	3.09	0.34	
		Male, 4. grade	50	2.91	0.46	
		Female, 4. grade	106	3.00	0.39	
						(1,230)
			N	M	SD	F
CROATIAN	Gender	Male	81	3.44	0.85	21.40**
		Female	153	3.92	0.85	
						(1,230)
	Age	1. grade	78	3.85	0.87	0.77
		4. grade	156	3.71	0.88	
						(1,230)
	Interaction	Male, 1. grade	31	3.35	0.71	4.28*
		Female, 1. grade	47	4.17	0.82	
		Male, 4. grade	50	3.50	0.93	
		Female, 4. grade	106	3.81	0.85	(1,230)
			N	M	SD	F
MATHEMATICS	Gender	Male	81	3.06	1.03	2.40
		Female	153	3.19	1.18	
						(1,230)
	Age	1. grade	78	3.53	1.15	10.73**
		4. grade	156	2.96	1.08	
						(1,230)
	Interaction	Male, 1. grade	31	3.23	0.96	2.55
		Female, 1. grade	47	3.72	1.23	
		Male, 4. grade	50	2.96	1.07	
		Female, 4. grade	106	2.95	1.09	(1,230)
			N	M	SD	F
GRADE POINT AVERAGE	Gender	Male	81	3.89	0.63	5.7*
		Female	153	4.05	0.69	
						(1,230)
	Age	1. grade	78	4.23	0.58	13.3**
		4. grade	156	3.88	0.68	
						(1,230)
	Interaction	Male, 1. grade	31	4.03	0.48	1.33
		Female, 1. grade	47	4.36	0.60	
		Male, 4. grade	50	3.80	0.70	
		Female, 4. grade	106	3.92	0.68	(1,230)

*p<.05; **p<.01

In addition, cross-correlations among measured variables were calculated. These results are presented in table 3. The obtained results indicate the highest correlations links between all school performance indicators and self-

efficacy, as well as, in case of GPA and Croatian language, mastery achievement goals. In contrast, other achievement goals didn't correlate with any of the achievement variables.

Table 3 – *Correlation matrix for the tested variables*

	Gender	Croatian	Math	GPA	Self-efficacy	Mastery	Performance	Social relations	External goals
Age	0.08	-0.07	-0.24*	-0.25*	-0.02	-0.01	-0.15*	0.02	-0.13*
Gender		0.26*	0.05	0.12	0.18*	0.29*	-0.23*	0.26*	-0.10
Croatian			0.47*	0.66*	0.32*	0.33*	-0.01	0.08	0.02
Math				0.69*	0.32*	0.12	0.04	-0.10	-0.02
Grade point average (GPA)					0.40*	0.25*	0.08	-0.01	0.06
Self-efficacy						0.51*	0.28*	0.04	0.10
Mastery goals							0.04	0.32*	0.08
Performance goals								-0.07	0.50*
Social relations									0.13
External goals									

*p<.01

In order to investigate the relationship among the measured variables in more detail, and to determine the relative contributions of academic self-efficacy and achievement goals to adolescents' three target school performance indicators, a hierarchical regression analysis was used. Three different hierarchical regression analyses were performed, using three different school performance indicators as criteria. In the first step of all analyses gender and age were introduced as predictors, after which self-efficacy was introduced in the second, and four achievement goals in the final, third step of the analysis. The obtained results for Mathematics are presented in table 4, for Croatian in table 5, and for grade point average in table 6.

able 4 – *Results of the hierarchical regression analysis using grades in Mathematics as a criterion*

	R	R^2	ΔR^2	F (df)	β	(β)
Step 1	0.25	0.06		7.60 (2.231)		
Gender					0.07	
Age					-0.24**	-0.25**
Step 2	0.40	0.16	0.10**	14.52 (3.230)		
Self-efficacy					0.32**	0.37**
Step 3	0.43	0.18	0.02	7.17(7.226)		
Mastery					-0.04	
Performance					-0.08	
Social relations					-0.10	
External goals					-0.04	

*p<.05; **p<.01

R – multiple correlation coefficient

R^2 – variance explained by the predictors

ΔR^2 – variance explained by individual predictors

β - β coefficient in the step when a variable was first introduced

(β) – β coefficient in the last step

Table 5 – *Results of the hierarchical regression analysis using grades in Croatian language as a criterion*

	R	R^2	ΔR^2	F (df)	β	(β)
Step 1	0.27	0.07		9.37 (2.231)		
Gender					0.27**	0.17**
Age					-0.09	
Step 2	0.39	0.15	0.08**	13.86 (3.230)		
Self-efficacy					0.28**	0.22*
Step 3	0.42	0.18	0.03	7.04 (7.226)		
Mastery					0.18*	0.18*
Performance					-0.08	
Social relations					-0.03	
External goals					0.03	

*p<.05; **p<.01

R – multiple correlation coefficient

R^2 – variance explained by the predictors

ΔR^2 – variance explained by individual predictors

β - β coefficient in the step when a variable was first introduced

(β) – β coefficient in the last step

Table 6 – *Results of the hierarchical regression analysis using grade point average as a criterion*

	R	R^2	ΔR^2	F (df)	β	(β)
Step 1	0.28	0.08		10.03 (2.231)		
Gender					0.14*	
Age					-0.26**	-0.25**
Step 2	0.47	0.22	0.14**	21.76 (3.230)		
Self-efficacy					0.38**	0.37**
Step 3	0.48	0.23	0.01	9.57 (7.226)		
Mastery					0.06	
Performance					-0.07	
Social relations					-0.06	
External goals					0.04	

*p<.05; **p<.01

R – multiple correlation coefficient

R^2 – variance explained by the predictors

ΔR^2 – variance explained by individual predictors

β - β coefficient in the step when a variable was first introduced

(β) – β coefficient in the last step

5. Discussion

The present study investigated the relationship between academic self-efficacy, different types of achievement goal orientations and school performance of high-school students. The obtained results indicated significant effects of gender on self-efficacy, three achievement goals (mastery, performance and social relations) as well as students' performance in the Croatian language and their grade point average (GPA). In addition, age showed a significant effect on students' GPA. A significant interaction effect was also obtained for the Croatian language: while girls had better school performance in Croatian in the first grade, there was no significant difference between girls' and boys' performance in the fourth grade. The correlation analysis indicated the strongest links between all school performance indicators and self-efficacy, as well as, in case of the GPA and Croatian, mastery achievement goals.

The first goal of this study was to investigate the influence of gender on students' goal orientations, school performance and self-efficacy. With regard to school performance, girls achieved a higher GPA and higher grades in their native language, which is in line with numerous previous findings (Pomerantz et al., 2002; Baharudin, Zulkefly, 2009; Reić Ercegovac, Koludrović, 2010; Raboteg-

Šarić et al., 2009). It is well recognized that throughout their education girls show better school achievement measured using school grades, although gender differences observed during externally evaluated performance depend on student age and school subject (Jokić, Ristić Dedić, 2010). This suggests a bias in the school grading system in the sense that grades might reflect not only acquired knowledge, but also some additional factors. For example, it is possible that student grading is more often organized using methods in which girls may be more fluent, or that final grades reflect a mix of acquired knowledge, invested effort and student class discipline. However, since in the present study student achievement was measured using school grades, girls were expected to show a systematically higher performance in all areas. The analysis of gender differences only partly corroborated these expectations. Specifically, the obtained results indicate that girls had a better GPA and grades in Croatian language, but not in Mathematics. However, gender differences related to grades in Croatian were revealed only in the first grade, as indicated by a significant interaction effect of gender and age.

In addition to school performance, the present study also investigated gender differences in achievement goals and self-efficacy. Although some previous studies did not identify significant gender differences in goal orientations (Rashidi, Javanmardi, 2012; Smith, Sinclair, 2005; Ryan, Pintrich, 1997), the majority of findings indicate that girls show more pronounced mastery and social relations goal orientations than boys (Dekker et al., 2012; Raboteg-Šarić et al., 2009), while boys typically develop a more pronounced performance goal orientation (Russilo, Casanova Arias, 2004; Anderman, Anderman, 1999; Midgley, Urdan, 1995; Patrick et al., 1999). A similar pattern of gender differences in goal orientations was expected in the present study. These expectations were corroborated, as the obtained results indicate that girls showed higher social relations and mastery, and lower performance achievement goals than boys, while no differences were identified with respect to extrinsic goals. Mastery represents a goal orientation that most authors associate with positive educational outcomes (Pintrich, 2000), which may be related to a significantly better school performance identified among girls. The connection between mastery achievement goal and positive educational outcomes, i.e. higher grades, is mediated by learning strategies practiced by

students with a dominant mastery orientation. Specifically, these students use more efficient learning strategies (Elliot, McGregor, 2001; Greene et al., 2004) that include a higher focus during class, deeper information processing and a tendency to search for structure and meaning in class materials. Besides more efficient cognitive strategies, mastery goal orientation is associated with higher level of self-regulation during learning, as well as more persistence and interest during learning (Noar et al., 2005; Anderman, Wolters, 2006).

Finally, girls showed higher self-efficacy in comparison with boys, which is in line with previous findings regarding general academic self-efficacy (Britner, Pajares, 2001; Reić Ercegovac, Kuludrović, 2010). This may be related to a higher mastery orientation that has been identified among girls, and previous studies showing that self-efficacy beliefs influence student goal orientations (Elliot, Harackiewicz, 1996) such that higher self-efficacy is associated with higher mastery orientation.

The explored influence of age on student school performance, self-efficacy and achievement goal orientations revealed age differences with respect to GPA and grades in Mathematics such that younger students had higher scores, while no significant age effect was identified with respect to other investigated variables. These results were expected given previous research that indicated a decline of school performance with age (Reić Ercegovac, Koludrović, 2010; Rowlison, Felner, 1988, Dubow et al., 1991). This may be related to a decline in invested effort and motivation that is often seen among older students (Eccles et al., 1989; Eccles et al., 1993). Specifically, older students may develop broader interests and consequently commit to more specific educational areas that are often not promoted in traditional schools who then fail to adequately respond to students' needs. A decline of school performance with age may also be related to students' more critical attitude towards formal education that is often perceived as not interesting or challenging enough. This interpretation was advocated by Raboteg Šarić et al. (2009.) who reported a comparable age-related decline in school performance among elementary school students.

In contrast to school performance, age differences were not identified with respect to achievement goal orientations and self-efficacy. Previous studies investigating age differences in academic self-efficacy have shown mixed results, as some findings indicate higher self-efficacy among older (Shell at al.,

1995; Zimmerman, Martinez-Pons, 1990), and some among younger students (Lončarić, 2010). An absence of age differences with respect to self-efficacy in the present study may also be related to the fact that it investigated students' general, and not area-specific academic self-efficacy in which more pronounced age differences would be expected. Specifically, area-specific academic self-efficacy represents a more unequivocal and somewhat better defined construct that individuals may assess rather easily. In contrast, it is plausible to doubt whether students are able to accurately assess their general self-efficacy, especially if they show different school performance and associated self-efficacy across different subjects. In these cases it is not clear whether students asses their self-efficacy through a holistic integration of self-efficacy in different subjects, or if they use some areas, possibly more salient ones with best or worst success, as reference points. These differences in strategic assessment of global self-efficacy may influence the obtained results, and the resultant variability in the collected data could easily mask potential differences that exist in specific self-efficacy across different subjects.

With regard to goal orientations, results of previous studies indicate significant age differences that are more pronounced in some age groups. While intrinsic goal orientations tend to decrease during schooling years, which is especially pronounced in early adolescence (Gottfried et al., 2001; Helmke, 1993), they stabilize during middle adolescence (Pekrun, 1993). Given that the present study focused on high-school students, age differences were not expected, which was confirmed by the obtained results.

In the present study the relevance of gender and age in explaining student school achievement was additionally corroborated by results obtained using the regression analyses. These indicated the relevance of gender, age, self-efficacy and goal orientations in explaining student performance in Mathematics, Croatian language and their GPA. The obtained results indicate age as a significant predictor of grades in Mathematics and GPA, while gender served as a significant predictor of GPA and grades in Croatian language. A crucial role in explaining student success in all assessed areas was expected for self-efficacy. Specifically, numerous previous findings indicate that higher self-efficacy results in more persistence during learning (Bandura, 1997.), the use of more efficient learning strategies (Schunk, Pajares, 2001) as well as higher

intrinsic motivation, competence and satisfaction with learning (Pintrich, De Groot, 1990; Schunk, 1990). Furthermore, some studies show a relationship between low self-efficacy and effort avoidance (Middleton, Midgley, 1997). Therefore, it is not surprising that a consistent strong relationship between self-efficacy and school performance is posited. In line with that, in the present study a significant influence of self-efficacy on student success was expected, as well as its connection to the achievement goal orientations. Specifically, a high correlation between self-efficacy and mastery orientation was expected, in addition to a lower correlation with social relations, and an absence of relationship with performance and extrinsic goals. The obtained results indeed indicate a high correlation between self-efficacy and the mastery goal, as well as a somewhat lower correlation with performance goals (table 3). While some authors state that performance orientation is not predictive of self-efficacy (Middleton, Midgley, 1997), others suggest that, comparable to mastery, this orientation may also be associated with higher self-efficacy (Pajares et al., 2000; Elliot, 1999).

Overall, the results of the conducted regression analyses indicate a key role of self-efficacy in explaining student performance in Mathematics, Croatian language and GPA, while a contribution of mastery orientation was identified with respect to Croatian language. While the role of self-efficacy was expected, a rather low contribution of mastery orientation and the lack of other orientations' influence is somewhat surprising. This is not in line with numerous previous studies that have shown the importance of goal orientations in explaining academic performance. However, the obtained results may be interpreted if a close relationship between mastery and self-efficacy is taken into account. Specifically, self-efficacy beliefs strongly influence students' goal orientations (Elliot, Harackiewicz, 1996), while goals set by students determine their behavior and learning motivation (Shim and Ryan, 2005). Students with a dominant mastery orientation typically show higher self-efficacy and are more prone to using learning strategies that include e.g., higher classroom focus or deeper information processing, and are related to better school performance (Middleton, Midgley, 1997; Pajares at al., 2000).

6. Conclusion

The present study investigated the relationship between demographic variables, namely gender and age, self-efficacy, achievement goal orientations, and student school performance. Students' school performances in two classes, Mathematics and Croatian language, as well as their grade point average, were explored. The obtained results indicate the relevance of gender and age in explaining student accomplishment such that a general trend of performance decrease with age and somewhat higher school grades among girls were identified. In addition, results indicate a high correlation between self-efficacy and mastery goal orientation, while self-efficacy was once again identified as the most important predictor of school performance in all researched areas.

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SAMOEFIKASNOST I CILJNE ORIJENTACIJE KAO PREDIKTORI AKADEMSKOG POSTIGNUĆA SREDNJOŠKOLACA

Sažetak: *Odavno je prepoznato da školsko postignuće učenika nije određeno samo kognitivnim sposobnostima, već i njihovom motivacijom, ciljevima i percipiranom samoefikasnošću. Stoga je u ovom istraživanju ispitana povezanost akademske samoefikasnosti, školskog postignuća i četiriju ciljnih orijentacija srednjoškolaca. Dobiveni rezultati pokazuju značajan učinak dobi na prosječne ocjene učenika kao i značajan učinak spola na postignuće u hrvatskom jeziku, prosječni opći školski uspjeh, samoefikasnost i tri ciljne orijentacije (znanje, izvedba i socijalni odnosi). Nadalje, dobiveni rezultati pokazuju visoku povezanost između samoefikasnosti i usmjerenosti na znanje, a samoefikasnost se pokazala najvažnijim prediktorom školskog postignuća u svim istraženim područjima.*

Ključne riječi: *akademska samoefikasnost, ciljne orijentacije, motivacija, školsko postignuće.*

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