

## **Psychosocial and Organizational Aspects of Didactic Achievement: Sex, School-type, and Self-esteem**

### **Abstract**

The results presented here are taken from empirical studies relating to the relation between academic achievement and sex, type of school, and self-esteem, as well as self-esteem and sex, school level, and academic achievement. Aside from specific issues, these results show, first, that levels of achievement and self-esteem in middle school show much lower values than in high school and primary school. Secondly, although girls show a higher level of achievement, there is no difference between their self-esteem compared to the self-esteem of boys.

**Keywords:** *academic achievement, self-esteem, sex, middle schools, primary schools, high schools*

### **The Problem**

One of the parameters for describing and explaining school educational practices is academic achievement, which constitutes a quality indicator for the functioning of the education system as well as for pupils' individual academic success. The first of these highlighted aspects can be combined with the stages of learning, under which is concealed, among other things, the culture of the school. Schools are often described in terms of culture primarily focused on educational discipline. The measure of a school's success is more often determined by the ability to adapt students' behaviour to the teaching requirements than the level of didactic achievement. The situation looks different in high schools and in middle

schools, where the cultural weight lies with a focus on academic achievement (cf. Elwood 2005, pp.374-380, Chomczyńska-Rubacha 2011, sp120). However, middle schools, which are difficult to describe using these categories, seem to dodge this convenient classification. Confronted by these circumstances, it would seem reasonable to try to pinpoint the relationship between the type of school in the above sense and its didactic achievements. As much as you can predict the direction of this relationship while comparing primary schools to high schools, this type of analysis is more difficult to perform when dealing with the relation of primary schools with the other types of schools. Such a comparison would create the space for the analysis and interpretation of didactic achievements as a quality indicator for the functioning of the education system. However, the second aspect highlighted, i.e., the individual aspect of pupils' academic success is more connected to psychosocial determinants of didactic achievements than organizational ones. Analyses can be carried out both with respect to didactic achievement differentiation factors and their potential consequences. For all that, in this unstable space there are phenomena which could be categorized to either side, either as factors or effects. Such is the nature of self-esteem, which in empirical research is situated as a fixed variable as often as it is a random variable. In the first instance, we are trying to see whether self-esteem modifies didactic achievements, and secondly whether it changes under the influence of the latter. Such a setup arises from the theoretical character of self-esteem (Rosenberg 1989). Self-value judgments and their emotional and motivational aspects arise, on the one hand, because of the broadly understood experience of the individual, but on the other hand, they are responsible for different aspects of the experience, e.g., for academic<sup>1</sup>, and more specifically, didactic achievement (cf. Harter 1990, pp.68 -96). Thus, achievement, as the aspect of experience in which we are interested, can influence self-esteem; but also self-esteem can take part in explaining the variability. Still, however we may wish to establish this relation in its course, a fundamental discriminating variable, namely sex, turns up. Reports from studies on self-esteem (Kling et al. 1999, pp.480-485, Bussey, Bandura (1999, pp.676-713) and academic achievement (e.g. Konarzewski 2004 p.70) indicate that female students have lower self-esteem than male students, but in turn they have higher levels of academic achievement. This relation is poorly explained and rather intricate. It could be, in fact, expected that given the correlation between self-esteem and academic achievement there should also emerge a higher level of academic achievement for boys when compared with

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<sup>1</sup> The concepts of academic achievement and didactic achievement will be used interchangeably. Didactic achievements are an instance of academic achievement.

girls. Research, however, has not confirmed this prediction. This might be due to many factors, one of which seems to be the source of self-esteem, which in men is thought to be based on the results of past actions, while in women it is based on interpersonal relationships (cf. Kling, 1999, pp. 480-490). Putting this consideration aside for the moment, it is worth taking note of the fact that the academic achievement of students may be related to their self-esteem, and, furthermore, that this relation also represents one of the possible explanations regarding the educational success of schools.

The three variables taken into consideration: the type of school, sex, and self-esteem can modify academic achievement not only in bilateral relations, but also in interactions among them. However, embarking on the study we had planned to ask questions regarding the space in which we might explain both academic achievement and self-esteem, since the status of self-esteem in respect of academic success is not unequivocal. In the first study we introduce sex, type of school, and self-esteem into the analysis model, while in the second study, next to sex and type of school we introduce academic achievement.

## **Method**

The study was conducted on a random sample of male and female students from primary schools, middle schools and high schools located in the Kujawsko-Pomorskie region. Four variables: sex, type of school, academic achievement, and self-esteem were measured<sup>2</sup>. The constant variables were sex and type of school. Subjects were randomized using multiple-stage and proportional sampling. After drawing the locality, schools and subsequently classes were drawn, making sure to attain a proportional selection of male and female students. A total of 383 individuals were selected and 370 empirical sets were used in the analysis.

The random variables were didactic achievements and self-esteem. Achievements were defined and measured as the average grades in common subjects in each type of school. This variable has three values: low, average, and high, all of which were determined using the measurement percentiles. Self-esteem was measured using Dzwonkowska's SES scale (Dzwonkowska et al. 2007, pp. 164-176). The Polish adaptation of Morris Rosenberg's scale is based on the author's concept of global self-esteem, and is therefore most often operationalized in studies on

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<sup>2</sup> The data for these studies were gathered by a team of students from the scientific circle WNP UMK under the guidance of Dr Magdalena Cuprjak.

**Table 1.** Dispersion of the sex variable against type of school

			Type of School			Com- bined
			Primary	Middle	High	
Sex	Female	Numerical Amount	99	52	27	178
		% From Type of School	51.3%	48.1%	39.1%	48.1%
	Male	Numerical Amount	94	56	42	192
		% From Type of School	48.7%	51.9%	60.9%	51.9%
Combined % from Type of School		Numerical Amount	193	108	69	370
		100.0%	100.0%	100.0%	100.0%	

Source: own research

the concept of self-esteem. In the meaning under discussion, “the concept of self-esteem is considered to be a synonym of one’s attitude towards ‘self’, and thus the emotions associated with the object which is my own ‘I’ linked (in the same way as in attitude) with cognitive judgements about one’s self” (Dzwonkowska et al., 2007, p. 165). The scale has been positively verified for reliability and theoretical validity – factor and criterion validity. On the basis of the latter, it is possible to say that the results of the SES test allow for a prediction of subjects’ social and emotional functioning and some of the aspects of their task-orientation (Dzwonkowska et al., 2007, p. 174). The scale has norms calculated for several populations, including adolescent population. The study was performed in quantitative strategies, in comparative and correlated-regressive schemas (Rubacha 2008, pp. 358–367), as a practical diagnostic test.

## **Result Analysis**

### **Educational Achievement – Average Grades**

The first analyses regarded the relation between the average grades and types of school. Table 2 shows that middle school achieved the lowest average grades. We also calculated the significance of differences between the average grades for the different types of schools.

The T-student test showed that there are significant differences between the average grades obtained in primary school and middle school: statistics  $t = 4,072$ ;  $p < 0.05$ . In primary school, students scored higher averages than middle school students in the subjects examined. Furthermore, there are significant statistical

**Table 2.** Comparison of average grades for all types of school

	Type of school	N	Average	Standard deviation	Standard error of averages
Average grade	Primary	193	3.49	1.03	.074
	Middle	108	2.99	1.00	.096
	High	69	3.30	.64	.077

Source: own research

differences between the average grades obtained in middle school and high school:  $t = -2.334$ ;  $p < 0.05$ . Middle school students received lower average grades than high school students. There were no significant differences between primary school and high school. The differences between middle school and primary school and high school may indicate a distinct status for middle school with equal respect to primary school as to high school. If no differences had arisen, e.g., between middle school and high school, and differences showed up between high school and primary school, we would be speaking of a similarity or proximity of middle school achievements with those of high school. The layout of the data suggests the existence of “a dip” in didactic achievement right in the middle of the education process. Perhaps this is an effect similar to the one which was recorded when middle school had not yet formed a part of the Polish education system. However, at that time this effect only concerned the first year of high school. In our study, the data was taken from all the years of middle school education. Returning to the topic of school culture, we can indirectly see that there is no breakthrough in the direction of a culture of academic achievement for middle schools. Taking also into account the reports from research conducted on education problems in middle schools, e.g., the high level of aggressiveness among male and female students (Szczepanik 2004, pp. 95 and on, Brzezińska, Hornowska 2002, pp. 45-48) it can be assumed that middle schools come closer to a culture focused on discipline. However, didactic achievements prove weaker than the level below and, in comparison, educational problems are more serious. Further attempts to interpret this state of affairs would result in speculation, as the data available here are rather limited. Perhaps it would be worth focusing on the everydayness of middle schools, which would require a qualitative research strategy.

Table 3 presents data on the relationship between academic achievement and the sex of the respondents. Tests showed that there were statistically significant differences between women and men in terms of the analyzed variable, namely,

**Table 3.** Comparison of average grades by sex

	Statistics for groups				
	Sex	N	Average	Standard deviation	Standard error of average
Average grades	Female	178	3.52	1.03	.077
	Male	192	3.11	.89	.064

Source: own research

women received higher grades than men in schoolwork ( $t = 3.984, p < 0.05$ ). This is not a new result.

Research has indicated an advantage of girls over boys, not only in academic achievement measured by grade point average, but also in other parameters of academic assessment. This phenomenon is commonly called “the boy crisis in education” and is often connected with the cultural transmission of sex, or with the “nature” of boys as being more aggressive, focused rather on physical strength than intellectual achievements (cf., Francis, B., Skelton Ch. 2005 Muszyńska 2004, p.46). In this context, it is interesting whether sex interacts with the type of school, because – as commonly accepted – high school favours intellectual achievements, creating a more difficult environment than primary school for the “nature” of boys. After carrying out the two-way ANOVA we identified the effects of sex ( $F = 8, p < 0.05$ ) and type of school ( $F = 9.23, p < 0.05$ ), but found no interactive effect ( $F = 1.8$  ni), and thus no simple effects: values of sex over values for each type of school. What this means is that girls have higher levels of achievement than boys, regardless of the type of school. An interpretation which might allude to the “crisis of masculinity” is not the only possible interpretation. One might also explain this phenomenon by appeal to the effect of an intensification of the processes of socialization upon strengthening characteristics of stereotypical masculinity that does not fall within the institution’s definition of academic achievement. It may be that schools do not harm male students with their “feminine” requirements, but rather with their androcentrism, visible in the socialization affects to which boys are exposed.

All the variables were placed in the area of academic achievement, building a linear regression model with standardized beta weights (Rubacha, p. 237). Table 4 shows that all the variables could be introduced into the model. The equation is statistically significant, indicating that didactic achievements are in 19 percent of cases determined by sex, by the type of school in 11 percent, and by self-esteem

in 22 percent. The highest beta weight was obtained by self-esteem, and this is a positive weight; therefore self-esteem is conducive to academic achievement. The other variables had a negative weight. One could therefore say that the higher the number of female students or primary school students in a studied group, the higher will be the level of achievement in that group. Considering academic achievement, one cannot therefore ignore any of the analyzed factors.

**Table 4.** Linear regression equation for academic achievement (Beta weights)

Model	Non-standardized coefficients		Standardized coefficients	<i>t</i>	Significance
	B	Standard error	Beta		
1 (Constant)	3.56	.21		16.28	.000
Sex	-.370	.09	-.188	-3.78	.000
School type	-.144	.06	-.113	-2.27	.024
Self-esteem	.274	.06	.227	4.57	.000

Source: own research

It is worth noting that in social research one must link the variable of sex with characteristics of femininity and masculinity, and not with the respondents' secondary sexual characteristics (Elwood, 2005, pp. 378-379, Francis, Skelton 2005). Thus, the constellation of traits characterized in our culture as feminine rather than masculine is in fact more conducive to academic achievement.

## **Self-esteem**

The first variable established for self-esteem was type of school. The highest levels of self-esteem were revealed in male and female students in high school, the second highest in primary school students.

The lowest self-esteem was represented by middle school students. These relations were confirmed by the statistically significant t-student test. In the pair primary school – middle school ( $t = 1.98, p < 0.05$ ), younger students attained a more advantageous self-esteem average. Similarly, in the pair middle school – high school ( $t = 2.55, p < 0.05$ ) primary school students clearly differed from high school students in terms of self-esteem. For a second time we were encountering data showing lower parameters of academic functioning in middle school students

**Table 5.** Comparison of self-esteem levels for types of school

	Type of school	N	Average	Standard deviation	Standard error of average
SES	Primary	193	2.05	.82	.05
	Middle	108	1.86	.77	.07
	High	69	2.17	.82	.09

Source: own research

compared with students of other types of schools. It was believed that the interpretive trail might lead, in this case, to the analysis of the sources of self-esteem. One of these sources is the feedback which an individual receives from others, namely from teachers in the form of grades (cf., Marchis 2012, pp. 295–203). These in turn should not generate a high level of self-esteem compared with that of male and female students from primary school and high school.

Another analytical issue is the dependence of self-esteem on the sex of the respondents. In this respect, there were no statistically significant differences found ( $t = (-1.75)$ , *n et al.*), and Table 6 shows almost identical averages for girls and boys.

**Table 6.** Comparison of self-esteem levels for sex

	Sex	N	Average	Standard deviation	Standard error for average
SES	Female	178	2.03	.87	.065
	Male	192	2.00	.75	.054

Source: own research

Two questions immediately arise, the first of which concerns this result as it regards the higher level of achievement noticed among girls compared with boys. It would seem, based on the regression equation presented above, that if self-esteem is an important factor in explaining academic achievement, female students should present a higher average. This expectation can be formulated in isolation from the results of research conducted within the framework of gender studies, as we know that the profile of socialization pressures for girls is not conducive to strengthening their self-esteem, as in the case of boys (Gurian, 2002). As a result, higher achievements do not translate into higher self-esteem. The second question



is linked with the predominance of research results in which boys/men reveal higher self-esteem than girls/women (cf., Bem 2000 Chomczyńska-Rubacha 2011, pp. 118-124). The lack of differences in these results may be an indicator of cultural change through which girls and women learn to break with the disadvantageous tendencies of socialization (cf., Rubacha 2012, pp. 90-93).

Finally, as in the case of academic achievement, a regression equation was constructed for self-esteem as an explanatory variable along with the type of school, sex, and academic achievement (grade point average). Table 7 presents the results of this analysis.

**Table 7.** Regression results for self-esteem variable (Beta weight)

Model	Non-standardized coefficient		Standardized coefficient	t	Significance
	B	Standard error	Beta		
(Constant)	1.23	.23		5.23	.000
1 Sex	.033	.08	.02	.39	.695
Type of school	.049	.05	.04	.91	.362
Average grades	.198	.04	.24	4.57	.000

Source: own research

In the equation, only the average grade remained an indicator of academic achievement, explaining 24% of the variability of self-esteem. Sex and type of school did not enter into the statistically significant equation. Thus, we can definitely say that self-esteem and academic achievement are the determinate variables for each other. Achievements explain self-esteem and self-esteem explains achievements. These relationships are positive, so we can assume that the higher one's self-esteem, the higher one's level of achievement and vice versa. Detailed results, however, show that this relation is modified due to sex, cultural background, and essentially the cultural conditioning entailed in being a woman or a man. Despite girls clearly showing a higher level of achievement, their self-esteem rises less than the self-esteem of boys.

Another issue "invoked" by these studies is the motivational situation surrounding middle school students. They show a much lower level of achievement, and thus self-esteem. It is in the context of motivation that this effect can be considered dangerous. If these two variables: achievement and self-esteem, as this study, but also many other studies, shows (Rheinberg 2006, pp. 83-92), mutually condition each other, one can expect to encounter a vicious circle: a lower level of achieve-

ment produces lower self-esteem, and this in turn hinders achievement. This circle will likely be interrupted by the effects of other variables, but these variables have yet to be determined.

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