

Self-Concept and Personality Factors of Slovak Adolescents as Predictors of Their School Engagement

Abstract

The aim of the study is to examine self-concept sensu Piers-Harris and personality traits sensu Big Five in the role of predictors of the construct of Slovak adolescents' school engagement (N = 575, 15–20 years old, 52% women). Research tools: Student Engagement in School - Four Dimensional Scale/SES4DS, Adolescent Self-Concept Short Scale/ASCSS, The Mini International Item Pool/Mini IPIP. The resulting regression model explains 34% of the variability of adolescent school engagement by means of these variables (except neuroticism and extraversion), with adolescents' self-concept sensu Piers-Harris confirmed as the strongest predictor. Since self-concept can be modified during adolescence, the result may be relevant to intervention programmes for underachieving students and students with poor school engagement.

Keywords: school engagement, self-concept, Big Five model, adolescence

Introduction

School engagement means student involvement in learning processes and school-related activities. According to Frawley et al. (2014), it has a high potential for school-based interventions aimed to foster students' academic success and reduce drop-out rates. Literature has intensely addressed the issue of school engagement over the past two decades, recently also its specifics in the online environment (Farnicka et al., 2023; Purnomo et al., 2021).

School engagement has been defined as centripetal experience of a student with school and operationalized as the extent to which students are committed to school and motivated to learn (Veiga, 2016). It is most often presented as

a meta-construct and agreed to be of a multidimensional nature. According to several sources (e. g. Wang & Peck, 2013), this construct includes a trichotomy of behavioural, cognitive and emotional dimensions. The behavioural component refers to participation in learning activities, attention and physical presence in class or school. Cognitive engagement refers, in particular, to the use of self-regulated learning approach, strategic planning, monitoring and evaluation of short-term and long-term learning outcomes. The emotional aspect of engagement encompasses affective reactions to school environment and school activities, the relationship with school and people in it, identification and the sense of belonging in school (Wang & Peck, 2013).

Empirical evidence indicates that in addition to gender and age (de Carvalho et al., 2025; Santos et al., 2021), school engagement may be influenced also by psychological and environmental factors. Psychological variables definitely include self-concept as a set of a person's perceptions of oneself based on self-evaluation and evaluation by significant others. According to Piers (in Veiga & Leite, 2016), self-concept is a relatively stable set of attitudes reflecting both description and evaluation of one's own behaviour and attributes. According to her, this construct is domain-specific and includes more areas (behavioural adjustment, intellectual and school status, anxiety, physical appearance, popularity, happiness and satisfaction). Several studies point to links between adolescent self-concept and school results (Alrajhi & Aldhafri, 2024; Čerešník & Čerešníková, 2018; Fomina et al., 2021; Marsh et al., 2023).

The role of positive self-concept in school engagement has been documented less. Green et al. (2012) assert that school engagement can mediate the relationship between self-concept and academic results. Bakadorova & Raufelder (2017) state that interventions focused on students' school self-concept (i. e. self-perception in the context of school-related activities) can influence their school engagement. Veiga et al. (2015), too, see students' school self-concept as the basis for such interventions, although the link weakens with students' age. In addition to self-concept, important intraindividual variables that may be related to student school engagement certainly include personality traits. Current research indicates some significant links between adolescents' individual personality traits *sensu* Big Five and their school engagement (Azizah & Setiawati, 2022; Rohinsa et al., 2019).

The construct of school engagement as defined by Fredricks et al. (in Wang & Peck, 2013) has not been sufficiently established and studied in the Slovak professional environment so far. Information about its aetiology is missing. The subject of interest of this study is intraindividual variables where a causal connection is assumed based on previous research.

Thus, the aim of the research study is to confirm self-concept *sensu* Piers-Harris and personality factors *sensu* Big Five as predictors of the school engagement construct in Slovak adolescents.

Methodology

The research sample consisted of 575 adolescents from all regions of the Slovak Republic. Their average age was 17.5 years ($SD = 1.34$), 52% women. Data were obtained via an online form distributed by official representatives of secondary schools (ensuring that legal representatives were informed). Ethical principles of the research were maintained, approved by the Matej Bel University Ethics Committee (No.2/2023). Respondents were asked to snowball the link. This sampling method was chosen as the best in the given situation (COVID-19 pandemic during 2021). Its main risk, i. e. community bias was mitigated by selecting initiators of the first wave of respondents from various regions of the Slovak Republic. The main parameter for addressing other respondents was peer affiliation and school attendance. It was a combination of purposive and convenience sampling.

In addition to basic demographic/contextual data (gender, age, region, school attendance), the online form included items of three research tools, with the first two translated into the Slovak language by the Translation and Interpreting Section of the Department of English and American Studies of the Faculty of Arts of Matej Bel University in Banská Bystrica (standard independent reverse translation):

Student Engagement in School – Four-Dimensional Scale/SES-4DS (Veiga, 2016), a 20-item questionnaire for adolescents, examining four dimensions of their school engagement. Three standard dimensions: (*cognitive, affective, behavioural*) were added *agency* by the author, referring to students' active interests in learning and their independence in relation to learning and acquiring knowledge. Each dimension consists of five items. Respondents respond to statements on a 6-point scale (1 – total disagreement, 6 – total agreement). In addition to raw scores for individual dimensions ($\alpha = 0.67 - 0.84$), also total scores of respondents' school engagement can be obtained, which we worked with in our analyses. Internal consistency of the adapted questionnaire as a whole was satisfactory ($\alpha = 0.79$).

Adolescents' Self-concept Short Scale/ASCSS (Veiga & Leite, 2016), a short 30-item version of the original scale PHCSCS 2/ Piers-Harris Children's Self-Concept Scale 2, with the original factor structure of the tool (six dimensions of self-concept: anxiety, physical appearance, behaviour, popularity, happiness and

intellectual status). Respondents assess statements on a 6-point Likert scale (1 – totally disagree, 6 – totally agree). In addition to raw scores for each dimension, total scores of adolescent self-concept can be obtained, which we worked with. Internal consistency of the dimensions of the adapted research tool turned out to be satisfactory ($\alpha = 0.70-0.84$) in our research sample, as well as reliability of the research tool as a whole ($\alpha = 0.89$).

The Mini International Personality Item Pool/Mini IPIP (Hřebíčková et al., 2023), a self-report questionnaire measuring Big Five traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience), consisting of 20 items, four statements per each trait. Respondents respond on a 5-point scale (1 – very inaccurate, 5 – very accurate). Reliability of the adapted version was equally satisfactory in our research ($\alpha = 0.65 - 0.79$).

Results

First, basic descriptive characteristics of adolescents' school engagement, overall self-concept and individual personality factors are presented (Tab. 1). Students scored average in personality factors; moderately higher in openness and agreeableness. They scored above average in overall self-concept and school engagement. The table also gives information about distribution of the variables.

Table 1. Descriptive characteristics and distribution of variables (N 575)

	Mdn	M	SD	Min	Max	Skew.	Kurt.
SES_TOT	75	75.57	12.51	37	112	0.08	-0.12
ASCSS_TOT	121	120.93	22.75	46	177	-0.17	-0.13
IPIP_E	13	12.77	4.10	4	20	-0.07	-0.77
IPIP_A	16	15.77	3.52	4	20	-0.73	0.11
IPIP_C	13	12.84	3.03	4	20	-0.02	-0.32
IPIP_N	12	12.19	3.56	4	20	-0.09	-0.59
IPIP_O	15	14.89	3.13	4	20	-0.31	-0.09

Note: SES TOT – school engagement total, ASCSS TOT – self-concept total, IPIP E - extraversion, IPIP A – agreeableness, IPIP C – conscientiousness, IPIP N – neuroticism, IPIP O – openness to experience, Mdn – median, M – arithmetic mean, SD – standard deviation, Min – minimum, Max – maximum, Skew – skewness, Kurt – kurtosis

Following the aim of the research study, multiple regression analysis was carried out. Considering results of previous research, hierarchical regression

analysis was chosen, with predictors entered gradually. The conditions of use of regression analysis (co-linearity diagnostics using VIF factors, outlier diagnostics using Cook's distance) were checked. In the first step (H_0 Model), contextual variables (gender and age) were tested as predictors of adolescent school engagement. The resulting model, though statistically significant at the level of 0.05, explained only 0.7% of the variability of Slovak adolescents' school engagement (Tab. 2). Gender as its predictor was not confirmed at all, and age was significant only at the level of 5% (Tab. 3). In the second step (H_1 Model), contextual variables were added personality factors *sensu* Big Five. This statistically significant regression model ($p < 0.001$) explained 27% of the variability of school engagement (Tab. 2), confirming, in addition to age, also all personality factors as significant predictors. Age and neuroticism predicted adolescent school engagement negatively (Tab. 3). In the third step, the regression model (H_2 Model) was added to adolescent self-concept *sensu* Piers-Harris. The resulting statistically significant model by all contextual and intraindividual empirical variables explained 34% of the variability of Slovak adolescents' school engagement (Tab. 2). Participation of age in explanation of school engagement against H_1 Model did not change much, nor were neuroticism and extraversion confirmed as significant predictors. However, self-concept *sensu* Pier-Harris turned out to be the strongest predictor of school engagement (Tab. 3).

Table 2. Regression models (hierarchical regression analysis) for school engagement as explained variable

Model	R	R ²	Adj. R ²	F	P
H_0	0.104	0.011	0.007	3.139	0.044
H_1	0.531	0.282	0.273	31.737	<0.001
H_2	0.592	0.350	0.341	83.115	<0.001

Note: R = multiple correlation coefficient, R² = determination coefficient, adj.R² = adjusted determination coefficient, F = F-test result, p = F-test significance

Table 3. Estimates of regression coefficients of models

Model		B	Beta	t	P
H_0	(Intercept)	92.164	-	13.831	<0.001
	Gender (m)	-0.275	-	-0.264	0.792
	Age	-0.966	-0.103	-2.477	0.014
H_1	(Intercept)	58.567	-	7.914	<0.001
	Gender (m)	1.107	-	1.147	0.252

Model		B	Beta	t	P
	Age	-1.022	-0.109	-3.026	0.003
	IPIP_E	0.598	0.196	5.127	<0.001
	IPIP_A	0.686	0.193	4.988	<0.001
	IPIP_C	1.014	0.245	6.377	<0.001
	IPIP_N	-0.516	-0.147	-3.617	<0.001
	IPIP_O	0.586	0.147	4.035	<0.001
H ₂	(Intercept)	32.149	-	4.106	<0.001
	Gender (m)	0.549	-	0.596	0.551
	Age	-0.964	-0.103	-2.966	0.003
	IPIP_E	0.235	0.077	1.945	0.052
	IPIP_A	0.714	0.201	5.454	<0.001
	IPIP_C	0.488	0.118	2.942	0.003
	IPIP_N	0.250	0.071	1.487	0.138
	IPIP_O	0.515	0.129	3.716	<0.001
	ASCSS_TOT	0.234	0.427	7.729	<0.001

Note: IPIP_E = extraversion, IPIP_A – agreeableness, IPIP C – conscientiousness, IPIP N - neuroticism, IPIP O – openness to experience, ASCSS_TOT – self-concept total, B = non-standardized coefficient, Beta = standardized coefficient, t = T-test result, p = T-test significance

Discussion

The aim of the study was to examine the construct of school engagement in Slovak adolescents in terms of intraindividual variables and to estimate their predictive strength in relation to the dependent variable. Multiple regression analysis showed that self-concept *sensu* Pier-Harris and personality factors *sensu* Big Five explained 34% of the variability of adolescents' school engagement. In the resulting model, all personality factors except neuroticism and extraversion emerged as systematic predictors, in full agreement with the results of Rohinsa et al. (2019), and to a great extent also with the research by Azizah & Setiawati (2022) confirming agreeableness, conscientiousness and openness to experience as statistically significant predictors of adolescent school engagement. We see the input of agreeableness mainly in the area of the emotional component of school engagement; conscientiousness and openness to experience may be well capitalized in the behavioural and cognitive areas of school

engagement. Our results are consistent with the study by Mahama et al. (2022) and Kara et al. (2024), which confirmed the mediating role of self-regulated online learning in the relationship between five-factor personality traits and student engagement among university students. Due to previous research or to check the influence of gender and age, hierarchical regression analysis was used, and these two contextual variables were entered as predictors in the first step. However, it seems that they had no fundamental part in the explanation of the variable school engagement of 15 to 20 years old Slovak adolescents. Gender did not emerge in the model at all, which agrees with the research by Veiga et al. (2013). Age predicted school engagement only minimally, its influence was almost negligible in terms of practical significance. From this aspect, future research samples should be extended by early adolescents.

In the resulting model, self-concept *sensu* Piers-Harris turned out as the strongest predictor. The higher the score, i. e. the more positive attitude to oneself, the higher the adolescent school engagement total. Adolescents with favourable self-images tend to be more involved in happenings at school; their school attachment and motivation to learn are higher. This result corresponds with findings of several researches (Bakadorova & Raufelder, 2017; Bakadorova et al., 2020; Green et al., 2012; Olana & Tefera, 2022; Ramos-Díaz et al., 2016; Veiga et al., 2015) showing a positive relationship between self-concept (whether general or school-related) and adolescent school engagement. Halamová et al. (2017) arrived at similar conclusions about correlations between adolescent school connectedness (emotional component of school engagement) and self-assessment. Our study within educational psychology complements and advances the issue of school engagement by a) investigating intraindividual variables more comprehensively b) using statistical methods that allow us to comment on causality between variables beyond correlation.

In spite of the efforts to achieve a large sample size and representation of adolescents from all regions of Slovakia, it is not possible to consider the research sample as representative due to the method of its sampling (convenience). Limitations that may have affected our results include the online method of data collection (limited access to schools at the time of the Covid 19 pandemic). The use of self-report questionnaire methods also carries a certain risk of research finding distortions. The result indicates that also other variables participate in the determination of Slovak adolescents' school engagement, which were not examined and could be subjects of further research. E. g. class/school climate, teacher interaction style, school culture, etc. could be relevant social variables.

Conclusions

In the context of our research findings, we can agree with Moreira et al. (2019) that systematic promotion of children and adolescents' healthy personalities via educational contexts and practices is an imperative for contemporary societies. There is an increasingly urgent need for societies to shift from paradigms of conventional schooling to person-centred schools. Students' engagement with school as expression of personality is a process malleable to intervention and particularly sensitive to interpersonal influences (including teacher-students relationships). Students' school engagement is, therefore, an example of how personality and educational constructs can be integrated into effective educational and school practices, including in school improvement and restructuring efforts (Moreira et al., 2019). Despite the limitations it can be stated that, in addition to personality factors (agreeableness, conscientiousness and openness), Slovak adolescents' school engagement is significantly co-determined also by their self-concept. Since during adolescence personality and in particular self-concept are still in formation and modifiable, our findings support the importance of intervention programmes for underachievers and students with low school engagement.

Acknowledgements

The study originated with support of the project VEGA 1/07/65/21 Multidimensional self-concept of the digital adolescent generation in Slovakia and its contexts.

References:

- Alrajhi, M.N., Aldhafri, S.S. (2024). Predicting Students' Academic Achievement through Teaching and Parenting Styles: Self-Concept as a Mediator. *Education Research International*, 2024. <https://doi.org/10.1155/2024/9614992>.
- Azizah, F., Setiawati, F.A. (2022). The effect of big five personality on student engagement in high school student at Yogyakarta. *Psychological research and intervention*, 5(2), <https://doi.org/10.21831/priv5i2.52568>.
- Bakadorova, O., Raufelder, D. (2017). The interplay of students' school engagement, school self-concept and motivational relations during adolescence. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.02171>.
- Bakadorova, O., Lazarides, R., Raufelder, D. (2020). Effects of social and individual school self-concepts on school engagement during adolescence. *European Journal of Psychology of Education*, 35, 73–91. <https://doi.org/10.1007/s10212-019-00423-x>.

- Čerešník, M., & Čerešníková, M. (2018). School Self-Concept of Children in the System of Lower Secondary Education in Slovakia – Comparison of Slovak and Roma Children. *TEM Journal*, 7(1), 211–218. <https://doi.org/10.18421/TEM71-26>.
- de Carvalho, N.A., Veiga, F.H., Martínez, I., Veiga, C.M. (2025). Psychosocial Development and Student Engagement in School: A Study with Girls and Boys in Early and Late Adolescence. *Trends in Psychology*. <https://doi.org/10.1007/s43076-025-00440-4>.
- Farnicka, M., Nowosad, I., Weissbrot-Koziarska, A. (2023). Well-Being as a Factor Protecting Students' Engagement – Report from Polish-German Research after the COVID-19 Pandemic. *The New Educational Review*, 74, 57–70. <https://doi.org/10.15804/tner.23.74.4.05>.
- Fomina, T. G., Filippova, E. V., & Morosanova, V. I. (2021). Longitudinal Study of the Relationship Between Conscious Self-Regulation, School Engagement and Student Academic Achievement. *Psichologicheskaya nauka i obrazovanie – Psychological Science and Education*, 26(5), 30–42. <https://doi.org/10.17759/pse.2021260503>.
- Frawley, D., McCoy, S., Banks, J., Thornton, M. (2014). Affective school engagement and self-concept: how are Irish boys and girls faring? *Child Indicators Research*, 7(4), 843–859. <https://doi.org/10.1007/s12187-014-9247-5>.
- Green, J., Liem, G.D., Martin, A.J., Colmar, S., Marsh, H.W., McInerney, D. (2012). Academic motivation, self-concept, engagement, and performance in high school: Key processes from a longitudinal perspective. *Journal of Adolescence*, 35(5), 1111–1122. <https://doi.org/10.1016/j.adolescence.2012.02.016>.
- Halamová, M., Šeboková, G., Uhláriková, J., Mokračňová, N. (2017). Pocit školskej prínaľezitosti a adjustácia u žiakov základných a stredných škôl [School connectedness and adjustment in students of middle and high schools]. *Školský psychológ/Školní psycholog*, 18(1), 149–154.
- Hřebíčková, M., Jelínek, M., Květon, P., Benkovič, A. (2023). Psychometric properties of the Czech adaptation of the IPIP-BFM-50 and the Mini-IPIP-BFM-20. *Československá psychologie*, 67(2), 101–120. <https://doi.org/10.51561/cspsych.67.2.101>.
- Kara, A., Ergulec, F., Eren, E. (2024). The mediating role of self-regulated online learning behaviors: Exploring the impact of personality traits on student engagement. *Education and Information Technologies*, 29, 23517–23546. <https://doi.org/10.1007/s10639-024-12755-3>.
- Mahama, I., Dramanu, B.Y., Eshun, P., Nandzo, A., Baidoo-Anu, D., Amponsah, M.A. (2022). Personality Traits as Predictors of Self-Regulated Learning and Academic Engagement among College Students in Ghana: A Dimensional Multivariate Approach. *Education Research International*, 2022. <https://doi.org/10.1155/2022/2255533>.
- Marsh, H.W., Craven, R.G., Yeung, A.S., Mooney, J., Franklin, A., Dillon, A., Barclay, L., van Westenbrugge, A., Vasconcellos, D., See, S.-M., Roy, D., Kadir, M.S., Durmush, D. (2023). Self-concept a game changer for academic success for high-achieving Australian Indigenous and non-Indigenous students: Reciprocal effects between self-concept and achievement. *Contemporary Educational Psychology*, 72. <https://doi.org/10.1016/j.cedpsych.2022.102135>.

- Moreira, P.A.S., Cunha, D., Inman, R., Oliveira, J. (2019). Integrating Healthy Personality Development and Educational Practices: The Case of Student Engagement with School. *Contemporary Clinical Neuroscience*, 227–250. https://doi.org/10.1007/978-3-319-90065-0_10.
- Olana, E., Tefera, B. (2022). Academic self-concept as the predictor of secondary school adolescent students' school engagement. *International Journal of Evaluation and Research in Education*, 11(4), 2114–2121. <http://doi.org/10.11591/ijere.v11i4.23486>.
- Purnomo, Y.W., Safitri, E., Rohmah, N., Rahmawati, R.D., Abbas, N. (2021). Parental Involvement in Online Mathematics Learning: Examining Student Report and Links with Engagement. *The New Educational Review*, 66, 120–130. <https://doi.org/10.15804/tner.21.66.4.10>.
- Ramos-Díaz, E., Rodríguez-Fernández, A., Fernández- Zabala, A., Revuelta, L., Zuazagoitia, A. (2016). Adolescent Students' Perceived Social Support, Self-Concept and School Engagement. *Revista de Psicodidáctica*, 21(2), 339–356. <https://doi.org/10.1387/RevPsicodidact.14848>.
- Rohinsa, M., Cahyadi, S., Djunaidi, A. (2019). Role of Personality Traits in Predicting Student Engagement among Undergraduate Student. In Asia-Pacific Conference on Education, *Social Studies and Psychology (APCESP)* At: Bangkok Thailand. https://www.researchgate.net/publication/336413990_Role_of_Personality_Traits_in_Predicting_Student_Engagement_among_Undergraduate_Student.
- Santos, A.C., Simões, C., Cefai, C., Freitas, E., Arriaga, P. (2021). Emotion regulation and student engagement: Age and gender differences during adolescence. *International Journal of Education Research*, 109. <https://doi.org/10.1016/j.ijer.2021.101830>.
- Veiga, F.H. (2016). Assessing student Engagement in School: Development and validation of a four-dimensional scale. *Procedia – Social and Behavioral Sciences*, 217, 813–819. <https://doi.org/10.1016/j.sbspro.2016.02.15>.
- Veiga, F., Leite, A. (2016). Adolescents' Self-concept Short Scale: A version of PHCSCS. *Procedia – Social and Behavioral Sciences* 217, 631–637. <https://doi.org/10.1016/j.sbspro.2016.02.079>.
- Veiga, F.H., García, F., Reeve, J., Wentzel, K., García, O. (2015). When adolescents with high self-concept lose their engagement in school. *Revista de Psicodidáctica*, 20(2), 305–320. <https://doi.org/10.1387/RevPsicodidact.12671>.
- Veiga, F.H., Robu, V., Moura, H., Goulão, F. Galvão, D. (2013). Students' engagement in school, academic aspirations, and sex. In: F.H. Veiga (Ed.), *Students' Engagement in School: International Perspectives of Psychology and Education* (pp. 348–360). Instituto de Educação, Universidade de Lisboa.
- Wang, M.T., Peck, S.C. (2013). Adolescent educational success and mental health vary across school engagement profiles. *Developmental Psychology*, 49(7), 1266–1276. <https://doi.org/10.1037/a0030028>.

AUTHOR

LENKA ĎURICOVÁ

Doc., PhD. Associate professor, Faculty of Education,

Matej Bel University, Banská Bystrica

E-mail: lenka.duricova2@umb.sk

ORCID ID: <https://orcid.org/0000-0003-0159-8916>