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School Climate as a Factor of Educational Effectiveness of Schools – Secondary Data Analysis from TIMSS 2015 Study²

Extended summary

In literature, school climate is described as a multidimensional phenomenon which encompasses different aspects of school life and strongly impacts school effectiveness. School climate refers to the quality and character of school life reflected in the experience of all actors, as well as in norms, goals, values, interpersonal relationships, and organizational structure. If a school has a mostly positive school climate, it will positively impact students' educational achievement, their motivation for learning, autonomy, social and emotional development, their self-concept, and self-respect. Apart from the effects of the school climate on the overall development of students and their achievements, it also considerably influences teachers' work and success. It turned out that teachers' perceptions of school climate directly impact their work efficiency and job satisfaction. It is also indicative that there is a correlation between school climate and the behavior of the key actors in education, to the effect that inappropriate forms of behavior are present to a lesser degree in schools with a favorable school climate. Interestingly, school climate is also strongly linked to demographic variables, namely, it is more positive in small town schools with fewer students, as unfavorable forms of student and teacher behavior are less likely to be demonstrated, absenteeism is less present, and students have a stronger feeling of belonging to their school. School principals are an important factor in creating a positive school climate, given that they create the modes for implementing different measures of educational policies, monitor and improve

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the learning process, and put in place explicit and implicit behavioral and interpersonal norms. The conditions in which educational process is carried out are also important because school climate will be more favorable in schools with appropriate space and material resources. In this paper, our intention was to determine, using the secondary data analysis from the research cycle of TIMSS 2015, whether and how school climate correlates with student achievement, demographic characteristics of schools, principals' education and the length of their engagement in this capacity, school resources, and students' and teachers' behaviour. More precisely, the first level of the analysis was conducted on the entire sample and it implied examining the correlation between school climate with student achievement and the above-mentioned school variables. The second level implied classifying the schools in two groups using the criterion of extreme score values of school climate (schools with an extremely favorable climate and schools with an extremely unfavorable school climate). The classification criterion for both groups was that they belong to 5 and 95 percentile of the school climate measure. In this manner, we selected 15 schools with an extremely unfavorable school climate. In the second group there were 13 schools with an extremely favorable climate. The goal of the analysis was to determine if student achievement in two school subjects, mathematics and science, differs between these two groups. The representative sample comprised 160 school principals, 192 primary school teachers, 3911 parents, and 3999 fourth-graders from primary schools in Serbia. According to the research findings, no correlation was identified between school climate and student achievement in mathematics and science subjects. By categorising the schools in two groups according to the criterion of the extreme values of the scores of school climate, it was determined that student achievement in these two subjects was higher in the schools with an exceptionally favorable school climate, compared to the schools with an extremely unfavorable school climate. School climate is more favorable in schools located in smaller towns, with fewer inhabitants and fewer students, where students have better access to computers and where there are fewer examples of students' and teachers' inappropriate behavior. The key implications of this research refer to the problem of linear correlation between the school climate and student achievement, given that this correlation is not linear, but complex. The authors also stress the importance of fostering the school practices that contribute to creating a positive school climate, such as prevention and resolving discipline-related issues, reduced school enrolment, and providing easier access to information technologies for teachers. As school climate is a multidimensional phenomenon which is very demanding for researchers, examining school climate by gaining an insight into the perceptions of school actors using only quantitative methodology has its limitations. Therefore, not only quantitative, but also qualitative methods, such as ethnography, case study, observation, individual interviews, and focus groups with all participants in educational process, should be used in any further research. In this manner, we would get more detailed insights into the key actors' perceptions of the quality of the school climate. Longitudinal research would also help to make the school climate evaluation more in-depth, as this kind of research would help us to determine whether the quality of the climate in one school changes over time and what variables explain this phenomenon, i.e., it would help us determine if school climate has long-term effects on different aspects of school work.

Keywords: school climate, TIMSS 2015, student achievement, contextual variables, secondary data analysis.

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