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**SCHOOL CULTURE IN SLOVAKIA FROM PERSPECTIVE OF
INNOVATIONS OF EDUCATIONAL PROCESSES**

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Abstract

The need to change the education system in Slovakia is currently a subject of topical interest. Although the conditions for reform were formally created after 1989, the reform itself was not realized. Constant blaming and reference to the fact that schools have not created adequate conditions for innovation seem to be unconstructive. We want to draw attention to the schools themselves and their culture as an important determinant of the implementation of innovations. The aim of the study was to map the culture of primary and secondary schools in Slovakia. The dominant orientation of school culture was examined by School Culture Inventory by Maslowski, which was completed by 271 teachers from twenty elementary and secondary schools in Slovakia. The results pointed to dominant culture orientation to rational goals and internal processes, which does not correspond to support of innovations in schools. On the contrary, orientation of culture towards innovations and system openness is perceived by teachers in Slovakia as least realized, but it is preferred. The results confirm the need for introducing gradual, systematic changes, which would allow one to set the school environment in relation to support of innovative processes in more favorable way. It is the responsibility of pedagogical staff leaders, especially headmasters, whose work and style of leadership can significantly affect the character of the school culture as a whole.

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1. Introduction

After 1989, Slovakia recorded a significant change in the political regime, which triggered the need to deal with the way how the education system works and created space for introducing innovations into the education system. Since 1990, due to the rapid government alternation, several conceptual documents for the area of education have been formed, which, however, did not mean a targeted implementation in the field of education. In May 2008 the new School Act was adopted, which officially introduced the curriculum reform into the educational practice of schools with the aim to start the changes that would lead to improving the whole education system. The new School Act was a step towards decentralization of the education system. Such significant change required, from the very beginning, already at the preparatory stage, a high level of engagement of those who were to be its direct actors and factor of change. However, this unexpected step, for which the teachers were not prepared, resulted in sense of insecurity and resistant attitudes of teachers (Kosová, & Porubský, 2011). There were conditions for implementing the reform created formally, but in fact there was a lack of so long-awaited content reform, but also other conditions necessary as support mechanisms in order to introduce changes by teachers, including insufficient undergraduate preparation and an effective system of continuing education. It is also worth mentioning that after a long time waiting and in the initial phase, after 1989, teachers' enthusiasm was gradually fading due to the non-systemic steps, the rapid government alternation and declaration, but in fact unrealized interest in education as a priority area of the state policy in Slovakia. This has necessarily been reflected in the not very positive state of our education system and negative outcomes of pupils in Slovak schools in key areas which, according to official documents, should be developed. School education in Slovakia is significantly behind the requirements, challenges and needs of the current and also future society. Fast social changes, a lot of information, and unclear future all require the formation of pupils skills such as critical and creative thinking, independent decision-making and problem-solving, but also social capabilities (communicative, cooperative), self-regulation ability and the ability to learn. The new requirements of these days dictate new goals, new challenges for schools and create the need for innovation (Kosturková & Knapík, 2018; Orosová, & Petříková, 2017).

Almost thirty years later, it can be declared that in the area of target orientation of education towards development of the pupils' complex personality, key competencies and preparing them for life in the rapidly changing society, the declared visions and expectations have not been fulfilled. Realizing and determining the barriers of its development are an important starting point of a positive change. In the context of the study we want to point to and emphasize the school culture as an important determinant in the processes of implementation and support of innovations in schools.

2. Problem Statement

2.1. School Culture and Support of Innovations.

The present times impose increased requirements on schools. Schools and the education system as a whole are a subject of fast social changes and challenges of the future. Unfortunately, the reality of school education does not correspond to these changes and does not sufficiently prepare pupils to live in the society. The issue of innovations of the education system and schools is the most current in its effort to tailor education to the needs of society and to respond to the challenges of the future (Zhang, 2011).

According to Tonkin (2016, p. 6), many experts *emphasize the long-lasting need to revitalize education systems from bureaucratic industrial models to more personal and more flexible model of education, which is more suitable for a post-industrial society*. Radical school reform is a difficult process which requires effort and will of all parties involved. One of the key factors is the school culture primarily created by school management, teachers, pupils and other actors of a school and its surrounding. It is perceived as a set of values, convictions, attitudes, opinions, expectations and standards of behavior, which are shared by all school members and are reflected in thinking, feeling and behavior of members of a particular school, in artifacts of material and also non-material nature and affect their functioning in a school (Deal, & Kennedy, 1982; Deal, & Peterson, 1990; Hofstede, 1990). Similarly, according to Fullan (2007), school culture can be characterized as leading conviction and values reflected in the way the school works. At the same time this concept includes attitudes, expected behavior and values, which affect functioning of a school. It is also formed by elements such as interpersonal relationships in schools, cooperation, communication, participation, physical environment of schools, basic beliefs, values, attitudes, behavioral standards, language (speech), stories and myths, customs, rituals, ceremonies, etc. (Lukášová, 2010; Maslowski, 2001; Pol, 2005).

School culture is an important feature of school environment. It can act as a significant supporting factor, but also as a barrier of innovations. According to several authors, school culture is one of the important characteristics of effectively functioning schools (Bipath, & Moyo, 2016; Hargreaves, 1995; Levine, & Lezotte, 1990; Manaf, 2017; Maslowski, 2001; Sammons, Hillman, & Mortimore, 1995; Tsang, 2009; Urbánek, & Chvál, 2012).

Maslowski (2001) describes four types of school culture, based on the Competing Values Framework developed by Quinn et al. (Quinn, & Rohrbaugh, 1983). The *focus on human relations* highlights dynamic and harmonious human relationships as the basis of each organization. Values such as high morale, interest in people and in organization as a whole are also appreciated. The atmosphere of open communication, the possibility to discuss and to participate in decision-making processes are also emphasized. The *focus on openness* of the system mainly emphasizes the importance of responding to changed environmental conditions of the organization. The need to respond is emphasized, but also there is a need to be proactive, to foresee and be ready for a change. Values such as innovations, appearance and adaptation are especially appreciated. *Focus on goals* highlights and subordinates all the processes to achieve set goals, high performance, and success. Values such as performance, efficiency, clear goals and feedback are appreciated. *Focus on internal processes* is typical of organizations that act as bureaucratic, especially emphasize formalization of processes, rules and values such as stability, continuity, and foresight. The information management system and documentation are important elements to achieve the objectives. Target oriented culture and culture orientated to internal processes can be described as supplementary, complementary cultures which are, from the point of view of innovation implementation and support, undesirable. On the contrary, other two complementary types of school culture, culture focused on interpersonal relationships and culture focused on the openness of the system, are the basis for innovative processes in a school.

3. Research Questions

In the context of the above-mentioned reflections on the need of innovations at schools and a culture as an important characteristic of the environment that seems to be key in terms of innovations, we have focused in this study on the identification of the dominant orientation of school culture at elementary and secondary schools in Slovakia as well as the preferred school culture by elementary and secondary school teachers.

The aim of the questionnaire survey was to *identify the dominant type of school culture*. The partial objective was to examine: *What is the dominant culture of schools in Slovakia? What is the preferred character of school culture? Is there any difference between the real and the preferred nature of school culture?*

Based on the comparison of real and preferred school culture, we have been trying to do identification of the so-called (in)compatibility of current and desired school culture. Three types of findings were possible – overlapping of current and preferred school culture, that is so-called incompatibility (e.g. culture focused on interpersonal relationships and rationally goal-orientation of culture), conformity of current and preferred culture, or compatibility of current and preferred culture, so called supplementary, complementary cultures (e.g. culture focused on interpersonal relationships and culture focused on openness of the system (Heinzová, 2017).

4. Purpose of the Study

The overarching purpose of the study is to emphasize the school culture as an important determinant of the implementation and supporting of innovations in schools. To point out the nature of the primary and secondary school culture in Slovakia and to evaluate it in terms of promoting innovative processes in schools, we would like to turn attention to schools, school leaders and their responsibility in the process of change of school education.

5. Research Methods

During the process of identifying the school culture, we used a questionnaire which Maslowski had submitted to its validation in Dutch school environment (2001). The questionnaire is based on defining four models of school culture: focusing on interpersonal relationships, focusing on openness of the system, goal-targeting, focusing on internal processes. In their questionnaires, the respondents rated personal values (A questionnaire - desired, preferred culture) as well as school values of (other) teachers (B questionnaire – real, current state of the school culture) according to their importance.

The data obtained were processed in Excel and subsequently by IBM SPSS v.21 statistical software. To describe the variables examined, we used descriptive statistics. To compare the real and preferred character of the school culture, we used t - test for pair measurements. Using Cronbach's alpha, we expressed the reliability of the questionnaire used. Both versions of the questionnaire showed that the value of this indicator was higher than 0.9 (0,914 for the A version - the expected nature of the school culture and 0.973 for the B questionnaire - real state of school culture).

The questionnaire was completed by 271 teachers out of twenty Slovak schools (elementary schools - n = 10, secondary schools - n = 10), which we obtained by the available selection. The selected sample

consisted of 44.6% of elementary school teachers and 55.4% of secondary school teachers. Initially, we expected statistically significant differences between male and female teachers. Due to an unequal ratio of the studied sample we could not interpret the data according to the mentioned criterion. The sample contained very few male teachers - only 21.8% , 76.0% female and 2.2% were not stated, which confirms not very positive trend associated with feminisation of the teaching profession.

6. Findings

Considering the respondents' statements, we can report that in the observed primary and secondary schools rational target orientation school culture (M = 39.69, SD = 6.13) dominate, which means that the schools rate performance, results and achieve the set objectives highly (Table 01). In the culture profile of the observed schools the next one on the list was the culture focused on internal processes (M = 38.66, SD = 5.68), which means that teachers particularly appreciate the stability and continuity, they expect formalization of the processes implemented in schools which regulate and check the activities of individual staff members. This relatively strong dominance of the school culture orientation to internal processes also indicates the relatively high degree of bureaucracy of considerable width which is still applied in schools. Out of the four different school culture orientations the orientation towards interpersonal relationships scored third (M = 38.26, SD = 6.86). Compared with rational target orientation, teachers' statements show that atmosphere of mutual trust, understanding, cooperation and support as well as values of collegiality, loyalty, solidarity and devotion to the teaching staff as a team are all less valued. Nature of the school culture focused on openness to the system, the emphasis on innovation and adaptability (M = 37.70, SD = 6.08) is the least dominant. Otherwise, we could also say that schools are less inclined to changes, introducing innovations and educational reforms. Our findings, in relation to profile and the dominant orientation of school culture, apply to both elementary and secondary schools.

Table 01. School Culture - Real State

Nature of School Culture	ES (N = 121)		SS (N = 150)		Total	
	sum M	SD	sum M	SD	sum M	SD
System Openness	36.10	5.56	38.87	6.22	37.70	6.08
Rational Goals	38.06	5.76	40.96	6.11	39.69	6.13
Internal Processes	37.10	5.30	39.85	5.69	38.66	5.68
Interpersonal Relationships	36.34	6.63	39.67	6.67	38.26	6.86

ES - Elementary School; SS - secondary school; M - arithmetic mean;

SD - standard deviation

While identifying the desired (preferred) type of school culture (Table 02), we have detected dominance of culture focused on human relations (M = 43.31, SD = 6.23). The next on the list was preference of the culture focused on rational targets (M = 41.60, SD = 6.39) and the internal processes (M = 40.98). When assessing the system openness and introducing innovations and changes, a certain degree of resistance to change and reluctance to introduce innovations into the teaching process, which is one of the essential features of a school supporting organizational learning, has been recorded. The teachers rated orientation of school culture to openness as last within the order of the preferred type of school culture (M

= 40, 70, SD = 5.29). The same preferred order of school culture orientation was recorded with teachers at both primary and secondary schools.

Table 02. School Culture – Expectations

Nature of School Culture	ES (N = 121)		SS (N = 150)		Total	
	sum M	SD	sum M	SD	sum M	SD
System Openness	39.44	5.36	41.50	4.96	40.70	5.29
Rational Goals	40.45	7.01	42.58	5.52	41.60	6.39
Internal Processes	39.99	5.98	41.53	5.37	40.98	5.18
Interpersonal Relationships	42.33	7.75	43.85	4.66	43.31	6.23

ES - elementary school; SS - secondary school; M - arithmetic mean;

SD - standard deviation

When comparing the current dominant culture type and preferred dominant school culture, we can see a considerable discrepancy, overlapping of two types of school culture - culture focused on rational goals (current culture) and culture oriented to interpersonal relations (preferred culture), which leads us to formulation of a statement about incompatibility of current and desired school cultures. Using the T-test for pair measurements, we found out that the rating differences between the preferred and current school culture orientation were statistically important at the level of $p < 0.01$ (Table 03) in all monitored areas of the school culture. The most notable difference is in the case of school culture focused on interpersonal relations. Based on the mentioned we can assume that this area shows the biggest discrepancy between the real state of school culture and teachers' wishes or a picture of school culture. Teachers would prefer a school with dominance of values such as cooperation, support, participation, co-decision. The school culture that supports innovations is also typical of experimenting, cooperation with outside environment, willingness to take risks. These are the characteristics typical for school culture oriented towards the openness of the system. It turns out that comparing with other observed school cultures, the culture focused on openness in the system is least preferred by teachers ($M = 40,70$, $SD = 5.29$; Table 03), which shows a certain degree of resistance to change, unwilling to risk, experiment, introduce innovations. It is also necessary to say that despite this fact, the school culture focused on openness of the system is wanted in the environment of elementary and secondary school significantly much more, compared to the real state ($M = 2.99$, $SD = 4.85$; $p < 0.01$; of Table 03).

Table 03. Comparison of Real and Expected Profile of School Culture

Nature of School Culture	M real	SD	M desired	SD	M desired - M real	SD	T	df	p
System Openness	37.70	6.08	40.70	5.29	2.99	4.85	9.423 **	232	.000
Rational Goals	39.69	6.13	41.60	6.39	1.92	5.07	5.881 **	241	.000
Internal Processes	38.66	5.68	40.98	5.18	2.32	3.81	9.277 **	231	.000
Interpersonal Relationships	38.26	6.86	43.31	6.23	5.04	6.22	13.321 **	230	.000

M - arithmetic mean; SD - standard deviation; t - statistical criterion ; df - degree of freedom; ** $p < .01$; * $p < .05$

7. Conclusion

Based on the questionnaire survey, we have found out that the dominant culture of primary and secondary schools in Slovakia is the one focused on rational goals, performance and success. Next in line is the culture focused on internal processes typical of the formalization of processes and rules, emphasis on stability and effectiveness. These are characteristics typical of schools that work as bureaucratic systems with an emphasis on stability and resistance to change and innovations. The above mentioned fact is also highlighted by foreign studies, which put it in a context with inefficiency of schools and insufficient reflection of the requirements of the present time (Chen, 2010; Hannon, 2011; Tonkin, 2016). It is possible to state that the current dominant culture of elementary and secondary schools in Slovakia does not correspond to the environment supporting innovations of schools. The values such as innovations, openness, experimentation, as well as the promotion of cooperation, collegiality, participation, co-decision have been marked by teachers as the least appreciated in schools. Many authors emphasize the importance of collaboration in introducing innovations and increasing the efficiency of schools (Angelides, 2010; Butler, & Schnellert, 2012; Crawford, 2012; Jappinen, Leclerc, & Tubin, 2016; Krichesky, & Murillo, 2018; Munoz, 2009; Sales, Moliner, & Amat, 2017). From the point of view of the preferred type of school culture we have detected incompatibility with the real state of the culture of Slovak schools. According to teachers' statements the school culture in Slovakia is currently focused on rational objectives; however, teachers prefer the culture focused on interpersonal relationships, which, in terms of current profile of school culture, scored third. We have also taken a closer look at the position of school culture as an open system that corresponds to the culture supporting innovations in schools. The school culture focused on the open system is in schools least appreciated, but also least preferred. In the conditions of Slovakia our research findings confirm the results of Heinzová's research (2017). The findings on openness and willingness to introduce changes and to innovate are compatible with the research results by Porubský (2017), who explains them in connection with negative experiences of teachers with the way the reform in Slovakia was implemented. However, we want to point to the other important fact, which is necessary to work with. It is related to systematic and targeting creation of school culture. In particular, we consider pedagogical staff leaders responsible since their leadership style significantly determines the creation of a certain type of school culture. This is also emphasized in the studies of Donmoyer, Yennie-Donmoyer, & Galloway, 2012; Fullan, 2016; Hargreaves, & Fink, 2004; Lahera, & Normore, 2014; Tonkin, 2016; Zbar, 2013. To create culture supporting innovative processes in schools, it is necessary to know how and also to want to introduce innovations improving the education process in favor of pupils and the whole society. We are aware of the responsibility of all the involved as well as the importance of legislative adjustments as an important support for teachers and school principals. At the same time, however, we emphasize the high degree of responsibility of schools themselves and their employees. The key element is the personality of the school principal, who through his/her systematic acting as a manager of the school is able to influence the character of its culture to a considerable extent. We consider it important to educate teaching staff leaders with the aim to improve their managerial capabilities, especially those related to creating positive and productive working climate, open communication, support to create of a common vision of the school, cooperation, decision-making involvement, delegation of authority, support of innovation, experimentation

and courage to redesign the organizational structure of a school so as to support the creation of flexible teams, the development of system thinking, independence and responsibility of the whole school staff.

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References

- Angelides, P. (2010). The efficacy of small internal networks for improving schools. *School Leadership & Management* 30, 451 – 467. <https://dx.doi.org/10.1080/13632434.2010.513169>
- Bipath, K., & Moyo, E. (2016). Principals shaping school culture for school effectiveness in South Africa. *Journal of Social Sciences*, 48, 174–186.
- Butler, D.L., & Schnellert, L. (2012). Collaborative inquiry in teacher professional development. *Teaching and Teacher Education* 28, 1206 – 1220. . <https://dx.doi.org/10.5944/educXX1.15080>
- Chen, M. (2010). *Education Nation: Six leading edges of innovation in our schools*. San Francisco: Jossey-Bass.
- Crawford, M. (2012). Solo and Distributed Leadership: Definitions and Dilemmas. *Educational Management Administration & Leadership* 40 (5), 610 – 620. Dostupné z: <https://dx.doi.org/10.1177/1741143212451175>
- Deal, T.E., & Kennedy, A.A. (1982). *Corporate Cultures: The Rites and Rituals of Corporate Life*. Reading, MA: Addison-Wesley.
- Deal, T.E., & Peterson, K.D. (1990). *Shaping school culture: the heart of leadership*. San Francisco, CA: Jossey-Bass.
- Donmoyer, R., Yennie-Donmoyer, U. & Galloway, F. (2012). The Search for Connections Across Principal Preparation, Principal Performance, and Student Achievement in an Exemplary Principal Preparation Program. *Journal of Research on Leadership Education* 7, 5–43. <https://dx.doi.org/10.1177/1942775112440631>
- Fullan, M. (2007). *The New Meaning of educational Change*. New York: Teachers College Press.
- Fullan, M. (2016). The elusive nature of whole system improvement in education. *Journal of Educational Change* 17, 539 – 544. <https://dx.doi.org/10.1007/s10833-016-9289-1>
- Hannon, C. (2011). Aligning education with the skills young people need for citizenship: An apprenticeship for social action. *Centre for strategic education*, Seminar series 231, 3–12.
- Hargreaves, D.H. (1995). School culture, school effectiveness and school improvement. *School Effectiveness and School Improvement*, 6, 23–46. <https://dx.doi.org/10.1080/0924345950060102>
- Hargreaves, A., & Fink, D. (2004). The seven principles of sustainable leadership. *Educational Leadership* 61, 8 – 13.
- Heinzová, Z. (2017). Možnosti poznávania kultúry školy ako pracovného prostredia prostredníctvom dotazníka OCAI. *Školní psycholog*, 18, 193–199.
- Hofstede, G. (1990). Measuring organizational cultures - a qualitative and quantitative study across 20 cases. *Administrative Science Quarterly* 35, 286 – 316. doi: 10.2307/2393392
- Jappinen, A.K., Leclerc, M., & Tubin, D. (2016). Collaborativeness as the core of professional learning communities beyond culture and context: evidence from Canada, Finland, and Israel. *School Effectiveness and School Improvement* 27, 315 – 332. <https://dx.doi.org/10.1080/09243453.2015.1067235>
- Kosová, B., & Porubský, Š. (2011). *Transformačné premeny slovenského školstva po roku 1989*. Banská Bystrica: PF UMB.
- Kosturková, M., & Knapík, J. (2018). Verifying the development of the argumentation abilities of teaching students. *Ad Alta: Journal of Interdisciplinary Research* 8, 133 – 136.

- Krichesky, G.J., & Murillo, F.J. (2018). Teacher collaboration as a factor for learning and school improvement. a case study. *EDUCACION XXI* 21, 135 – 156. <https://dx.doi.org/10.5944/educXXI.15080>
- Lahera, A.I. & Normore, A.H. (2014). Sustaining school leadership programs Planning for Leadership Succession, Recruitment, Selection, and Innovative Curriculum. In K.L. Sanzo, (s. 1 – 21). *From policy to practice: sustainable innovations in school leadership preparation and development*. USA: IAP.
- Levine D.U. & Lezotte, L.W. (1990). *Unusually effective schools: A review and analysis of research and practice*. Madison, WI: National Center for Effective Schools Research and Development.
- Lukášová, R. (2010). *Organizační kultura a její změna*. Praha: Grada.
- Manaf, A. (2017). Improvement School Effectiveness through Culture and School Climate. *The International Journal of Social Sciences and Humanities Invention*, 4, 3289–3298.
- Maslowski, R. (2001). *School culture and school performance*. Netherlands: Twente University Press.
- Munoz, J.M.E. (2009). Teachers learning communities, teacher's education and school improvement. *Agora para la educacion física y el deporte* 10, 7 – 31.
- Orosová, R., & Petříková, K. (2017). Influence of experiential education in pre-graduate training of teachers on the classroom climate. *Turkish online Journal of Educational Technology*, (November Special Issue INTE), 155–162.
- Pol, M. (2005). *Kultura školy. Příspěvek k výzkumu a rozvoji*. Brno: Masarykova univerzita.
- Porubský, Š. (2017). Reformy už radšej nie! Pohľad slovenských učiteľov na premeny školského kurikula po roku 2008. In I. Ištvan, J. Ferencová, & M. Kosturková (Eds.), *Pedagogická profesia z aspektu vedy, výskumu a praxe* (s. 342–356). Prešov: FHPV PU. Retrieved from <http://www.unipo.sk/public/media/13484/Zborn%C3%ADk%20z%20konferencie.pdf>
- Quinn, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: towards a competing values approach to organizational analysis. *Management Sciences*, 29, 363–377.
- Sales, A., Moliner, L. & Amat, A.F. (2017). Collaborative professional development for distributed teacher leadership towards school change. *School Leadership & Management* 37, 254 – 266. . <https://dx.doi.org/10.1080/13632434.2016.1209176>
- Sammons, P. Hillman, & Mortimore, (1995). *Forging Links: Effective Schools and Effective Departments*. London: Paul Chapman Publishing.
- Tonkin, A. T. (2016). Leading Schools for Innovation and Success: Five case studies of Australian principals creating innovative school culture (Doctorate thesis). Retrieved from <http://hdl.handle.net/11343/57430>
- Tsang, K.K. (2009). Three approaches to understanding and investigating the concept of school culture and school culture phenomena: implications to school improvement and school effectiveness. *Hong Kong Teachers`Centre Journal*, 8, 86–105.
- Urbánek, P., & Chvál, M. (2012). *Klima učiteľského zboru. Dotazník pro učitele*. Praha: Národní ústav pro vzdělávání.
- Zákon o výchove a vzdelávaní (školský zákon) a o zmene a doplnení niektorých zákonov. Retrieved from https://www.vedatechnika.sk/SK/VedaATechnikaVSR/Legislatva/245_2008_skolsky_zakon.pdf
- Zbar, V. (2013). Generating whole-school improvement: The stages of sustained success. *Centre for Strategic Education*, Occasional paper 132, 1–14.
- Zhang, J. (2011). Sustaining knowledge building as a principle-based innovation at an elementary school. *Journal of the learning sciences* 20, 262 – 307. . <https://dx.doi.org/10.1080/10508406.2011.528317>.