

THE RELATION BETWEEN SCHOOL CULTURE SUB-CATEGORIES AND EXPECTED RESULTS OF LEARNING PROCESS

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Abstract

The aim of the research was to find out what factors of school culture affect the expected results of teaching and learning processes in basic schools. The research evaluated current and desired school culture in selected basic schools to identify culture gaps. Research using School Culture Inventory explored relations among selected sub-categories, namely between the sub-categories focused on shared objectives, trust in school leadership, and on managerial approach and the important sub-categories focused on innovation process and expected results of teaching and learning processes. The independent evaluators were final year students of the Faculties of Education from two universities in the Czech Republic who assessed schools after one month of their position at the selected schools (the research sample included 182 basic schools). The findings provided the evidence of current culture gaps and of a positive association between higher positive evaluations in the sub-category leadership and management and the sub-category expected results of teaching and learning processes. The results brought by the research will help school leaders when they plan to shape or change the culture of the schools they manage.

Keywords: *culture gaps, school culture, school culture inventory, shaping school culture.*

Introduction

School culture includes everything in a school's surroundings that is made by human beings, and includes tangible items as well as intangible concepts (Kulhavy, 1990) and values. Deal and Peterson (1999) stated that culture is everything within a school: the way people act, how they dress, what they talk about or avoid talking about, whether or not they seek out colleagues for help, how teachers feel about their work and their students, and how students feel about the school. Oldroyd et al. (1996, p. 49) defined organizational culture as 'the values, norms and beliefs which characterize organizations and are symbolized through patterns of interaction, dress, speech and shared by all members or, as sub-cultures, by some groups of members'.

There is increasing evidence that leadership makes a difference in schools (e.g. Hallinger & Heck, 1996; Lindahl, 2010; Louis et al., 2010, Osiname, 2018). Scholars have made sustained contributions to the question of how the behaviors of school leaders contribute to student

achievement? Research studies typically examined a limited range of leadership behaviors, thus making comparisons across studies is difficult. Louis et al. (2010) have called for further research to examine the specific leadership behaviors that could be most effective in supporting teaching and learning process.

The aim of the research was to explore relations among selected sub-categories (dimensions) of school culture (in the context of Czech basic schools) and to understand how selected characteristics of management and leadership influence perceived results of the teaching and learning processes.

Research Problem

In general, the school leader's mission is to lead the school in the right direction and also to motivate all the principal actors to do so. The school head then, as a manager and leader, focuses on setting goals that are given by the educational strategy and other documents, and on accomplishing them together with other people and in cooperation with them.

In the Czech Republic (CR), during the last 30 years, large investments have been made toward the improvement of Czech schools (ISCED 1-3). The system of education in the CR underwent major changes after the Act of 2004 (EURYDICE, 2019), which sets out the principles and aims of education and the structure of the educational system. The process of curriculum reform in basic schools and secondary schools has been in progress since 2005 and is currently at the stage of discussions about results in this area and comparisons with international standards. The successes of specific schools vary in terms of quality of teaching and students' academic performance. In particular, the Czech School Inspectorate (ČŠI, 2017-2019) pointed out in its thematically focused inspections and analyses that not all schools achieve the required results, that there are differences between schools, and that sometimes certain schools are lagging behind in international comparison to other countries.

The system of school management has also significantly changed. 'The powers and responsibilities of school heads have increased the introduction of the concept of legal entity' (Schratz, et al., 2009). The autonomy and responsibility of Czech head teachers is among the higher percentile in OECD countries (Schleicher, 2012). On other hand, head teachers serve as statutory representatives of schools and are responsible not only for the teaching and learning processes but also for financing, internal legislature, cleaning and maintenance of equipment, etc. (OECD, 2016). They are also accountable for the development of pedagogical staff and responsible for communication with parents and cooperation with other stakeholders (Eger et al., 2017). A highly discussed topic is the extent to which school management affects the teaching and learning processes and school performance. The research presented focuses on this topic that holds importance not only for the CR, but also to a wider context (c.f. Bush, 2013; Leithwood & Jantzi, 2006; Obdržálek & Polák, 2008; Pont et al., 2008).

Research Focus

Over the last decades, many researchers (e.g. Cameron & Quinn, 2011; Deal & Peterson, 1999; Kotler, 2003; Peters & Waterman, 1982; Schein, 1985) have attempted to define organizational culture and explain its essence, features, and influence on organizational development and performance. School reforms cannot be implemented without the successful implementation of changes to the school culture. After a wide analysis of literature (Shahzad et al., 2012) was found that organizational culture has a deep impact on a variety of organizational processes, including employees (teachers) and business (schools) performance. Managers and leaders are advised to develop strong cultures in their organizations to achieve higher commitment and improve the overall performance of the organization (Owoyemi & Ekwoaba, 2014).

Most studies on school culture have been conducted in Western countries. In the CR, the first model of school culture was created by Světlík (1996). For example, research in this area from new EU countries admitted in 2004 is represented by Pol et al. (2005), Eger (2010), and Moree (2013) from the Czech Republic, Obdržálek and Polák (2008), Janovská et al. (2016), Hašková and Bitterová (2018) from Slovakia, and Elsner (1999), Dzierzowska (2000) and Pyżalski (2014) from Poland.

School leaders are seen as the key factor that influences the shaping of the particular school culture. For example, according to Leitwood and Riehl (2003), leadership is the most significant of all factors and represents nearly one-quarter of the total effect of all school factors. Similarly, Deal and Peterson (2009, p. ix) underlined the role of school leaders and argue, 'successful school cultures have leaders who can cope with the paradoxes of their work and take advantage of the opportunities of the future.' Further, Oplatka and Hemsley-Brown (2007, p. 303) declared, 'principals have a major role in the changing of the school culture.' Peterson and Deal (1998) emphasized that the role of school leaders in the crafting of cultures is pervasive and creating a school culture is the responsibility of the school leader (Peterson & Deal, 1998; Turan & Bektas, 2013).

The following research questions were formulated based on the literature mentioned and previous research results.

Q1: What are the main cultural gaps in basic schools in the two selected regions?

Q2: Will selected sub-categories of the School Culture Inventory have a positive impact on the important sub-categories focused on innovation process and expected results of teaching and learning processes?

Research Methodology

Research Design Overview

School culture is a multifaceted concept, composed of different dimensions (e.g. Higgins-D'Alessandro & Sath, 1997; Hinde, 2004; Zhu et al., 2009). Maslowski (2005) conducted a critical review of previous school culture inventories and declared that questionnaires can be a valuable tool in diagnosing school cultures. For example, School Culture Scales' Properties (Dumay, 2009) consisted of the areas of collaboration and innovation, and laid emphasis on the discipline and academics but the research was focused on the consequences between schools' cultural and mathematical achievements. Another School Culture Scale was used to measure five school culture dimensions with regard to goal orientation, leadership, innovation orientation, participative decision-making, and formal relationships (Zhu et al., 2014). The model proposed by Bell and Kent (2010) recognized the dynamics and importance of both external and internal organizational forces in shaping the culture of schools.

Conducted research focused on the dimensions of school culture within Czech schools. As is mentioned above, the theoretical construct of this research was prepared on the basis of the literature review (among others, Bush, 2003; Everard et al., 2004; Fidler, 2002; Gruenert, 2000; Maslowski, 2006; Peterson & Deal, 1998).

This research attempted to explore empirically school culture using the quantitative research design (Creswell, 2014). The quantitative approach used the School Culture Inventory to gather data with the aim to find out what factors of school culture affect the expected results of teaching and learning processes in selected basic schools. The research also analyzed how selected characteristics of management and leadership influence the perceived results of the teaching and learning processes.

Sample

The research sample included 182 basic schools (ISCED 1 and 2) evaluated in two regions. In the Pilsen region (Western part of the CR) 98 basic schools and in the Olomouc region (Eastern part of the CR) 84 basic schools were evaluated. Data for this research came from students = evaluators (convenience sample) who were attending school management course (see below) in both public universities, that represent centers for teacher development in both regions, and who evaluated the selected schools.

Instrument

The school cultures were examined using the School Culture Inventory developed by Eger and Jakubíková (2001) and revised by Eger (2006). The instrument has been used in self-evaluation activities in the CR since 2001 in diverse school settings. For example, using this instrument, Hornáčková et al. (2014) conducted research focused on kindergartens and Eger (2010) on primary and secondary schools. Currently this tool is used for self-evaluation of school culture in the project conducted by the National Institute for Further Education (2017), where the module focused on school culture is the starting point of training about school strategy.

The first inspiration for the development of this tool came from publications by Everard and Morris (1996); Everard et al. (2004); and a description of Handy's four culture models by Bush (2003). A tool for school culture assessment by Fidler (2002) was also taken into account in the preparation of the second version of this School Culture Inventory. School Culture Inventory contains 16 items, which were developed to assess school culture in important domains by creating sub-categories and possible variables of school culture.

The construct of the questionnaire is consistent with similar research, e.g. Gruenert (2000), followed by Turan and Bektas (2013), or with key school culture traits by Sukkyung et al. (2017). Some items partly align with research by Leithwood and Jantzi (2006), who used robust tools in their research aimed at transformational school leadership.

The school culture was evaluated in five selected sub-categories. The first sub-category, leadership and management, contains four items focused on shared objectives, trust in school leadership, and managerial approach, that is, task management and control. The second sub-category, school environment, contains three items focused on organizational structure and delegation, working conditions, and aesthetic environment and cleanliness. The third sub-category, communication, contains three items focused on motivation of teachers, information exchange, and communication with parents and stakeholders. The fourth sub-category, relationships within the school, contains three items focused on supportive leadership style, relationships and teacher collaboration, and teacher-student relationships. The fifth sub-category, focused on innovation process and expected results of teaching and learning processes, contains three items, two of which are mentioned above. Teacher development, as results of leadership in staff development, and as a precondition for innovation process and expected performance in education of each school, is also included in this sub-category. These five sub-categories and their relationships constitute the framework for our evaluation of school culture.

The School Culture Inventory uses five-point Likert scale for a more detailed description of each school culture item. Each point in each item had a short, detailed description. For example, item 1, shared objectives, had a detailed description for point 1 = no awareness of school objectives, no planning, and its opposite for point 5 = full knowledge of shared objectives, clear orientation, common planning. Item 16 had a detailed description for point 1 = no good results expected, no interest and, its opposite for point 5 = high expectations of excellent teaching and learning results.

It was very important that the questionnaire worked to identify the so-called culture gaps (Kilmann-Saxton, c.f. Peters & Waterman, 1982) between current (existing) cultures and desired school cultures. Information about culture gaps is very important when school leaders plan to shape positive culture, including positive climate (c.f. Leithwood et al., 2006; Peterson & Deal, 1998).

Procedure

Because the research was not aimed at evaluating one school in depth, but at identifying the current state of organizational culture in selected schools and evaluating the outcomes of their assessment in selected regions, the evaluators were final year students of the Faculties of Education from two universities. This indicates that the evaluators were almost novice teachers who were not directly tied to the evaluated school, but they assessed schools after one month of their position at the selected school. During this one month they repeatedly met with the school management, studied the school's pedagogical documentation, collaborated with their trainer (an experienced teacher) and other teachers, and participated in classroom observations. However, they also directly taught students, participated in other school activities, perceived the school climate and communicated with other school staff or parents of students, or at least observed communication of teachers at school and the level of cooperation in the school, with parents, etc. Consequently, the evaluators of school culture were partly independent, but at the same time they 'lived in the school' for one month and could reasonably recognize its culture as participants.

The research was coordinated by two experienced academic experts in a subject focused on school management in the academic year 2018/2019. The questionnaires were administered directly at universities. The evaluators were asked to indicate their familiarity with items of the School Culture Inventory (current state and desired state for each item). It means, one student, who was a member of school community one month, evaluated this school using his or her experience described above. With a focus on the desired state of school culture, the task was to determine what was the desired version by the members of the school community.

Data Analysis

The data analysis was done as follows. First, a descriptive and correlational analysis was conducted to explore the actual level of school culture in basic schools in the selected regions. It applied the identification of culture gap (Kilmann-Saxton) between the current (existing) culture and desired school culture using descriptive statistics. Correlations were examined to evaluate the relations between selected sub-categories of School Culture Inventory. Second, the comparison between the sub-category focused on leadership and management and the sub-category focused on innovation process and expected results of teaching and learning processes was investigated using the Mann-Whitney *U* test. According to Kolmogorov-Smirnov test, the variables were non-normally distributed recommending nonparametric statistical tests (Jackson, 2016). Data were analyzed using MS Excel and Statistica software.

Research Results

Full-time students of the final year course at the Faculty of Education measured school cultures using School Culture Inventory, after completing one month of practice at the schools. The questionnaire consisted of 16 items and the evaluators were asked to indicate a current state and a desired state for each item.

First, the means and standard deviations for each item were calculated.

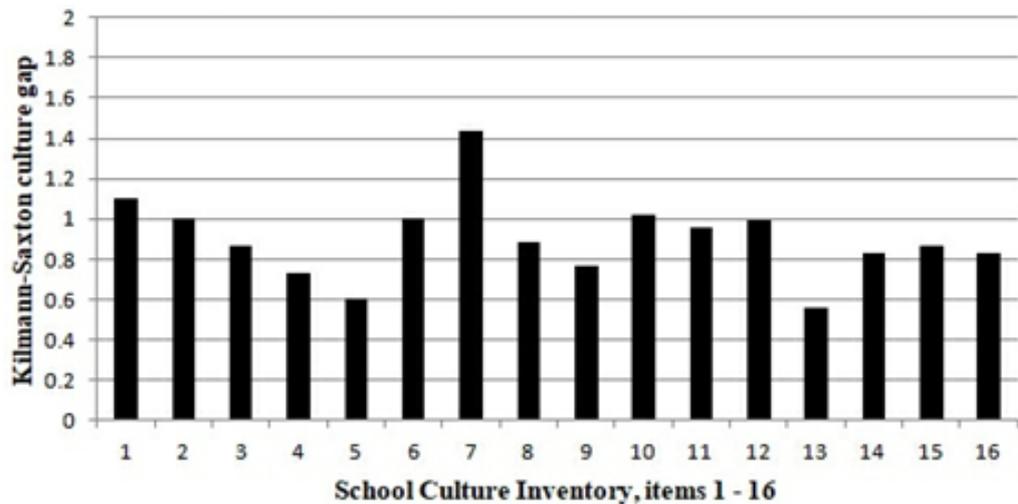
Table 1
List of items, School Culture Inventory

Items	Basic schools (<i>n</i> = 182)			
	Current culture		Desired culture	
	Mean	SD	Mean	SD
1 Shared objectives	3.4	0.8	4.5	0.6
2 Trust in school leadership	3.8	0.8	4.7	0.5
3 Supportive leadership style	3.4	0.9	4.3	0.7
4 Organizational structure and delegation	3.9	0.7	4.7	0.5
5 Managerial approach – task management	3.5	0.8	4.1	0.6
6 Managerial approach - control	3.6	1.0	4.6	0.6
7 Motivation of teachers	3.2	0.8	4.6	0.5
8 Communication in the school and information exchange	3.8	0.8	4.7	0.5
9 Communication with parents and stakeholders	3.8	0.7	4.6	0.5
10 Innovation of teaching and learning processes	3.3	0.8	4.2	0.5
11 Teacher development	3.7	0.8	4.5	0.6
12 Working conditions at the school	3.6	0.7	4.7	0.6
13 Aesthetic environment and cleanliness	3.7	0.6	4.3	0.6
14 Collaboration among teachers in the school	3.8	1.0	4.7	0.6
15 Teacher-student relationships	3.6	0.8	4.9	0.6
16 Expectation of education results	3.1	0.6	3.9	0.6

Note. *SD* = standard deviation. Cronbach's alpha for overall score of School Culture Inventory was .87 for the sample of basic schools from Pilsen, and .80 for the sample of basic schools from Olomouc.

As is mentioned above, school culture is a variable from school to school. However, for the purpose of this research, to compare current school cultures, the culture gaps are presented in Figure 1. Identification of culture gaps (Kilmann-Saxton) between current cultures and desired school cultures (Table 1 and Figure 1) showed where the problems lie in school cultures and where the opportunities exist for school leaders when they are thinking generally about school improvement.

Figure 1
Kilmann-Saxton culture gaps, basic schools in the Czech Republic (n = 182)



The main culture gaps were identified in the following items: Motivation of teachers (1.4), shared objectives (1.1), managerial approach – control, and Innovation of teaching and learning processes (1.0).

To assess the relations between the five selected sub-categories = variables (leadership and management, school environment, communication, relationships within the school, innovation process and expected results), bivariate Pearson correlation analysis was carried out. The correlation matrix was used to investigate the dependence between variables from our construct, or in other words, between sub-categories of School Culture Inventory.

Table 2
Bivariate correlations among variables used in analysis, basic schools (n = 182)

Sub-categories of school culture	1	2	3	4	5
1 Leadership and management					
2 School environment	0.47				
3 Communication, including teacher motivation	0.58	0.50			
4 Relationships within the school	0.48	0.45	0.60		
5 Innovation process and expected results	0.59	0.43	0.47	0.40	
Mean	3.6	3.8	3.6	3.6	3.4
SD	0.57	0.49	0.58	0.63	0.56

Note. $p < .05$

As can be seen in Table 2, there were moderate positive relationships between the subcategories leadership and management and communication, including teacher motivation ($r = .58$) and between leadership and management, and the very important subcategory innovation process and expected results ($r = .59$). A higher degree of coefficient was found between the subcategory communication, including teacher motivation and the sub-category relationships within the school ($r = .60$).

From this point of view, supportive leadership and management were positively associated with communication, including teacher motivation and also positive and moderate relationship was found with the sub-category innovation process and expected results. Outputs (Tables 2) signal the moderate positive association between the subcategories, communication, including teacher motivation, and relationships within the school, in current school cultures in the surveyed schools. This result is also the evidence for the importance of paying attention to communication within the school.

To compare difference between the sub-category leadership and management and the sub-category innovation process and expected results of teaching and learning processes, the Mann–Whitney U test was applied between the two groups of schools according to their results in the sub-category leadership and management. The schools were split in half according to the evaluation results in this category and the test was used to verify the null hypothesis.

$H1_0$ There is no association between the positive evaluation of school culture in the sub-category leadership and management and positive expected results in the sub-category focused on innovation process and expected results of teaching and learning processes.

$H1_A$ Schools with a positive evaluation of school culture in the sub-category leadership and management reach significantly higher positive evaluations in the sub-category focused on expected results.

Figure 2 below shows the distribution of evaluation results in the sub-category innovation process and expected results of teaching and learning processes according to the two groups of basic schools. The first group of schools represents half of the basic schools surveyed ($n = 91$), with higher evaluations in the sub-category leadership and management. The second one is the opposite group.

Figure 2

Two groups of basic schools divided according to leadership and management

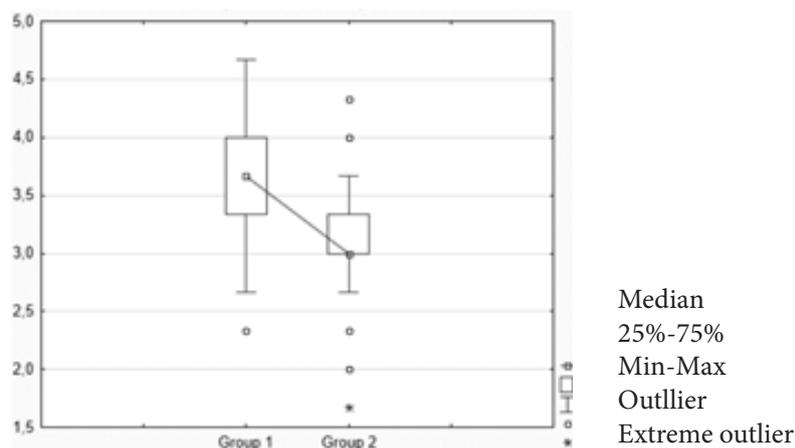


Figure 2 uses boxplot visualization to graphically show the distribution of the results in the sub-category innovation process and expected results of teaching and learning processes for two groups of basic schools from the selected sample. Spacing between the different parts of the presented boxplot indicates the degree of dispersion and skewness in the data and displays outliers. The median for groups with higher evaluations in the sub-category leadership and management was 3.67, and there was only one outlier, 2.33. The median for the second group of basic schools is 3.0. The box that comprises the middle 50 % of results is smaller than the first group. The second group showed more outliers, both above and under the box. While the values above were within the first group, the values below point to a very negative evaluation of the five schools in this sub-category. It could be interpreted as a call for help.

To test whether there was a statistically significant difference between the two groups of basic schools in terms of their evaluation in the sub-category leadership and management to the results in the sub-category innovation process and the expected results of teaching and learning processes, the statistical non-parametric approach was used, the Mann–Whitney U -test. Following the Mann–Whitney results (Z -Score = -2.02339, $p = .043033 < .05$), Hypothesis $H1_0$ was rejected and accepted the alternative hypothesis $H1_A$, which indicates that there was found significant difference between the two groups of schools in the innovation process and the expected results of teaching and learning processes.

Discussion

The results of this empirical research showed that culture gaps in Czech schools were found primarily in the items motivation of teachers and shared objectives. School leaders should also pay attention to the items in the second place, namely, managerial approach – control, innovation of teaching and learning processes, and communication, both internal and external.

This research also explored the relationships between the five main sub-categories using School Culture Inventory (Table 2). As is mentioned above, not only in the CR, experts in other countries too are looking for ways to improve schools and their performance. The important question is, what kind of role does school management and leadership play? The presented results are in line with the theory proposed by Bush (2013), Leithwood et al. (2006), and Peterson and Deal (1998) and confirm the important role of school management and leadership in relation to the expected performance of the school. The research found positive and significant relationships between the sub-category leadership and management and the important sub-categories that are focused on the innovation process at schools and the expected results of teaching and learning processes. This finding is in line with the results of research conducted by Louis et al. (2010) for variables shared leadership and trust. The sub-category of School Culture Inventory aimed at performance also contains an item focused on teacher development. This item is considered as a precondition for innovation process and expected performance in the education of each school. In practice, this item is in relationship with the activity of school leaders and their care for the most important resource of the school. The boxplot (Figure 2) graphically showed the distribution of the results in the sub-category innovation process and the expected results of teaching and learning processes for two selected groups of basic schools. A positive evaluation of school management and leadership leads to higher evaluations in the sub-categories focused on innovation process at schools and expected results of teaching and learning processes.

The results are also in line with the findings by Osiname (2018) who stated that successful leaders achieve their goals by collaborating and communicating with all stakeholders to establish the appropriate vision for their schools and support everyone and create a school community that is safe for teachers and students.

As expected, moderate positive association was found between the sub-category communication, including teacher motivation and relationships within the school. This finding is in line with the results of the research conducted for example by Janovská et al. (2016) in Slovakia, but does not correlate with the findings by You, Kim, and Lim (2017) in similar areas (academic climate and colleague support) in Korea. Similarly, Zhu et al. (2014) found differences between Flemish and Chinese schools regarding school culture dimensions. These findings showed that it will be important for future research to take into account the cultural context in particular countries.

Cameron and Quinn (2011) summarized scientific studies that report a positive relationship between dimensions of organizational culture and organizational effectiveness. It is obvious, that this topic is also important in education area where on national and on an

international level government and other institutions search ways how to improve schools and how to support the educational process (e.g. European Commission, 2018). For those interested in empirical evidence that supports the evaluation procedures and culture change methodology explained conducted research how to apply Kilmann-Saxton culture gap in practice. This research also illuminates the key elements of school culture (cf. Lee & Louis, 2019; Maslowski, 2006; Peterson & Deal, 1998) that have been linked with sustainable school improvement.

The main limitation of the conducted research was that the results are relevant to basic schools in the Czech Republic. However, the results are important for understanding school culture and leaders' role in shaping school culture from an international point of view.

Two methodological limitations of the research warrant caution in the interpretation of the results. First, the evaluators of school culture were full-time final year students of the Faculty of Education, and they completed questionnaires after one month of practice at their designated schools. On one hand, they were partly independent observers, but had experience at the evaluated schools. On other hand they only had teaching experience as novice teachers. A second methodological limitation of the research was a measure of the sub-categories innovation process and the expected results of teaching and learning processes. The performance of the school better represents data from, for example, TIMSS or similar national comparisons of learning outcomes.

Conclusions and Implications

This research extends and deepens understanding of culture gaps in schools and shows the suitability of evaluating not only current, but also desired, school culture. It is hoped that the conducted research provides new knowledge for improving the professional development of head teachers based on the findings from the application of School Culture Inventory.

The practical application of the conducted research is in recognizing the current situation of school cultures, including culture gaps. The findings provide some insights about current situation of the sample schools, which can be helpful for forming recommendations for school culture construction. The presented School Culture Inventory is a useful tool for auto-evaluation for some schools, and the findings should be used when school leaders plan to shape or to change the culture of the schools they manage.

The results have important implications for recognizing the importance of the role of school managers and leaders in relation to the expected results of teaching and learning processes. By confirming that schools with higher positive evaluation in the sub-category leadership and management reach higher positive evaluations in the sub-category expected results of teaching and learning processes, the research not only explains the role of school managers and leaders, but also brings new knowledge for shaping school culture. School culture is a key component of the school improvement process.

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