Examining the Impact of Educational and Professional Environment Quality on Academic Achievement and the Outcomes of Integrated Quality Management Implementation

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Abstract

Schools today face increasing demands to improve instructional effectiveness and institutional performance. This study investigates how the quality of the educational and professional environment for teachers influences student academic outcomes and the success of integrated quality management systems in schools. Grounded in contemporary educational theories and supported by structural equation modeling, the research highlights the critical role of curriculum, infrastructure, teacher training, feedback, educational leadership, class size, assessment practices, quality assurance policies, and extracurricular opportunities. The findings demonstrate that these interrelated factors influence measurable academic outcomes and affect stakeholders' perceptions of educational quality. These results advocate for a systemic and sustained investment in the professional development of educators and the enhancement of school environments. Ultimately, the study confirms that the quality of the educational ecosystem is a key driver of both performance and perception, reinforcing the value of an integrated quality management approach.

Key words: educational quality management, teacher professional development, educational performance, quality assurance in education, learning environment
J.E.L. classification: I21

1. Introduction

The quality of education has become an essential strategic objective for education systems worldwide. Schools are challenged to improve their academic results and capacity to respond to the multiple expectations of students, parents, communities and authorities (Hattie, 2009). In this context, the fundamental role that the professional and educational background of teachers plays in generating performance and strengthening quality management is increasingly evident (Vărzaru and Vărzaru, 2013a, 2013b).

The literature highlights that factors such as teacher preparation, curriculum quality, educational leadership, infrastructure, quality assurance policies, and involvement in extracurricular activities can directly influence both academic achievement and perceptions of educational quality (Leithwood & Jantzi, 2006; Dweck, 2016; Hattie & Clarke, 2019). However, the complex relationships between these dimensions remain underexplored in an integrated framework.

Through a quantitative approach based on structural modeling, this paper aims to investigate how teachers' professional and educational background influences academic performance and the efficiency of quality management in schools.

2. Theoretical background

The school curriculum is the core of the educational process. According to Tyler (1949), a well-structured curriculum based on clear educational objectives relevant to the current context of society is essential for increasing the quality of learning and developing students' cognitive and social skills. Constructivist theory (Vygotsky, 1978) suggests that a curriculum that integrates student-centered learning strategies and the development of critical thinking positively impacts educational outcomes. Empirical studies conducted by Darling-Hammond (2015) show that an appropriate and well-implemented curriculum has a direct influence on academic performance, reflected in students' results in national and international assessments (Sitnikov and Bocean, 2010; Sitnikov and Bocean, 2013).

The quality of school infrastructure, including classrooms, laboratories and recreational spaces, is essential in creating a conducive environment for learning. According to the ecological theory of human development formulated by Bronfenbrenner (1979), the physical environment holds an important place in students' cognitive and emotional development. An adequately equipped school facilitates an effective educational process, providing students and teachers access to resources and equipment necessary for practical and exploratory activities (Leithwood & Jantzi, 2006). Research conducted by Earthman (2002) indicates that a modern school infrastructure contributes to reducing absenteeism and increasing the level of concentration and involvement of students in educational activities.

Feedback learning theory argues that students can adjust their learning behaviors and strategies when they receive clear, specific, and constructive feedback indicating how to improve their performance (Hattie and Timperley, 2007). Black and Wiliam (1998) have demonstrated that formative feedback, that is, feedback that is integrated into the learning process, has a significant impact on student progress because it helps them understand where they are concerning educational goals and how they can achieve these goals (Vărzaru and Vărzaru, 2015a, 2015b). Carless (2006) emphasizes the importance of feedback as an integral part of an assessment strategy that supports long-term learning.

Educational leadership is central to developing and implementing quality assurance policies and practices. Leithwood et al. (2020) argue that effective leaders create an organizational culture based on collaboration and continuous improvement. Transformational leadership theory (Bass and Avolio, 1994) suggests that school leaders can inspire and motivate teachers to participate actively in quality improvement initiatives, positively influencing organizational and individual performance. Research by Robinson, Lloyd, and Rowe (2008) shows that school leadership that focuses on learning and teacher development directly contributes to increasing educational quality and successfully implementing quality assurance strategies.

Personalized learning theory suggests that teachers with smaller class sizes can provide more individualized attention to each student, thus facilitating more effective and personalized learning (Tomlinson, 2001). Research by Finn and Achilles (1990) has shown that smaller class sizes lead to greater student engagement in educational activities, more frequent interaction with the teacher, and improved academic performance, especially in the early stages of education (Dweck, 2016). Blatchford et al. (2002) have emphasized that in small class sizes, teachers have more time to focus on individual student needs and provide more detailed feedback, which leads to better learning.

Accurate and well-structured assessment is essential for measuring students' academic progress and adjusting teaching methods. According to the theory of formative assessment (Sadler, 1989), well-planned and executed assessments provide a measurement of current performance and an opportunity for continuous learning. Stiggins' (2005) research highlights that formative assessments, combined with constructive feedback, allow students to better understand their strengths and weaknesses, thus contributing to deeper learning and improved educational outcomes. Hattie and Clarke (2019) show that well-structured assessments promote competency-based education, providing an accurate picture of student progress and the effectiveness of the teaching methods.

The quality of education depends significantly on the clarity and consistent application of quality assurance policies and procedures within school institutions. Well-defined and transparent policies allow all educational actors, be they teachers, students or parents, to understand their responsibilities and the standards that must be respected. Such policies create an organizational culture oriented

towards performance and continuous improvement. According to the theory of total quality management (TQM) in education (Deming, 2000), educational institutions must adopt a clear set of policies and procedures to be implemented at all levels to ensure high-quality education. Well-structured educational policies standardize and optimize educational processes and reduce uncertainties in applying didactic and evaluative methods. Support for this hypothesis can also be found in the literature on "distributed educational leadership" (Spillane et al., 2001), which emphasizes the importance of the participation of all school personnel in the correct application of quality policies. Studies by Cheng and Tam (1997) have shown that when policies are clear and well-understood by all parties involved, teachers and students are more motivated to adhere to the established standards, which leads to improved school performance (Rotea et al., 2023; Georgescu et al., 2024).

Extracurricular activities are essential to education, providing students with additional opportunities to develop social, cognitive and emotional skills. According to the theory of integral education (Dewey, 1938), learning should not be limited to the classroom but should include real-life experiences through which students can learn to collaborate, make decisions and develop their leadership skills and critical thinking (Bocean, 2007a, 2007b, 2009, 2011). Extracurricular activities, such as sports, art, debates or science clubs, provide an informal learning environment that complements formal education and contributes to the integrated development of the student. According to Erikson's theory of social development (1950), participation in such activities helps young people develop a clear identity and assume important social roles, which contributes to increasing self-confidence and school motivation.

Empirical studies by Eccles and Barber (1999) and Heward et al. (2022) have shown that students develop positive social relationships, transversal skills not always addressed within the formal curriculum and form a strong self-image in extracurricular activities, such as problem-solving, teamwork, and creative thinking.

3. Research methodology

This research investigates the relationship between teachers' professional and educational backgrounds, students' academic performance, and the effectiveness of quality management in schools. The study is part of a quantitative research design with an explanatory purpose, using correlational analysis and structural modeling to test the relationships between the analyzed variables.

The central hypothesis of the research is that teachers' professional and educational environment significantly influences students' academic performance and the efficiency of quality management in educational institutions. To validate the hypothesis, a structured questionnaire was developed to measure teachers' perceptions of the variables of interest: professional resources and support, opportunities for continuous development, educational climate, managerial involvement and perceived results at the institution level. The research variables are in Table no. 1.

Table no. 1 Research variables

Code	Variable	Code	Variable
VDRI16	Development of academic and social skills	VIC32	Efficient administrative support
VDRI17	Competencies for higher education	VIC33	Balance between theory and practice
VDRI18	Good results in national assessments	VIEG45	Satisfaction with education quality
VDRI19	Correlation between resources and results	VIEG46	Proper teacher training
VDRI20	Student and parent satisfaction	VIEG47	Well-organized educational program
VDRI21	Active participation and motivation	VIEG48	Student success opportunities
VDRI22	Flexibility in educational programs	VIEG49	Professional development opportunities
VDRI24	Feedback from parents and the community	VIEG50	Impact of extracurricular activities
VIC25	Support for students with difficulties	VIEG51	Appropriate teaching resources

VIC31	Appropriate educational technology	VIEG52	School recommendation

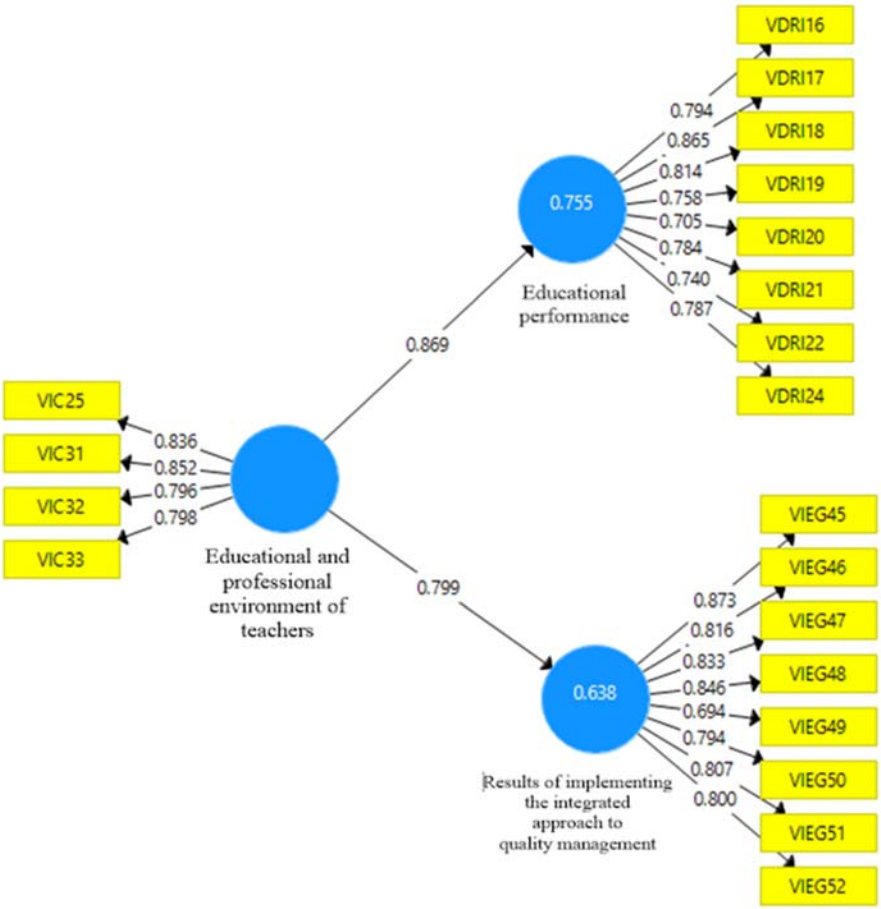
Source: Developed by the authors based on literature review

The research sample consists of 430 teachers from pre-university education institutions, selected stratified to ensure diversity and representativeness based on criteria such as type of school, area of residence, level of education and length of service in the profession. The data were collected between September 2024 and January 2025, providing an updated and relevant picture of the realities of the Romanian education system and allowing the formulation of conclusions with practical applicability. Structural equation modeling (SEM), appropriate for research on latent variables, was used to process the data (Vărzaru and Vărzaru, 2016; Nicolescu and Vărzaru, 2020; Vărzaru, 2024).

4. Results and discussions

To test the hypothesis, we used SEM (Figure no. 1)

Figure no. 1. The PLS model regarding the direct relationships between the educational and professional environment of teachers, educational performance and the results of implementing the integrated approach to quality management



Source: Developed by the authors based on data using SmartPLS v3.0

The R-squared values of 0.638 for the overall assessment of educational quality and 0.755 for educational quality outcomes and impact indicate a strong explanatory power of the model. These figures suggest that approximately 64% of the variation in quality perception and 76% in educational outcomes can be attributed to the factors included in the analysis, a remarkable proportion confirming the relevance of the proposed model.

Regarding the reliability of the constructs, the Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE) values are within acceptable limits, indicating good internal consistency and satisfactory convergent validity (Table no. 2).

Table no. 2 Reliability indicators of the model regarding direct relationships between the educational and professional environment of teachers, educational performance and the results of implementing the integrated approach to quality management

	Cronbach's Alpha	**rho_A**	**Composite Reliability**	**Average Variance Extracted (AVE)**
Overall assessment of the quality of education	0.924	0.931	0.938	0.655
Intermediary and controlling factors	0.838	0.841	0.892	0.674
Results and impact on educational quality	0.909	0.914	0.926	0.612

Source: Developed by the authors based on data using SmartPLS v3.0

The Cronbach's Alpha values (between 0.838 and 0.924) and AVE (between 0.612 and 0.674) exceed the recommended thresholds, indicating good internal consistency and convergent validity. These values confirm that the constructs are well-defined and that the variables that compose them are closely related.

Multicollinearity analysis, with VIF values below 4 for all variables, excludes the possibility of distortions in estimating coefficients (Table no. 3).

Table no. 3 Collinearity of variables in the model regarding direct relationships between the educational and professional environment of teachers, educational performance and the results of implementing the integrated approach to quality management

Variable	**VIF**	**Variable**	**VIF**
VDRI16	2,231	VIC32	2,024
VDRI17	3,791	VIC33	1,898
VDRI18	3,015	VIEG45	3,501
VDRI19	2,020	VIEG46	2,909
VDRI20	2,402	VIEG47	2,989
VDRI21	2,705	VIEG48	3,069
VDRI22	1,980	VIEG49	1,873
VDRI24	2,180	VIEG50	2,630
VIC25	1,903	VIEG51	2,327
VIC31	2,390	VIEG52	2,632

Source: Developed by the authors based on data using SmartPLS v3.0

The path coefficients reveal significant and robust relationships between the constructs (Table no. 4).

Table no. 4 Path coefficients in the model regarding the direct relationships between the educational and professional environment of teachers, educational performance and the results of implementing the integrated approach to quality management

	Original sample	**Sample Mean**	**Standard deviation**	**T statistics**	**P-values**
Mediating and controlling factors → Overall assessment of the quality of education	0.799	0.799	0.015	51,980	0.000
Mediating and controlling factors → Outcomes and impact on educational quality	0.869	0.869	0.014	64,073	0.000

Source: Developed by the authors based on data using SmartPLS v3.0

The influence of intermediary factors on the overall quality assessment (β=0.799) and educational outcomes (β=0.869) is robust, with t-values exceeding 50 and 60, respectively, confirming statistical significance at an extremely high confidence level (p<0.001).

These results suggest that improving the professional environment of teachers has a knock-on effect, influencing both measurable performance and perceptions of educational quality. The model highlights how a well-structured educational environment that supports the professional development of teachers creates a virtuous circle: on the one hand.

5. Conclusions

The SEM model reveals significant influences of the professional environment on the perception of educational quality. Also, the positive impact of continuous training and feedback on improving school performance underlines the need for an educational framework that supports the continuous professional development of teachers.

In conclusion, the study confirms the hypothesis that a well-structured educational environment, which supports teacher development and fosters effective quality management, can improve educational performance and increase the overall satisfaction of all actors involved in the educational process. These findings underscore the necessity for educational reforms and strategic initiatives focused on enhancing professional resources and optimizing learning environments to unlock the full potential of both educators and students.

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