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Title: Does the Professional Learning Community Intermediate the Effects of Principal's Leadership on Teaching Innovation?

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Abstract:
This study explores the intricate dynamics of leadership, professional learning communities (PLC), and their collective impact on driving teaching innovation. We analyze an original dataset from 352 schools from five Italian regions by combining two original datasets from a principals' questionnaire and innovative didactic project information for each school. We use structural equation modeling (SEM) to analyze factors influencing innovation. Our results reveal a significant and positive influence of both supportive and instructional leadership styles on the organizational capabilities of the professional learning community (PLC), indirectly affecting teaching innovation. Interestingly, while organizational capabilities exhibited a strong positive relationship with teaching innovation, personal and interpersonal capabilities do not show a significant relationship. This suggests that these aspects of PLC alone may not suffice in driving pedagogical innovation.
Overall, this paper underlines the importance of effective leadership and robust PLCs in fostering an environment conducive to innovative teaching practices. It offers valuable insights for policymakers, educators, and school leaders aiming to cultivate a culture of pedagogical innovation in their institutions.

Introduction

This study explores the determinants of innovation in educational practices, focusing on the role of leadership styles and professional learning communities (PLCs) within school environments. The evolving educational landscape necessitates a constant pursuit of innovation to ensure effective pedagogical methods, ultimately fostering the holistic development of learners. Therefore, understanding the factors that drive innovative teaching practices is critically important.
This research explores two major sets of hypotheses. The first posits that leadership styles significantly influence the strength and functionality of PLCs, thereby impacting innovation

in teaching. Specifically, the study examines the effects of supportive leadership and instructional leadership styles on PLCs' organizational, interpersonal, and personal capabilities. The second investigates the impact of PLC on innovation.

The rationale behind the study lies in the increasingly complex demands of contemporary education. As the requirements of the knowledge economy evolve, the need for teaching innovation becomes paramount to ensure that learners are equipped with the required skills and competencies. Furthermore, PLCs and school leadership are two critical pillars of educational institutions that can act as catalysts for innovative teaching practices. However, the specific dynamics of these relationships and their impact on teaching innovation remain underexplored.

Literature Review

The literature review explores the critical concepts central to this research: innovation of teaching practices, PLC, school leadership styles, and the school administrative context.

Innovation in schools and teaching practices

Innovation is crucial to any organization (Anderson et al., 2014). ~~Organizational~~ Innovation is a new idea or further development of an existing product, process, or method applied in a specific context to create added value. This definition has the advantage of being sufficiently broad both from the point of view of the object of innovation, such as products, services, processes, or methods (Adams et al., 2006; Hidalgo and D′Alvano, 2014), and the approach, incremental or radical, to innovation (Ettlie et al., 1984; Tidd, 2001). Innovation can be closely intertwined with the cultural dimensions of a learning organization (Kontoghiorghes et al., 2005; McCharen et al., 2011; Simonin, 1997). A learning organization fosters a continuous process of learning where collaborative and creative practices among group members are encouraged (Senge, 1990). Therefore, organizational creativity is vital as one of the most crucial elements in creating innovative organizational knowledge. An organization that prioritizes a supportive learning environment creates a culture where the members are encouraged to engage in cooperative exchanges. This kind of setting facilitates knowledge sharing and fosters an environment of collaborative improvement, creating possibilities for enhancing various aspects of an individual's capabilities within the organization (Dirani et al., 2021; Simonin, 1997; Stoll and Kools, 2017). On a personal level, individuals can develop their skills and competencies through continuous learning and exchanging of ideas (Ju et al.,

2021). Interpersonally, the cooperative nature of this environment fosters positive relationships, understanding, and mutual respect among colleagues, leading to effective team dynamics (Song et al., 2009).

On an organizational level, this collaborative and knowledge-rich setting translates into the ability of the institution to respond, adapt, and innovate in the face of changing circumstances (Kontoghiorghes et al., 2005). By continuously learning and improving, the organization enhances its current operations and equips itself with the capabilities to foresee, plan, and instigate changes necessary for future development and success (Ismail, 2005).

Paniagua and Istance (2018) define innovation as *"... a problem-solving process rooted in the professionalism of teachers, a normal response to deal with the daily changes of classes in constant evolution"* (p.13). School innovations sometimes involve radical changes in the pedagogical core but often result in only incremental adaptations of well-known practices (Serdyukov, 2017). Peterson et al. (2018), assert that innovation in pedagogy, like any innovation, takes existing ideas, tools, or practices and brings them together in new ways to solve problems when current practice does not adequately meet existing needs. Therefore, rethinking the pedagogical core must translate into a new combinatorial idea of the elements that can improve the learning and well-being of students and teachers.

Professional Learning Community

There is no single definition of PLC, but there is agreement that it pushes teachers within a school to pursue and disseminate knowledge consistently and subsequently act upon that knowledge (Stoll, Bolam, et al., 2006). Building on the multidimensional and multi-layered model of PLC generated by Sleegers et al. (2013), this study centers on personal, interpersonal, and organizational capabilities at school level as the critical set of competencies necessary for fostering innovation in teaching. Schools that can balance these dimensions effectively are well-positioned to champion innovative pedagogical strategies.

Personal capabilities

Personal capabilities refer to the individual attributes, skills, and competencies that each educator brings to the table within the PLC. These capabilities are multifaceted, encompassing pedagogical expertise, subject matter knowledge, and an array of personal characteristics and dispositions. The importance of personal capabilities cannot be understated; the essence of effective teaching extends beyond mere content knowledge to incorporate a breadth of capabilities such as adaptability, creativity, critical thinking, resilience, and an unwavering commitment to the teaching profession and lifelong learning

(Darling-Hammond, 1994; Hord, 1997). These personal capabilities form the foundation for a teacher's effectiveness within the PLC, pivotal in their potential contribution to pedagogical innovation.

Interpersonal capabilities

The social capital that deals with the interaction of individuals is of utmost importance within schools, given that information exchange is necessary for effective teaching. It demands high-quality teacher interaction to boost the school's performance (Bryk and Schneider, 2002; Giles and Hargreaves, 2006). The relationship among teachers has proved to be a determinant factor of students' educational performance (Leana and Pil, 2006). Interpersonal solid relationships foster collaboration, information exchange, and mutual trust, enabling a collective commitment to enhance teaching and learning practices (van Uden et al., 2014).

Organizational capabilities

Organizational capabilities include the availability of appropriate teaching technologies and materials, access to literature for professional development like magazines and books, and effective communication systems within the staff. When firmly embedded in a school's organizational structure, these components create an enabling environment that promotes experimentation, reflection, and learning, leading to innovative teaching practices (Stoll, Mcmahon, et al., 2006; Thurlings et al., 2015). This setup equips teachers with the necessary resources and facilitates the exchange of ideas and knowledge, encouraging innovative teaching practices.

School leadership that fosters professional learning communities and innovation

The substantial influence of school principals on school success, mainly through fostering teacher outcomes, has been highlighted in educational research over the past decade (Heck and Hallinger, 2014; Leithwood et al., 2010). Their predominantly indirect impact is significant, often realized by cultivating a conducive environment for teacher innovation within a PLC (Hallinger et al., 2020; Kennedy et al., 2011; Leithwood and Jantzi, 2000; Orphanos and Orr, 2014; Zheng et al., 2019). The innovation process can be disseminated more broadly via cooperative endeavors between school principals and teachers (de Jong et al., 2022).

Drawing upon the existing body of literature, we identify two primary roles that successful leaders tend to fulfill (Hulpia et al., 2009). Firstly, supportive leadership is tied to the leader's ability to cultivate and establish a shared school vision and precise objectives, inspire and

assist teachers, and encourage professional learning among educators (Leithwood et al., 2008; Owen, 2016). Secondly, the instructional leadership function pertains to the principal's responsibility to formally oversee and track teachers' performance within the school environment (Hallinger, 2010; Hallinger et al., 2020).

Supportive leadership is a form of distributed leadership in which decision-making and responsibilities are shared among various institutional stakeholders (Spillane, 2012). This leadership style is especially relevant in educational contexts, where the collaborative effort of principals, teachers, students, and sometimes even parents and the wider community can significantly enhance the effectiveness of the educational process (Harris, 2008). Seen through this lens, supportive leadership can be understood as a particular form of distributed leadership in schools (Leithwood et al., 2004). Supportive leadership involves the creation of a nurturing environment conducive to growth and innovation. In a school context, principals manifest this role by establishing the structural conditions necessary for a thriving PLC (Louis and Robinson, 2012; Morris et al., 2020). They do this by promoting a culture of trust, collaboration, and inclusivity that enhances teacher learning and innovation (Crowther et al., 2009). They further encourage openness to new ideas, provide essential resources, and shield teachers from potential distractions, thereby fostering a culture of continuous improvement (Carpenter, 2015).

On the other hand, instructional leadership involves principals actively participating in pedagogical aspects of teaching and learning (Hallinger et al., 2020). They not only set high expectations for teachers and students but also have a deep understanding of the curriculum, instructional strategies, and assessment practices (Bossert et al., 1982; Hallinger, 2010). They further stimulate reflective practices and provide professional development opportunities that align with the PLC's objectives (Prenger et al., 2017). Moreover, instructional leadership pertains to the direct involvement of school leaders in the pedagogical aspects of teaching and learning. Instructional leaders work closely with teachers to support their instructional capacity, provide feedback, stimulate reflective practice, and promote professional development opportunities that align with the goals of the PLC (Jo Blase and Blase, 1999; Joseph Blase and Blase, 1999).

These varied leadership styles - supportive and instructional - interact to create a robust foundation for PLCs. The interaction between these leadership styles and the dynamics of the PLCs also plays a critical role in fostering teacher innovation (Stoll, Mcmahon, et al., 2006). In this environment, teachers feel empowered to experiment, reflect, learn, and ultimately innovate, contributing significantly to the pedagogical evolution and improved student

outcomes (Vescio et al., 2008). Therefore, through supportive and instructional styles, school leadership contributes significantly to the development and success of PLCs and indirectly but significantly to pedagogical innovation and student success.

School Context

The importance of the school's context in shaping its operational and educational outcomes cannot be overstated. Within this setting, the school administrative context plays an instrumental role. Recent studies envisage schools as a “professional community” in which leadership, school administration, and classroom instruction are tightly coupled, seeking a higher level of organizational integrity and legitimacy (Louis et al., 2012), underscoring the important role of effective administrative systems in shaping the environment that facilitates or hinders school innovation (Nemeržitski et al., 2013). Nevertheless, as Scussler et al. (2007) point out, administrative systems may encourage teachers to enhance their teaching practices, but the effects depend on other factors as well.

School Type

The type of school, specifically whether it is a first or second-cycle institution, could significantly influence teaching innovation. In first-cycle schools, often called primary or elementary schools, teachers typically have a more holistic view of their students, teaching multiple subjects and having a broad perspective on the child's learning process. This setup can encourage pedagogical innovation as teachers experiment with integrative, cross-disciplinary teaching approaches and have more flexibility to adapt teaching methodologies to the comprehensive needs of their students (Bitan-Friedlander et al., 2004; Verloop et al., 2001).

Conversely, teachers in second-cycle institutions specialize in specific subjects. The increased depth of subject matter can lead to innovation in teaching methods within the specific field, driving the development of advanced pedagogical techniques and tools relevant to their discipline (Cai and Tang, 2022; Liu et al., 2022).

Conceptual Model

Overall, it can be concluded that school innovation takes a multidimensional perspective encompassing not just pedagogical transformations but broader organizational, interpersonal, and didactic changes affected by leadership and the school administration context. While

individually critical, these dimensions converge to foster an environment conducive to innovation in schools (see Figure 1), leading us to the following hypothesis.

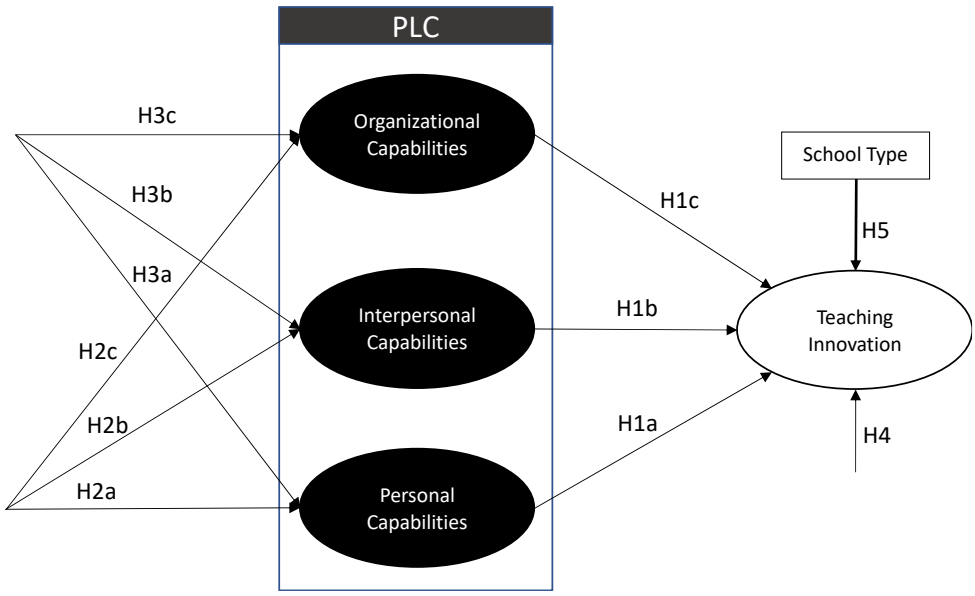

Figure 1. The Conceptual model

H1: Within a PLC, the likelihood of innovation in teaching practices is higher when teachers possess elevated personal capabilities, including subject matter expertise, pedagogical proficiency, reflective practices, and commitment to continuous professional development (H1a); engage in strong interpersonal interactions (H1b); and when the school exhibits substantial organizational capabilities (H1c).

H2: Supportive leadership acts as a positive force that encourages and promotes the personal (H2a) and interpersonal (H2b) capabilities of teachers and organizational capacities (H2c) as well.

H3: Instructional leadership plays a crucial role in shaping and enhancing the PLC within the school setting, indirectly influencing teacher innovation. This influence manifests through direct impacts on teachers' personal (H3a) and interpersonal (H3b) capabilities, as well as on organizational capacities (H3c).

H4: Effective administrative systems positively influence innovation.

H5: The type of school significantly influences teaching innovation.

Methodology

Sample selection

The data were collected through a survey held in 2018 and conducted in collaboration between the Department of Management, University of Bologna, five regional school offices (Emilia-Romagna, Friuli Venezia Giulia, Lazio, Piemonte, and Toscana), the National Association of Principals (ANDIS), the Agnelli Foundation, together with a group of researchers from Research for the innovation of the Italian school (INDIRE). A questionnaire was designed for school principals, investigating the role of leadership in empowering middle management and creating a PLC. A total number of 519 schools participated in the survey. In addition, we collected data regarding the number of schools that successfully funded innovative projects, measured by the number of didactic hours and persons who benefited from them. By combining the questionnaire and innovation data, we managed to have a total number of 352 schools.

Innovation measure

Vincent-Lancrin et al. (2017) note that while there is a significant amount of research on innovation indicators in the private sector, measuring innovation and its effectiveness in the public sector, particularly in education, is quite a novelty. Given the nature of education and the specificities of the innovation process in education, identifying objective indicators of what constitutes innovation can take time and effort. For example, if, as aforementioned, innovation consists in creating "added value," it is unclear what the improvement consists of. The perception of progress depends on the stakeholders' perspective, who can use different criteria to evaluate a school's performance improvement. Educational innovations can be assessed based on multiple objectives that conflict with each other, such as quality and equity (Paletta et al., 2021). In addition, depending on the contexts in which they operate, schools may have different priorities and objectives. If the improvements can be perceived differently depending on the priorities and the point of view of the stakeholders, the indicators to measure innovation should be linked to specific objectives pursued and measured by collecting the point of view of the stakeholders (teachers, staff administrative technicians, students, parents, and other community stakeholders).

The fact that innovations are difficult to measure through objective indicators explains why using questionnaires, interviews, and case studies in education is widespread to bring to light

new ideas and forward the implementation of innovation processes. On the other hand, even in these cases, an issue arises in ensuring that a particular practice observed at a specific moment constitutes an innovation.

We measure innovation at the school level by analyzing the successful application of calls for National Operational Programs (NOPs). NPOs, known as "skills for development" and "environments for learning," are funded respectively by the European Social Fund and the Social Regional Development Fund. These programs aim to support innovation and the quality of the school system through training interventions on people and structures to improve the functionality of school environments. To participate in the NPOs, schools can submit competitive projects to obtain funding. The calls include a series of themes that fall into three main categories of innovation in learning environments: the professional development of school staff regarding didactic and organizational improvements, the promotion of innovative educational outcomes, and new digital information and communication technologies. There are 4.660 projects granted by the 352 schools in the three years preceding the research (2015-2018).

We operationalize the innovation measure by using a latent as a combination of the number of didactic hours for innovative projects and the number of persons benefiting from innovative teaching. Its measure demonstrates good internal and external consistency (Cronbach’s alpha .95; CR=.92; AVE=.87; see Table 2).

Other Measures

The other latents were measured through the principals’ questionnaire, which explored different areas with four-point Likert-type scales (ranging from 1 = “never” to 4 = “always”). A confirmatory analysis (CFA) was performed to evaluate the validity and reliability of the measures before testing.

The Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were calculated to demonstrate the reliability of the four measures (see Table 2). Cronbach's alphas of all the measures range from .80 to .96, surpassing the acceptable level of .70. CR ranges from .78 to .95, which meets the adequate level of 0.60 with AVE ranges from .43 to .65, meeting as well the proper level suggested by Fornell and Larcker (1981).

Model setup

We use SEM to test our hypothesis. Stata 17 was used for conducting the analysis. Two phases were followed to conduct the analysis. First, a confirmatory factor analysis (CFA) was

used to confirm the factor structure of the adapted scale before testing the general SEM model (Bowen and Guo, 2011). As recommended in the literature, we use different fit indices to evaluate the goodness of model fit, including the chi-square (Kline, 2016), root mean square error of approximation – RMSEA (Kenny et al., 2015), comparative fit index - CFI, and Tucker-Lewis index – TLI (Hu and Bentler, 1999).

Second, after the measurement model was evaluated to be adequate, we specified our structural model, which includes directional relationships, based on theory and prior research, between different constructs and, finally, toward innovation, allowing us to test all the study hypotheses. Because multiple models may have a good fit, demonstrating that one structural model fits the data well and has a superior fit compared to an alternative model increases confidence (see Table 1).

Table 1. Goodness of fit

FIT MODEL						
Model	**N**	**df**	**χ^2**	**RMSEA (90% C.I.)**	**CFI**	**TLI**
Measurement model	352	607	957.684	0.041 (0.036-0.045)	0.919	0.911
Structural	352	643	1036.23	0.042 (0.037-0.046)	0.910	0.902

All χ^2 values have p values ≤ 0.001.

RMSEA values ≤0.05 indicate a close fit (Browne & Cudeck, 1993)

For the CFI and the TLI, values ≥0.90 indicate a good fit (Hu & Bentler, 1999)

Results

Structural equation modeling (SEM) was used to analyze the factors influencing innovation according to the conceptual model. The model predicts that innovation is determined by direct effects (organizational, interpersonal, and teaching skills) and indirect effects (incentives, management, supportive leadership, and administrative systems).

The model demonstrates an acceptable fit on all indices (RMSEA=.05; CFI=.91; TLI=.90; p > chi2=.00; SRMR=.05).

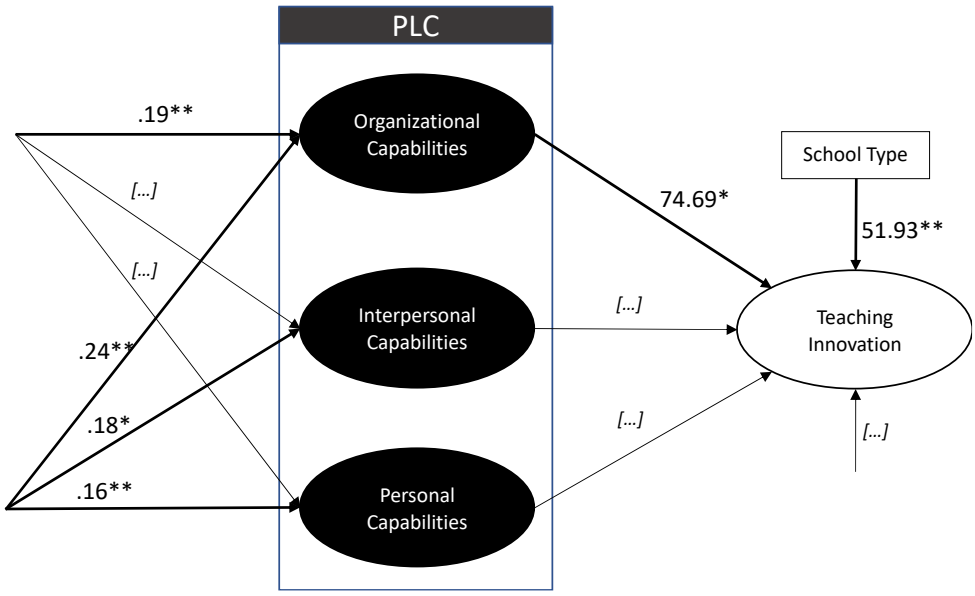

Figure 2. SEM Results

** p<0.01; **p<0.05; […] indicate non-significant relationships*

The results reveal that organizational capabilities significantly influence teaching innovation (74.69*). This implies that aspects like teaching resources and materials, accessibility of professional development literature, and effective organizational communication systems are substantial contributors to teaching innovation. On the other hand, personal and interpersonal capabilities do not have a significant relationship with teaching innovation, suggesting that these aspects alone may not drive pedagogical innovation.

The school administrative context does not significantly impact teaching innovation, implying that while they are crucial for day-to-day school operations, they may not directly influence innovative teaching practices.

Regarding the role of leadership styles, the findings provide evidence of a significant and positive effect of supportive leadership on all components of the PLC: organizational (.24**), interpersonal (.18*), and personal capabilities (.16**), suggesting that the nature of leadership that offers guidance, nurtures an open environment for dialogue, and supports professional development could bolster the strength of the PLC in all its facets.

Moreover, instructional leadership positively affects organizational capabilities (.19**), highlighting the potential of school leaders who actively engage in the pedagogical aspects of teaching and learning to enhance the availability and use of resources, thereby fostering a conducive environment for teaching innovation.

Finally, the school type influences innovative teaching practices in schools. Second-cycle schools have higher innovative practices than those from the first cycle (51.93**).
Overall, these results emphasize the essential role of supportive and instructional leadership in enhancing the PLC's organizational capabilities, significantly influencing teaching innovation.

Findings and Conclusions

This paper analyses the interrelatedness and impact of diverse factors, such as supportive and instructional leadership styles, personal, interpersonal, and organizational capabilities, and administrative systems, on promoting innovation in school teaching practices.
The results reveal several critical insights. First, they underscore the noteworthy influence of supportive leadership on all elements of PLC, confirming its critical role on building school-wide capacity to enhance professional learning (Sleegers et al., 2013). Specifically, in line with extant literature, leadership encouraging guidance, open dialogue, and professional growth demonstrated a significant and positive correlation with organizational, interpersonal, and personal capabilities (Kennedy et al., 2011; Leithwood and Jantzi, 2000). This illuminates the profound importance of leadership that leads and empowers, fostering a dynamic and thriving PLC across all dimensions.
Similarly, instructional leadership, delineated by leaders who are deeply involved in pedagogical dimensions, positively influences the organizational capabilities within the PLC (Zheng et al., 2019). This outcome emphasizes the transformative potential of leaders who are not mere observers but actively engaged in teaching and learning. Such involvement helps in resource optimization and creates a fertile environment for cultivating innovative teaching methods.
Second, the organizational capabilities of the PLC prove to be a substantial contributor to the teaching innovation (Stoll, Mcmahon, et al., 2006). This finding implies that the availability of teaching resources and materials, accessibility of professional development literature, and effective organizational communication systems are pivotal in driving pedagogical innovation.
In contrast, the personal and interpersonal capabilities within the PLC did not show a significant relationship with teaching innovation. This suggests that these elements in isolation may not be sufficient to propel innovation in the teaching practices (Thompson et al., 2004). The complexities of teaching innovation require an organizational framework

(Thurlings et al., 2015) beyond personal or interpersonal strategies, enabling the full potential of professional communities (Stoll, Mcmahon, et al., 2006).

The study also scrutinizes the influence of administrative systems on teaching innovation. Interestingly, administrative systems did not significantly impact innovation in teaching. This result suggests that while administrative systems are instrumental in the routine operations of schools, their direct influence on adopting innovative teaching practices may be limited (Schussler et al., 2007).

These findings offer insights for professionals and policymakers, suggesting that investment in leadership development, PLC, and efficient administrative systems are essential to foster innovation in teaching practices. Priority should be given to developing educational policies that promote robust leadership training, enhance organizational capabilities, encourage personal and interpersonal development, align administrative systems with innovation objectives, to achieve innovative teaching practices. Furthermore, it suggests scholars to explore other innovation measures and study the impact of combined PLC components on innovation.

Table 2. Latent measures factors' loading, descriptive statistics, and fit indices.

	Loading	**Mean**	**SD**
Administrative Systems			
1. The staff has adequate skills	0.5783	2.393939	.767579
2. There are sufficient professional development opportunities	0.4541	2.45098	.7182593
3. Administrative processes are computerized	0.6154	3.139286	.5533048
4. The operating procedures are clear and updated	0.7539	2.730838	.6659533
5. There is a clear articulation of organizational roles and responsibilities	0.7676	2.900178	.6216481
6. The organization of working plan is functional	0.6804	3.082143	.5518248
7. The distribution of workloads is adequate for the objectives	0.6948	2.784314	.6851772
8. The administrative processes are subject to a process of planning	0.6282	2.575	.6909199
Alpha=.79; CR=.85; AVE=.43			
Innovation			
1. Number of didactic hours for innovative projects	0.9291	342.0113	219.0605
2. Number of persons benefiting from innovative teaching	0.9321	246.726	191.8323
Alpha .95; CR=.92; AVE=.87			
Interpersonal skills of the teachers			
1. There is a collaborative approach to develop a shared vision	0.7158	3.001783	.571649
2. Decisions are made in accordance with the values and vision	0.6366	3.094474	.50708
3. Teachers take collective responsibility for students' learning	0.6797	2.721925	.5925434
4. Teachers have the same ideas about how to facilitate students' learning	0.6185	2.219251	.5345761

5. Teachers work together to acquire and apply new knowledge, skills, and teaching strategies	0.6439	2.775401	.5306676
6. The existing collegial relationships between teachers reflect their commitment to improve	0.6735	2.816399	.531321
7. Teachers collaborate with students in facing their difficulties	0.6145	2.998217	.490987
8. The teachers are engaged and examine different approaches	0.6995	2.670232	.5637769
9. Teachers discuss students' class work to improve teaching practices	0.5882	2.73262	.5823184
10. Teachers are involved in various forms of interaction with social networks to encourage	0.5501	2.620321	.626966

Alpha .84; CR=.87; AVE=.41

Principal's Supportive Leadership

1. Recognize and appreciate the work of teachers	0.5754	3.251337	.5939599
2. Be available during extra school hours to support middle managers who need help	0.6543	3.675579	.5260286
3. Take care of the personal well-being of middle managers	0.7669	3.292335	.6761987
4. Encourage middle managers to pursue their professional development goals	0.7836	3.511586	.5703612
5. Encourage middle managers to try new practices	0.7222	3.311943	.6469847
6. Provide organizational support to encourage collaboration with teachers	0.6797	3.434938	.6033762

Alpha .84; CR=.85; AVE=.49

Organizational Capabilities

1. Appropriate teaching technologies and materials are available	0.8459	2.975045	.6514416
2. Teachers can easily access magazines, books and other tools for professional updating	0.8256	2.921569	.6416344

3. Information systems promote effective communication between staff	0.7399	3.044563	.5823075

Alpha .73; CR=.85; AVE=.65

Instructional Leadership

1. Development of the school-teacher training plan	0.6998	1.746881	.8430991
2. First-hand performance of teacher training activities	0.7977	2.315508	1.030911
3. Development of study plans to improve the teaching of specific learning units.	0.7882	1.935829	.8739175

Alpha .64; CR=.81; AVE=.58

Personal Capabilities

1. Teachers systematically seek better ways of doing things	0.7022	2.909091	.5675191
2. Teachers reflect on their professional practice	0.7396	2.868093	.5578
3. Teachers evaluate what works and what doesn't in their professional practice	0.7571	2.766488	.5831105
4. Teachers reason about the effect that their practices have on students	0.7301	2.743316	.6050936
5. Teachers make use of current educational research	0.7116	2.554367	.6527303
6. Teachers inquire about the good practices of the other schools	0.6993	2.588235	.6237593
7. Teachers inquire about the good practices adopted by their colleagues	0.6508	2.709447	.6089217

Alpha .84; CR=.51; AVE=.58

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