



The influence of school principals' academic supervision on the quality of learning through teacher professionalism as an intervening variable

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Article info	Abstract
Keywords: Principal's academic supervision, teacher professionalism, quality of learning, integrated islamic elementary schools	The present study reviews the impact of the principal academic supervision on the teacher professionalism and learning quality in SDIT. It tests the contribution of teacher professionalism as a mediating variable. This study is quantitative research using a survey method. A questionnaire gathered the data and was analysed using path analysis based on Structural Equation Modelling with Partial Least Squares (SEM-PLS). The result is that the principal's academic supervision positively affects teacher professionalism, and teacher professionalism positively and significantly influences learning quality. Nevertheless, the principal's academic supervision does not considerably influence the learning quality. The other important finding is that teacher professionalism fully mediates the relationship between the principal academic supervision and learning quality. It can be said that the quality of learning can be improved by constantly developing the professionalism of teachers, which is fostered through good academic supervision by the principal.

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1. Introduction

All fields, including education, must respond quickly to new challenges in this age of globalisation. The quality and professionalism of teachers remain one of the long-standing problems of the Indonesian education system, and teachers are the first line of influence in shaping educational output. The standard of education would depend mainly on skilful and professional teachers who could provide meaningful learning experiences. As stated by Rohmadi (2012), strong teacher leads to strong education and strong education leads to a strong nation—this serves as a reminder that professional teachers are a must to realise educational excellence in the era of globalisation.

Professionalism of teachers is the key to guaranteeing a more effective and productive learning and teaching process. As a result, the graduates are of good quality. Professional teachers not only provide knowledge but also influence the character and competence of students to become citizens capable of surviving modern society. Hence, the principal's involvement in facilitating teachers based on ongoing supervision, evaluation, and development of capacity is also crucial in maintaining, if not improving, the quality of instruction (Akmalia & Kurnia, 2021; Setiawan & Putra, 2021; Supriyadi et al., 2021).

Principals have a strategic role in carrying out managerial, entrepreneurial and supervisory aspects following the Minister of Education and Culture Regulation No. 6 of 2018. Principals have a pivotal role in academic supervision, as it is their duty to lead teachers in developing their professional competency, advancing the teaching and learning quality, and sharing within a collaborative/democratic work culture. Academic supervision is performed through regular and continuous monitoring of teaching activities by considering scientific, participatory, and transparent procedures (Afifatun, 2022; Suchyadi et al., 2022).

The purposes of academically supervising an institution or a course are to assist its teachers in furthering their professional development and to ensure that educational aims are met. Supervision operates as an ongoing process, mentoring teachers in what education goals mean, how to meet students' learning needs, how to work through pedagogical problems and how to use methods and media for learning. In addition, supervision helps to create good relations between principals and teachers, eventually contributing to mutual trust and continuous improvements. Thus, academic supervision is not only a tool for control and evaluation, but also a means to develop teachers' professionalism and the quality of teaching.

The supervision of education in schools must be adapted to the national education targets contained in Law No. 20 of 2003, which prioritises the development of potential students to be devoted, able, creative, and responsible citizens of the nation. In this sense, academic supervision is a strategic tool by which the principal supports teachers in developing learning contexts aligned with achieving those national goals. Supervision should enable teachers to plan learning experiences that will contribute to the acquisition of knowledge and skills and the development of character and self-reliance on the part of students.

Yet, numerous researchers report that teacher professionalism in Indonesia is questionable. According to classic Mulyasa (in Fathurrahman & Sulistyorini, 2015), a significant number of teachers also still show deficiencies or weaknesses in carrying out their education function, which is frequently related to poor reflection, motivation toward improvement, and participation in professional development activities or the like. Other contributing issues are age, qualifications, and competing responsibilities outside the classroom.

For that reason, teachers' professionalism can be enhanced through academic supervision. Principals may support the enhancement of teachers' pedagogical and professional competences through continuous coaching and mentoring, while teachers can be assisted to develop students' cooperative and collaborative learning attitudes. Supervision also assists teachers in planning lessons, managing instructional time and class activities, implementing the curriculum and any new programs, and accessing new information that can be used to introduce more exciting and effective methods to involve students better and to improve learning in your classroom (Mediatati & Jati, 2022). In the end, good academic supervision contributes to teacher professionalism and the teaching quality and learning in schools.

Herein, we try to analyse the impact of academic supervision of school principals on the quality of learning through teacher professionalism as a mediating variable. This study attempts to interpret the contribution of principals' academic supervision in enhancing teacher

professional competence to improve the quality of learning at Integrated Islamic Elementary Schools. It is expected that the research findings provide a reference to formulate appropriate strategies in educational supervision and leadership to empower teacher professionalism and learning outcomes. Therefore, the present study is (a) to investigate the direct effect of academic supervision of the principals on teacher professionalism, (b) to investigate the direct impact of teacher professionalism on quality of learning, (c) to investigate the direct effect of principals' academic supervision on quality of education, and (d) to investigate the mediating effect of teacher professionalism on quality of learning in Kuantan Singingi.

2. Method

This research is a quantitative survey, in which data is collected through questionnaires as the primary tool. The population is all the teachers in nine SDIT (Integrated Islamic Elementary school) at Kuantan Singingi, with nine principals and 127 teachers for 136 persons. Sampling is a census (whole population) technique because the entire population can be administered as respondents for a small number.

To this end, a sub-sample of respondents drawn from the intended population was involved, consisting of 66 (three principals and 63 teachers). Data were gathered through a questionnaire with statements regarding three key variables: Principal's Academic Supervision as the independent variable (X), Teacher Professionalism as the mediating variable (M), and Quality of Learning as the dependent variable (Y). These indicators were used to assess the direct and indirect effects for each pair of variables for learning quality enhancement in SDITs in Kuantan Singingi.

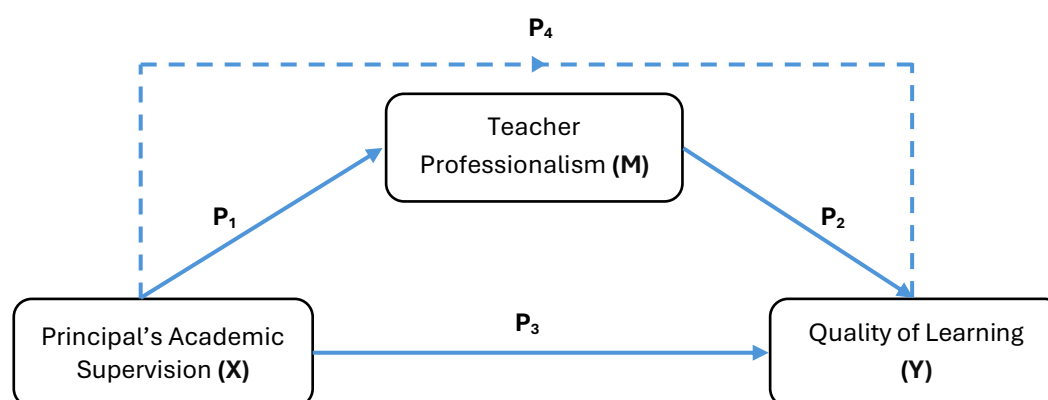


Figure 1. Relationship between research variables

The research framework, in Figure 1, illustrates the relationships between principals' academic supervision, teacher professionalism, and learning quality. The principal's academic supervision (X) is the independent variable, teacher professionalism (M) is an intervening variable that mediates the relationship between supervision and quality of learning (Y), and the dependent variable. The model includes several paths: the direct effect of the principal's academic supervision on teacher professionalism (P1), the direct impact of teacher professionalism on the quality of learning (P2), the direct effect of the principal's academic supervision on the quality of education (P3), and the principal's academic supervision on the quality of learning through the mediating influence of teacher professionalism an indirect effect

(P4). This framework demonstrates that teacher professionalism significantly mediates the positive indirect effect of the principal's supervision on enhancing learning quality.

Quantitative data analysis was conducted based on the results of the collected questionnaire. This research involved the statistical method of path analysis with Structural Equation Modelling (SEM-PLS) using the SmartPLS application, calculated with the PLS-SEM Algorithm & Bootstrapping to measure the extent of the relationship between the independent variable (Principal's Academic Supervision), the dependent variable (Quality of Learning), and the intervening/mediating variable (Teacher Professionalism).

The PLS-SEM Algorithm provides information on construct validity and reliability (Convergent), discriminant validity, R Square, F Square, and SRMR (Model Fit). Bootstrapping is a nonparametric procedure aimed at addressing the issue of nonnormal data, especially when the sample size is small. The Bootstrapping calculation in Path Analysis produces Path Coefficients, Direct Effect, Specific Indirect Effect, and Total Effect.

3. Results and discussion

3.1 Data analysis

Hypothesis testing employed Path Coefficient (Direct Effect) and Specific Indirect Effect. The tests for direct and indirect effects were conducted using the SmartPLS 4 application program with the Structural Equation Model (SEM) method using the Bootstrapping measurement model.

Hypothesis testing involves the probability value (p-value) and t-statistic (t-count). If the p-value < 0.05, the null hypothesis is rejected, indicating a significant effect on the relationship between variables. Additionally, the null hypothesis is rejected if the t-statistic > t-table. The t-table value for an alpha of 5% was 1.96. The following are the results of the Direct effect and Specific Indirect Effect tests.

3.1.1 Direct effect

The Path Coefficient or direct effect measures how an exogenous variable (independent variable) directly affects an endogenous variable (dependent variable) without passing through a mediating variable. The following are the results of the Path Coefficient or Direct Effect tests.

Table 1: Path coefficient or direct effect test results

Variables	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O'STDEV)	P-Value	Description
P1 School Principal's Academic Supervision (X) -> Teacher Professionalism (M)	0.755	0.748	0.049	15.227	0.000	Significant Effect
P2 Teacher Professionalism (M) -> Learning Quality (Y)	0.534	0.532	0.100	5.364	0.000	Significant Effect
P3 School Principal's Academic Supervision (X) -> Learning Quality (Y)	0.184	0.183	0.133	1.378	0.168	No Significant Effect

Based on Table 1, the Path Coefficient or Direct Effect values are shown with the t-statistic and p-value from the direct relationships between variables. For the first hypothesis, the correlation coefficient of the School Principal's Academic Supervision directly affects Teacher Professionalism with a t-statistic value of 15.227 and a p-value of 0.000. The t-statistic value is

greater than the t-table (1.96), and the p-value is less than 0.05. Therefore, it can be said that the School Principal's Academic Supervision directly and significantly affects Teacher Professionalism.

The second hypothesis test examines the direct effect of Teacher Professionalism on Learning Quality, with a t-statistic value of 5.364 and a p-value of 0.000. The t-statistic value is greater than the t-table (1.96), and the p-value is less than 0.05. Therefore, it can be said that Teacher Professionalism directly has a significant effect on Learning Quality.

The third hypothesis test examines the direct effect of the School Principal's Academic Supervision on Learning Quality, with a t-statistic value of 1.378 and a p-value of 0.168. The t-statistic value is less than the t-table (1.96), and the p-value is greater than 0.05. Therefore, it can be said that the School Principal's Academic Supervision does not directly have a significant effect on Learning Quality.

3.1.2 Specific Indirect Effect

Specific Indirect Effect is the effect measured in path analysis or structural equation modelling (SEM) involving one mediating variable. It presents the impact or contribution of the exogenous variable (independent variable) on the endogenous variable (dependent variable) through the mediating/intervening variable.

Table 2: Specific indirect effect test results

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O'STDEV)	P-Value	Description
P4 School principal's academic supervision (X) -> teacher professionalism (M) -> learning quality (Y)	0.398	0.399	0.086	4.637	0.000	Significant Effect

Table 2 displays the Specific Indirect Effect values with the t-statistic and p-value from the indirect relationships between variables. The third and fourth hypotheses must be compared to test the fourth hypothesis. The third hypothesis's result, the direct effect of the School Principal's Academic Supervision on Learning Quality, is not significant.

In contrast, the indirect effect of the School Principal's Academic Supervision through Teacher Professionalism on Learning Quality has a t-statistic value of 4.637 and a p-value of 0.000. The t-statistic value is greater than the t-table (1.96), and the p-value is less than 0.05. Therefore, it can be said that the School Principal's Academic Supervision indirectly significantly affects Learning Quality through Teacher Professionalism.

3.1.3 R Square (R²) Testing

The R Square testing criteria are that if R Square $\geq$ 0.25, the model is considered Weak; if R Square $\geq$ 0.50, the model is considered Moderate; and if R Square $\geq$ 0.75, the model is considered Strong.

Table 3: R square (determinant coefficient) testing results

R Square overview	R-Square	R-Square Adjusted	Description
Teacher Professionalism (M)	0.755	0.752	Strong
Learning Quality (Y)	0.565	0.557	Moderate

Table 3 presents the R Square value for the impact of Principal's Academic Supervision on Teacher Professionalism is 0.755, with an R-Square Adjusted value of 0.752. This indicates that the impact of Principal's Academic Supervision on Teacher Professionalism is 75.5%, while other factors outside the studied variables influence 24.5%. Therefore, the impact of Principal's Academic Supervision on Teacher Professionalism is categorised as Strong. Meanwhile, the R Square value for the impact of Principal's Academic Supervision on Learning Quality through Teacher Professionalism is 0.565, with an R-Square Adjusted value of 0.557. This indicates that the impact of Principal's Academic Supervision on Learning Quality through Teacher Professionalism is 56.5%, while other factors outside the studied variables influence 43.5%. Thus, the impact of Principal's Academic Supervision through Teacher Professionalism on Learning Quality is categorised as Moderate.

3.2 Discussion

This study examines the relationship between the academic guidance of the principal and the professional teacher in determining the quality of learning in the SDIT Kuantan Singingi. This result indicates that the principal's academic supervision significantly improved teacher professionalism. Supervision is also carried out with mentoring, monitoring and evaluating the learning process and creating an active cooperation among the principal and teachers. The research result is in line with Wulandari (2021), Firmansyah (2014), and Rohana et al. (2023), who point out that academic supervision is not the instrument or means of control, but also supervision is a dynamic process of professional development that strengthens the capability of teachers. The application of supervision in SDIT Kuantan Singingi also represents the guidelines of the Office of Education and the Rules of the Regent of Kuantan Singingi No. 67 of 2021, where supervision should be conducted on a collaborative basis and using the Best Practices must include the school's principals and be focused on the sustainable upgradation of learning quality and educative values as well as the professional development of teachers.

It can be concluded that teacher professionalism has a significant positive influence on the learning quality. This is supported by the research of Wulandari (2021) and Priatna (2011), who stated that teacher professionalism significantly affects learning outcomes. Teacher professionalism consists of four core competencies: pedagogical, personal, social and professional competence, as stated in Article 8. Developing these skills allows teachers to innovate, respond to curriculum and technological changes, and provide more engaging and meaningful learning environments. Hence, systematic support from school principals, supervisors, and education bodies to maintain teacher professional development is also crucial to empower teachers and impact the quality of learning.

On the other hand, the academic supervision of the principal has no significant effect on the learning quality. This finding differs from the study of Redani et al. (2014), Wulandari (2021), and Rasyid, who stated a positive and significant correlation between academic supervision and the quality of learning. This contrast implies that though supervision offers guidance and leads to direction, its effect on the quality of education is only clearly perceived if supervisees can internalise and adapt it to their teaching praxis. In line with Fathurrohman & Ruhyanani (2015), academic supervision should not be solely administrative but educational and corrective assistance in technical terms to strengthen teacher performance and the quality of the teaching and learning process. Hence, the lack of direct effect implies that supervision is better served through teacher professionalism.

Further analyses reveal that academic supervision of the principal has a positive direct effect on teacher professionalism and learning quality as a full mediating variable. This finding

fortifies the viewpoints of Poerwanto and Sahertian (2000) that supervision is a strategic activity that continuously directs and empowers a teacher. When principals align their supervision with efforts to build teacher professionalism, supervision is more likely to positively influence a school culture that is collaborative, reflective, and innovative in learning.

The contextual background of SDIT Kuantan Singingi explains why teacher professionalism is a crucial mediating variable between supervision and the quality of learning. SDITS' school culture reflects strong Islamic values, has a family feel, and is based on togetherness. This environment promotes collaboration among teachers, who see their work as a professional occupation and a profession of faith and worship. This cultural orientation enables the internalisation of values promoted in academic supervision, including discipline, responsibility, and sustained advancement.

Nevertheless, teacher quality in SDIT Kuantan Singingi also contributed to the efficacy of the supervision. Teachers come from many different educational backgrounds; some are graduates of teacher education programs, and some are from Islamic or general universities and have been trained to teach through in-service training. This creates a need for supervision to be more sensitive and adaptive to teachers' individual needs, rendering the effectiveness of supervision dependent on the principal's leadership skills. Supportive and coaching-oriented leadership supervision of school leaders has also led to better positive outcomes in promoting teacher professionalism, as trust and intrinsic motivation are built instead of fear or compliance.

Because of such cultural values, academic supervision was not a matter of managerial work but a moral obligation to care for teachers as nurturers of students. When supervision leads in ways of sincerity (*ikhlas*), cooperation (*ukhuwah*), and self-improvement (*mujahadah*), it not only produces good teachers but also develops them to be lifelong learning educators who are committed to advancing the quality of learning.

In terms of theory, this research reinforces the model of educational supervision in the context of SEM-PLS by proving that teacher professionalism is a powerful mediating variable. Such a finding is consistent with the theory of human resource development in education, which suggests that professional competence is a primary way leadership behaviour (e.g., supervision) impacts organisational results (e.g., learning quality). Professional competence is the key mediating factor between educational leadership styles and organisational outcomes. Professional competence creates opportunity for successful learning but also relates to teaching learning materials and student achievement (Rismayanti et al., 2021; Iswandi et al., 2021; Nurlaela et al., 2024). In addition, professional competence and learning success can be enhanced via positive and systematic human resource management (Primayekti et al., 2024). Pedagogical and social competences as aspects of professionalisation positively influence teacher-student interaction, which positively impacts learning outcomes (Bachtiar, 2020; Rondo & Moku, 2021). Hence, raising professional competence through continuous training and innovation is crucial for securing higher educational quality (Ulfadilah et al., 2023).

This study has practical implications in that it offers principals guidance in perceiving academic supervision as a process of directing and developing, not only as an instrument of administrative appraisal. In relation to SDITs, the process of supervision also needs to be combined with some Islamic principles such as integrity (*amanah*), loving togetherness (*ukhuwah*), and perfection (*itqan*). Principals should add mentoring, peer collaboration, and reflection to supervision. Furthermore, training programs need to be developed for educational policy makers that enhance the supervisory skills of principals in their duty as mentors and supporters of teacher development.

Ultimately, a school-based adult professional culture conducive to collaboration, innovation, and continuous professional development is necessary for supervision to improve the quality of learning and, as a result, the quality of student work. The study reveals that principals' academic supervision and teacher professionalism are intertwined factors in quality learning. Under the SDIT framework, it can be argued that promoting teacher empowerment in value-laden and collaborative supervision is a sustainable educational enhancement.

4. Conclusion and Implications

The analysis results imply that the principal's academic supervision positively and directly affects teacher professionalism, directly influencing learning quality. Academic supervision does not directly impact learning quality but affects it through teacher professionalism as a partial mediator, with a contribution of 56.5%, indicating a moderate effect.

Thus, the principal's supervision of teachers can only improve the quality of learning when accompanied by increased teacher professionalism. Teacher professionalism mediates the relationship between the principal's academic supervision and learning quality.

This means that principals need to reconceptualise academic supervision not merely as a form of top-down administrative control but as an act of mentoring and coaching. Principals must be empowered to develop their supervisory competencies through value-based and collaborative policies and leadership training programs.

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