

The Role of Teacher Learning Leadership in Improving Students' Motivation to Learn Science at Muhammadiyah Junior High School

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Abstract

This study aims to analyze in depth the role of Science Teacher Leadership (KPG) in efforts to improve student learning motivation at Muhammadiyah Junior High School. The background of this study is driven by the urgency of improving the quality of science learning, which is often considered difficult and abstract, as well as the importance of the role of teachers as instructional leaders in overcoming low student learning motivation. The approach used in this study is qualitative with a single case study. The location of the study is Muhammadiyah Special Program Junior High School Delanggu, with research subjects including 2-3 science teachers, 6-10 selected students, and the Deputy Principal for Curriculum as key informants. Data were collected through in-depth interviews, non-active participant observation during the learning process in the classroom, and documentation analysis (lesson plans, student scores). The data analysis technique used the interactive model of Miles, Huberman, and Saldana, with data validity checked through source and technique triangulation. The results showed that the learning leadership of science teachers at Muhammadiyah Junior High School played a significant and effective role in catalyzing student learning motivation, especially intrinsic motivation. This role was manifested through three main dimensions: (1) Defining a Relevant Learning Mission, in which teachers integrated science concepts with spiritual values and real life, providing deep meaning that triggered intrinsic motivation; (2) Managing Practice-Based Learning Programs, through the consistent use of experimental and demonstration methods, which successfully meet students' basic psychological needs for competence and autonomy; and (3) Creating a Positive and Supportive Learning Climate, which ensures that students feel safe to interact and make mistakes, thereby fulfilling their need for relatedness. The impact of KPG is clearly seen in changes in students' perceptions of science and increased active participation in class. The study concludes that the effectiveness of KPG lies in its ability to adapt to the institutional context and focus on meeting students' psychological needs. The practical implications of this study emphasize the importance of strengthening teacher training in experience-based instructional design and differentiated feedback techniques.

Keywords: Teacher Learning Leadership, Learning Motivation, Science, Qualitative Case Study, Intrinsic Motivation.

Introduction Section

Education is a key pillar in the development of a nation's civilization, which aims to produce human resources who are intellectually superior and have moral integrity. In Indonesia, the role of private Islamic educational institutions, especially those under the auspices of the Muhammadiyah Association, is very strategic. Muhammadiyah schools bear a dualistic responsibility: to achieve national and international academic quality standards, while also internalizing Islamic values as the foundation of student character. This context emphasizes that the success of Islamic educational institutions is not only measured by National Examination scores or academic scores alone, but also by their success in combining science (ilmu kauni) with the teachings of the Qur'an and Sunnah (ilmu syar'i) (Arifin & Hidayat, 2021).

Natural Sciences (IPA) is a subject that has a central position in Muhammadiyah Islamic Private Junior High Schools. IPA not only teaches the concepts of physics, chemistry, and biology, but also serves as a means to foster Science Literacy and awareness of the greatness of Allah SWT as the creator of the universe (Muspiroh, 2013). Effective science learning must be able to change students' mindsets from passive to active, critical, and reflective towards natural phenomena.

However, the effectiveness of science learning is often hampered by a classic problem: low student motivation. Motivation is an internal and external driving force that moves individuals to take action to achieve certain goals. In an academic context, learning motivation determines how much effort students will put into the learning process (Deci & Ryan, 1985). Studies show that low learning motivation is often a major predictor of low learning outcomes and science literacy among students, even in schools with adequate facilities (Rahino, Noor, & Marzuki, 2022).

This problem is exacerbated when science material is delivered mechanistically or is irrelevant to everyday life, causing students to view it only as a subject that must be memorized, rather than understood and reflected upon. Therefore,

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strategic intervention and strong leadership at the classroom level are needed to trigger and maintain students' enthusiasm for learning science.

Amidst the complexity of motivation issues, the focus of research needs to shift from school managerial leadership (principals) to the realm of *Teacher Instructional Leadership*. Although principal leadership plays an important role in creating the school climate, teacher leadership is the factor that most directly influences the quality of classroom interactions (Abrori & Muali, 2020). Teacher instructional leadership is defined as a series of actions taken by teachers to lead and influence students toward learning objectives (Kasmawati, 2017). These actions include:

1. Instructional Leadership: Designing, implementing, and evaluating innovative curricula and learning strategies.
2. Exemplary Leadership: Demonstrating professionalism, dedication, and high morality, which are highly relevant in the context of Islamic schools.
3. Motivational Leadership: Using inspirational and supportive communication strategies to build students' self-confidence and *self-efficacy* (Jalaludin, Bulkini, & Nurachadijat, 2023).

Theoretically, strong instructional leadership will result in an *engaging* and supportive classroom environment, which is a key prerequisite for enhancing students' intrinsic learning motivation (Saputri & Andari, 2023).

Although the relationship between teacher leadership and student motivation has been extensively researched, there are significant gaps that underlie the urgency of this study, namely:

1. Specificity of the Science and Islamic Context: Existing research tends to be general or focused on non-exact subjects. This study specifically focuses on science subjects that require different teacher leadership methods, for example, in managing practical activities and integrating *kauniah* verses (verses about nature) into teaching materials (Mulyani, 2018).
2. Uniqueness of Muhammadiyah Schools: The context of Muhammadiyah Islamic Private Junior High Schools has not been explored in depth. Muhammadiyah schools are unique in their application of the values of *Tajdid* (renewal) and *Al-Islam* and *Kemuhammadiyah*an ethics, which require science teachers to be not only educators but also preachers in the classroom. Teacher leadership here must reflect prophetic leadership, namely *siddiq* (honest), *amanah* (trustworthy), *tabligh* (communicative), and *fathanah* (intelligent) (Muhlis, 2022).
3. Implementation Mechanism: This study not only examines the correlation but also seeks to explore how (the mechanism of) science teachers' learning leadership, including the practice of reflection and the integration of values, can concretely improve student learning motivation in the context of Muhammadiyah schools.

Based on the background, urgency, and research gaps above, this study aims to answer the main research question, namely how the role of science teachers' learning leadership in Muhammadiyah Islamic Private Junior High Schools can improve student learning motivation. The results of this study are expected to make a significant contribution, both theoretically in enriching the literature on Islamic value-based teacher leadership and practically as recommendations for a learning leadership implementation model for science teachers in the entire Muhammadiyah school network and other private Islamic schools.

Research Method

This study uses a qualitative approach with a case study type of research. The qualitative approach was chosen because this study aims to explore *an in-depth understanding* of the role and practice of science teachers' instructional leadership (KPG) and how these practices are perceived by students and influence their learning motivation in the specific context of SMPI-PK Muhammadiyah Delanggu.

This research was conducted at SMP Islam Program Khusus Muhammadiyah Delanggu. This location was chosen based on the consideration that this school has unique characteristics in educational management and is committed to learning quality, making it an interesting place to study KPG practices.

The main research subjects (key informants) consisted of two science teachers who taught science in different classes and were considered representative (teachers who faced challenges with student motivation). The second subjects were a group of students from grades VII and VIII (6-10 students) who were purposively selected to represent variations in science learning motivation levels (high, medium, low). The third subject is one deputy principal in charge of curriculum/principal, as a supporting informant to obtain an institutional perspective on teacher quality and learning policies.

The data collection techniques used in this study included in-depth interviews (*In-Depth Interviews*) conducted with all research subjects, namely science teachers to explore their KPG practices (planning, implementation, learning evaluation, use of media, and motivational strategies), students to explore their perceptions of teachers' teaching practices, classroom interactions, and factors that influence their motivation in learning science, and principals/curriculum coordinators to explore school policies related to teacher professional development and learning supervision. In addition to interviews, *passive participant observation* was also conducted to directly observe the teaching practices of science teachers in the classroom (). The observation focused on the manifestation of the KPG role, such as teacher involvement in facilitating discussions, the use of teaching aids/experiments, providing feedback to students, and creating a motivating classroom atmosphere. The third is documentation in the form of collecting supporting documents, such as science teachers' lesson plans (RPP), student learning evaluation results (science scores), assessment instruments for motivation that have been used by schools, and reports on teacher quality improvement programs.

The main instrument in this study was the researcher himself (*human instrument*), assisted by structured guidelines to ensure data focus in the form of interview guidelines containing a list of open-ended questions tailored to each type of informant and observation sheets containing a grid of aspects of Learning Leadership (e.g., *managing instruction, monitoring student progress, promoting a positive learning climate*) and indicators of student motivation to be observed in the classroom.

The collected qualitative data will be analyzed using a model developed by Miles, Huberman, and Saldana, which involves three interactive and continuous activity streams until completion. *Data condensation* is the process of selecting, focusing, simplifying, abstracting, and transforming raw data from field notes. *Data display* is the presentation of data in the form of matrices, *charts*, or structured narratives that allow conclusions to be drawn. *Conclusion Drawing and Verification* is drawing general and specific conclusions from the data presented, as well as verifying the findings to ensure their credibility. Data validity will be examined through triangulation techniques, specifically source triangulation by comparing information obtained from science teachers, students, and the principal/curriculum coordinator regarding KPG practices and learning motivation, as well as technique triangulation by comparing data obtained through interviews, observations, and documentation.

Result and Discussion

Profile of Science Teachers as Learning Leaders.

The findings show that science teachers at Muhammadiyah Junior High School have implicitly carried out the role of Learning Leadership (KPG), even though the term may not have been formally socialized. The three main dimensions of KPG identified in their practices are: Defining the Learning Mission, Managing the Learning Program, and Creating a Positive Learning Climate.

- A. Defining the Learning Mission: Science teachers demonstrated efforts to relate science material to religious (Islamic) values and everyday life. Science teachers mentioned the compatibility of the theory of the formation of the solar system (big bang) with verses from the Qur'an. The focus of the mission was not only on mastering concepts but also on shaping scientific character.
- B. Managing the Learning Program: KPG practices are clearly seen in the planning and implementation of instruction. Teachers actively use practical methods and demonstrations to visualize abstract concepts. Observations show that Teacher A always begins the material on electricity with a simple demonstration using batteries and lights. Teachers also periodically conduct formative evaluations and provide specific feedback.
- C. Creating a Positive Learning Climate: Teachers strive to create a safe *learning environment* in the classroom. They often use a personal approach to address student motivation issues. Students feel that Teacher B never gets angry when they give the wrong answer, but instead invites them to discuss why they thought that way.

Levels and Manifestations of Students' Motivation to Learn Science.

In general, student motivation is divided into two groups based on interview results, namely Intrinsic Motivation (High), where intrinsically motivated students express an interest in science because they are curious, enjoy experimental activities, and feel that science is relevant to their future/aspirations. This group mostly comes from classes where teachers are most active in implementing practical work. Second, Extrinsic Motivation (Variable), which refers to students who are extrinsically motivated and focus on getting good grades, praise from teachers/parents, or fear of punishment/getting low grades. Their motivation tends to fluctuate, depending heavily on the teacher's *mood* and the level of difficulty of the task.

The results of this study provide empirical confirmation of the positive correlation between the practice of Science Teacher Learning Leadership and increased student learning motivation, especially in value-based school environments such as Muhammadiyah Junior High Schools.

KPG as a Catalyst for Intrinsic Motivation

KPG practices that focus on context and application (Dimensions A & B) have proven to be powerful catalysts for intrinsic motivation. When teachers consistently manage learning programs through practicums and demonstrations, this eliminates the perception that science is an abstract subject. Practical work provides direct experiences that satisfy students' basic psychological needs, in accordance with Deci and Ryan's *Self-Determination Theory*. Teachers who lead learning through experiments give students a sense of competence (ability to do) and autonomy (opportunity to choose methods/materials).

The Role of a Positive Climate in Overcoming Learning Anxiety

Findings indicate that creating a positive learning climate (Dimension C) is key to maintaining learning motivation, especially for students with low motivation or who have anxiety about learning science. Non-judgmental and supportive teacher leadership (as shown in Finding Data 3) serves as a *buffer* against failure. Teachers who successfully lead learning create a safe Zone of Proximal Development (ZPD), where students feel supported to take intellectual risks (asking questions or trying solutions that may be wrong). This shows that KPG is not only about teaching methods, but also about the emotional intelligence of teachers in managing classroom dynamics.

School Context Implications (Muhammadiyah Junior High School)

The context of Muhammadiyah Junior High School, with its emphasis on the integration of Islamic values, shows that effective KPG must be able to include moral and spiritual relevance in its learning mission. By linking science phenomena to God's greatness or ethics, teachers help students find deeper *meaning* in learning, beyond mere curriculum requirements. This greatly strengthens their motivation and helps students see science as a tool for *tafakur* (reflective thinking), not just memorizing formulas.

Gaps Found

Although the role of KPG has been running well, the findings indicate the need for strengthening in the dimensions of Student Progress Monitoring and Provision of Differentiated *Feedback*. Some students with low motivation feel that the *feedback* they receive is too general and does not help them identify specific improvement steps. Overall, this study concludes that Science Teacher Leadership in Muhammadiyah Junior High Schools plays a significant role in increasing student learning motivation through three main practices: instilling a relevant mission (context and values), managing experience-oriented programs (practicals/demonstrations), and creating a supportive classroom climate. The effect is most strongly felt in increasing students' intrinsic motivation because teachers are able to meet their psychological needs for competence and relatedness.

Conclusion

Based on an in-depth analysis of interviews, observations, and documentation, it was concluded that Science Teacher Learning Leadership proved to play an essential and significant role in catalyzing student learning motivation, especially their intrinsic motivation. The role of effective KPG is manifested through three main dimensions that directly contribute to increasing student motivation by defining a relevant learning mission, namely teachers effectively integrating science concepts with religious (Islamic) spiritual values and real-life contexts. This integration transforms science from a mere subject of memorization into a tool for reflection, giving deeper meaning to learning. This meaningful mission is the main foundation for the emergence of intrinsic motivation. Managing KPG practice-based learning programs is realized through instructional management that emphasizes practicums, demonstrations, and exploration projects. This method is very effective in dispelling the perception that science is difficult and abstract. Practical activities satisfy students' psychological needs for competence (sense of ability) and autonomy (sense of control) in accordance with the principles of Self-Determination Theory, which directly increases student initiative and participation. Creating a positive and supportive learning climate for students, teachers act as leaders who build a classroom environment that is safe for taking intellectual risks (asking questions or making mistakes). A supportive climate, characterized by constructive and non-judgmental *feedback*, fulfills students' need for relatedness, acts as a *buffer* against learning anxiety, and maintains motivation.

This study reinforces the KPG literature by emphasizing that its effectiveness at the subject teacher level (micro) is highly dependent on the teacher's ability to contextualize instruction (integrating school values) and focus on meeting students' basic psychological needs as the main mediators of motivation. Schools need to intensify KPG training for science teachers, particularly in strengthening experience-based instructional design skills and techniques for providing specific and differentiated feedback to maintain students' intrinsic motivation momentum. Definitely, Teacher-Led Learning Leadership in Science at Muhammadiyah Junior High School is an essential practice proven to effectively enhance student learning motivation. This success stems from the transformation of teachers' roles into leaders capable of defining meaningful goals and maintaining an environment that supports scientific exploration.

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