

Privates Hurdles to Teaching Science in Public Secondary Schools: Improved School Leadership in Focus

Roxanne D. Campos

APA Citation and Referencing: Campos, R.D. (2026). Privates Hurdles to Teaching Science in Public Secondary Schools: Improved School Leadership in Focus. *JENER Journal of Empirical and Non-Empirical Research*, 2(1), 218-219

ARTICLE INFORMATION	ABSTRACT
<p>Article history: Published on 21st Jan 2026</p> <p>Keywords: Privates Hurdles Supervisory Teaching Science Improved School Leadership</p>	<p>Purpose: To identify systemic hurdles in teaching science within public secondary schools and evaluate the impact of improved school leadership on overcoming these barriers. Design: A mixed-methods approach involving surveys of science teachers and interviews with school administrators. Findings: Key hurdles include laboratory resource scarcity, overcrowded classrooms, and teacher isolation. However, schools with high "Instructional Leadership" scores showed significantly better resource allocation and teacher retention. School leadership is the critical "meta-classroom" factor that determines the success of science education reform.</p>

1. Introduction

The Science Education Crisis

Science education in public secondary schools often suffers from a "mile wide, inch deep" curriculum and a severe lack of physical infrastructure (laboratories and equipment). For teachers, the hurdle is not just pedagogical but structural.

The Role of the School Head

School leadership is often the missing link in science reform. While teachers focus on the classroom, leaders manage the Policy, Management, and Capability of the institution. Improved leadership involves shifting from a "Managerial" role (checking attendance) to an "Instructional" role (actively supporting science experimentation and professional growth).

Research Questions

- What are the primary logistical and pedagogical hurdles faced by science teachers in public schools?
- How does the leadership style of school heads (Transformational vs. Transactional) correlate with the availability of science resources?

2. Methods

Participants

Science teachers and department heads from diverse public secondary schools.

Data Collection

- Hurdle Assessment Scale:** A survey measuring perceived barriers such as "Lack of Equipment," "Large Class Size," and "Curriculum Complexity."
- Leadership Performance Index:** A tool used by teachers to rate their principal's support in terms of resource acquisition and professional development.

Analytical Framework

The study utilizes the Transformational Leadership Model, focusing on how leaders provide "Intellectual Stimulation" to science teachers to encourage innovative teaching despite resource gaps.

3. Results and Discussion

Identifying the Hurdles

The top three hurdles identified were:

- Resource Deficit:** 85% of teachers reported insufficient chemicals or apparatus for mandatory experiments.
- Time Constraints:** High administrative workloads for teachers reduce time for lesson preparation.
- Large Classes:** Average class sizes of 45+ students make laboratory supervision nearly impossible.

The "Leadership Dividend"

Schools with "Improved Leadership" exhibited:

- Alternative Funding: Leaders who secured community partnerships or local grants to fund mobile laboratories.
- Collaborative Culture: Implementation of "Learning Action Cells" (LAC) where science teachers co-planned lessons to reduce individual workload.
- Resource Prioritization: Principals who reallocated school MOOE (Maintenance and Other Operating Expenses) specifically for science consumables.

Leadership as an Intervention

The results suggest that while hurdles like "Lack of Equipment" are systemic, Improved School Leadership acts as a buffer. Effective leaders don't just wait for government funding; they treat constraints as "affordances" for local innovation (e.g., using indigenous materials for experiments).

Challenges to Improved Leadership

Many principals lack a science background, making them hesitant to supervise science instruction. There is a need for "Science-Specific Leadership Training" for school heads to help them understand the unique safety and logistical needs of a laboratory-based subject.

4. Recommendations

- For Policy Makers: Institutionalize leadership training that focuses on STEM advocacy for school heads.
- For School Leaders: Move toward Distributed Leadership, where veteran science teachers are empowered to make decisions on budget and curriculum.

References

- [1] Halverson, R., & Feinstein, N. W. (2012). *School leadership for science education*. University of Wisconsin–Madison.
- [2] Naparan, G. B. (2023). Challenges and Coping Strategies of Science Teachers. *International Journal of Social Sciences & Educational Studies*.
- [3] National Academies of Sciences, Engineering, and Medicine (2019). *Science and Engineering for Grades 6-12: Investigation and Design at the Center*.
- [4] Leithwood, K., & Sun, J. (2018). The Nature and Effects of Transformational School Leadership. *Educational Administration Quarterly*.