

**Classroom management practices and science learning engagement
among Grade 10 learners: Evidence from a Philippine public secondary school**

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ABSTRACT

Classroom management plays an important role in creating learning conditions that encourage Grade 10 learners to participate actively in Science. However, limited evidence has examined the relationship between classroom management practices and science learning engagement among Grade 10 learners in a local Philippine public secondary school setting. This study examined classroom management practices and science learning engagement among 20 Grade 10 learners at Cabagan Riverside National High School. A quantitative descriptive-correlational design was employed. Data were gathered through a structured questionnaire measuring classroom management practices and behavioral, emotional, and cognitive engagement in Science. Weighted means were used to determine the levels of the two variables, while Pearson product-moment correlation was used to test their relationship. Results showed that classroom management practices and science learning engagement were both high. A significant positive relationship was also found between the two variables. Teachers are encouraged to strengthen organized, supportive, and participatory classroom management practices to sustain learners' engagement in Science.

Keywords: Classroom management, science learning, learner engagement, Grade 10 learners, educational management.

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INTRODUCTION

A well-managed classroom is more than an orderly physical space. It is a learning environment where learners know what is expected of them, participate in meaningful activities, interact constructively, and remain focused on learning. Classroom management has therefore become an important concern in educational research and practice. It influences classroom behavior as well as students' academic and social experiences. Korpershoek et al. (2016), in a meta-analysis of classroom management interventions, found positive effects on

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students' academic, behavioral, social-emotional, and motivational outcomes. Oliver et al. (2011) likewise reported that effective classroom management reduced disruptive behavior and helped establish conditions for effective instruction.

Learner engagement is equally important. Students may be physically present in class without being meaningfully involved in learning. Fredricks et al. (2004) described school engagement as a multidimensional construct involving behavioral, emotional, and cognitive dimensions. Behavioral engagement refers to participation, effort, and involvement in classroom activities. Emotional engagement concerns students' feelings toward learning, teachers, and school. Cognitive engagement involves mental investment and the use of strategies to understand and master academic content. Engagement is also considered responsive to features of the learning environment.

The connection between classroom management and learner engagement is consequently important. Effective management provides the structure needed for learners to participate without unnecessary disruption. Clear routines can reduce lost instructional time. Supportive teacher-learner relationships can also encourage participation and persistence. Oliver et al. (2011) noted that disruptive classroom behavior is associated with reduced academic engaged time, while effective classroom management can improve classroom conditions for learning. (DOI)

This issue is particularly relevant to Science education. Science learning requires more than recalling concepts. Learners are expected to observe, investigate, discuss, interpret evidence, solve problems, and apply concepts to real situations. These activities require a classroom environment that allows learners to participate actively and work with others. Classroom organization is therefore closely connected with the opportunities learners have to engage in scientific learning.

The Philippine context provides an important policy basis for examining this concern. The Department of Education's Philippine Professional Standards for Teachers (PPST) identifies Learning Environment as Domain 2. This domain includes the management of classroom structure and activities, support for learner participation, promotion of purposive learning, and management of learner behavior. The standards emphasize learning environments that are safe, supportive, and conducive to learner responsibility and achievement.

The PPST also gives specific attention to classroom structures that engage learners in meaningful exploration, discovery, and hands-on activities. It further calls for supportive environments that encourage learners to participate, cooperate, and collaborate. Positive and non-violent approaches to learner behavior are also emphasized. These provisions are particularly relevant to Science classes, where exploration, collaboration, and hands-on learning are important features of instruction.

Existing studies have provided evidence that classroom management is related to student engagement and other learning outcomes. Korpershoek et al. (2016) found small but significant positive effects of classroom management interventions across several student outcomes. Their analysis included 54 intervention studies and showed that classroom management strategies can influence academic, behavioral, and social-emotional outcomes. Similarly, Oliver et al. (2011) found that classroom management interventions significantly reduced disruptive and inappropriate behavior among students from kindergarten through Grade 12.

Philippine research has also examined the relationship between classroom management and learner engagement. Paynandos and Doronio (2025), for example, examined classroom management approaches, student engagement, and study habits among Grade 5 and Grade 6 learners in Davao de Oro. Their study used a descriptive-correlational design and involved 100 learners. (RSIS International) While such research provides useful Philippine evidence, its focus was elementary mathematics rather than Grade 10 Science.

This points to a contextual gap. Research has established the importance of classroom management and learner engagement, but fewer studies have examined their relationship specifically among Grade 10 Science learners in a Philippine public secondary-school setting. Science classes have distinctive requirements. They may involve collaborative investigations, practical activities, demonstrations, problem solving, and evidence-based discussions. Findings from elementary or non-science settings cannot automatically be applied to Grade 10 Science classrooms.

The present study addressed this gap at Cabagan Riverside National High School in Cabagan, Isabela. The researcher was assigned to the Science Department and handled Grade 10 Science. Grade 10 learners were identified as the target respondents. The study therefore examined classroom management within the actual instructional context of the researcher.

Specifically, the study aimed to determine the level of classroom management practices employed in Grade 10 Science classes in terms of classroom structure, management of learning activities, learner participation, and learner behavior. It also sought to assess the level of science learning engagement in terms of behavioral, emotional, and cognitive engagement. Finally, it aimed to determine whether a significant relationship existed between classroom management practices and science learning engagement among Grade 10 learners.

The study sought to contribute school-level evidence to the discussion on classroom management and learner engagement in Philippine secondary education. It also aimed to provide information that could help teachers and school leaders strengthen classroom practices that support active and sustained engagement in Science.

Statement of the problem

This study aims to determine the level of classroom management practices employed in Grade 10 Science classes at Cabagan Riverside National High School in terms of classroom structure, management of learning activities, learner participation, and learner behavior. It also seeks to assess the level of science learning engagement of Grade 10 learners in terms of behavioral, emotional, and cognitive engagement. Finally, the study aims to determine whether a significant relationship exists between classroom management practices and science learning engagement among Grade 10 learners.

METHODOLOGY

The study employed a quantitative descriptive-correlational research design to examine the relationship between classroom management practices and science learning engagement among Grade 10 learners at Cabagan Riverside National High School. The descriptive component was used to determine the level of classroom management practices and the level of science learning engagement, while the correlational component was used to determine whether a significant relationship existed between the two variables. The design was appropriate because the study examined naturally occurring classroom practices and learner engagement without manipulating the learning environment.

The study was conducted at Cabagan Riverside National High School in Cabagan, Isabela. The respondents consisted of 20 Grade 10 learners who were enrolled during the conduct of the study and were exposed to the Science classes included in the investigation. The respondents were selected through purposive sampling because the study specifically required learners who were directly experiencing Grade 10 Science classroom management practices.

The researcher's profile indicated that she was assigned to the Science Department and handled Grade 10 Science, with Grade 10 learners identified as the target respondents.

A structured questionnaire served as the primary data-gathering instrument. The questionnaire consisted of three parts. The first part gathered basic respondent information. The second part measured classroom management practices as experienced by the learners. It covered classroom structure, management of learning activities, learner participation, and learner behavior. The third part measured science learning engagement in terms of behavioral, emotional, and cognitive engagement. The items were presented using a five-point Likert scale. Classroom management items ranged from 1 (Never) to 5 (Always), while learner-engagement items ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

The instrument was reviewed by qualified education professionals before administration. The validators examined the items for relevance, clarity, appropriateness, and alignment with the objectives of the study. Their suggestions were considered in revising the questionnaire. The revised instrument was then used for data collection.

Permission to conduct the study was secured from the appropriate school authorities. The researcher explained the purpose and procedures to the respondents. Participation was voluntary. The respondents were informed that their answers would be used only for academic purposes and would be treated confidentially. No names were required on the questionnaire.

The questionnaires were administered during an agreed schedule that did not interfere with regular classroom activities. The researcher provided instructions before the respondents answered the instrument. After retrieval, the questionnaires were checked for completeness, coded, and prepared for analysis.

Frequency and percentage were used to summarize respondent information. Weighted mean was used to determine the levels of classroom management practices and science learning engagement. Pearson product-moment correlation was used to determine the relationship between the two variables. The level of significance was set at 0.05. The null hypothesis stated that there was no significant relationship between classroom management practices and science learning engagement among Grade 10 learners.

RESULTS AND DISCUSSION

The analysis addressed three concerns: the level of classroom management practices, the level of science learning engagement, and the relationship between these two variables among the 20 Grade 10 learners.

The findings indicated that classroom management practices were highly evident in the Grade 10 Science classroom. The learners generally reported favorable experiences in classroom structure, management of learning activities, learner participation, and management of learner behavior. This suggests that classroom management extended beyond discipline. It included the organization of classroom activities and the creation of conditions that allowed learners to participate in lessons.

The management of learning activities and classroom structure received relatively favorable assessments. This suggests that learners generally experienced organized lessons, clear classroom routines, and orderly transitions between activities. Such practices are important in Science classes. Science activities can involve individual work, group tasks, demonstrations, and practical activities. Without clear procedures, instructional time can easily be lost.

The favorable assessment of learner participation also indicates that management practices were not primarily control-oriented. The classroom environment appeared to provide opportunities for students to participate in learning activities. This finding is consistent with

the PPST, which identifies management of classroom structure and activities and support for learner participation as important components of the learning environment.

The result also agrees with Korpershoek et al. (2016), whose meta-analysis found positive effects of classroom management programs on several student outcomes. Their findings suggest that classroom management can contribute to conditions that support students' academic and behavioral functioning.

The learners also reported a high level of science learning engagement. They generally participated in Science activities, showed positive responses toward their learning experiences, and exerted mental effort in understanding lessons. Engagement therefore appeared across behavioral, emotional, and cognitive dimensions.

This finding is consistent with the conceptualization of Fredricks et al. (2004), who argued that engagement should not be reduced to visible participation. Learners can be engaged through their behavior, feelings, and thinking. A student who participates in an activity but does not think deeply about the task may not be fully engaged. The present results suggest that the respondents experienced engagement across these dimensions.

The high level of engagement may be related to the classroom environment. When routines are clear and learning activities are organized, learners may spend less time dealing with confusion or interruptions. They can devote more attention to the learning task. This is particularly important in Science because many learning activities require sustained attention, cooperation, and active participation.

The most important finding was the positive and statistically significant relationship between classroom management practices and science learning engagement. Learners who perceived classroom management more favorably also tended to report higher engagement in Science. The result indicates that classroom management and science learning engagement were closely associated in the setting examined.

This finding supports the broader evidence on classroom management. Oliver et al. (2011) found that effective classroom management reduced disruptive and inappropriate behavior and helped establish conditions for effective instruction. Their systematic review covered students from kindergarten through Grade 12. Korpershoek et al. (2016) similarly found positive effects of classroom management strategies on academic, behavioral, and social-emotional outcomes.

The finding also has practical meaning for Science instruction. Effective classroom management may give learners more opportunities to ask questions, participate in group activities, complete investigations, and discuss scientific ideas. Management practices that provide structure while allowing participation may therefore be particularly useful in Science.

The relationship found in the present study should not, however, be interpreted as proof that classroom management caused higher engagement. The study used a correlational design. It established an association between the variables but did not manipulate classroom management or control other factors that may influence engagement. Other factors, such as teacher characteristics, instructional strategies, learner motivation, peer relationships, and home experiences, may also influence engagement.

The findings should also be viewed in light of the study's small sample. Only 20 Grade 10 learners participated. The respondents came from one public secondary school and were selected purposively. The findings therefore provide useful contextual evidence but should not be generalized to all Grade 10 learners in the Philippines.

Despite this limitation, the study provides a useful school-level perspective. It shows that classroom management is not simply a matter of maintaining order. It is also connected with the learning experiences of students. The result supports the view reflected in the PPST

that teachers are expected to establish supportive learning environments, manage classroom activities, promote learner participation, and manage behavior constructively.

The findings also point to a practical direction for teachers. Classroom routines should remain clear and consistent. Learning activities should be organized before implementation. Students should be given opportunities to participate and collaborate. Behavior should be managed through constructive and respectful approaches. These practices can help maintain an environment where learners remain engaged with Science.

CONCLUSION

This study concludes that classroom management practices were highly evident in the Grade 10 Science classroom at Cabagan Riverside National High School. The learners generally experienced organized classroom routines, well-managed learning activities, opportunities for participation, and appropriate management of learner behavior. These practices provided conditions that supported classroom learning.

The Grade 10 learners also demonstrated a high level of science learning engagement. They participated in activities, showed positive responses toward Science learning, and exerted effort to understand the lessons. A significant positive relationship was found between classroom management practices and science learning engagement. Better perceptions of classroom management were associated with higher learner engagement.

Teachers are therefore encouraged to maintain clear classroom routines and well-organized Science activities. They may give greater attention to practices that promote participation, cooperation, and learner responsibility. Classroom management should not focus only on controlling disruptive behavior. It should also create opportunities for meaningful learning.

School administrators may support this effort through professional development activities on classroom management, learner engagement, and student-centered Science instruction. Future researchers may conduct similar studies with larger samples and several schools. They may also include teacher perspectives, classroom observations, or other variables that can provide a fuller explanation of learner engagement. Such studies can strengthen the evidence on classroom management and Science learning in Philippine secondary schools.

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