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Master Teachers and Department Heads as Science Instructional Leaders: A Case Study on Their Role as Instructional Programme Managers

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Abstract

As instructional leaders, master teachers and department heads are equally important in harnessing commendable scholastic performance for both teachers and students. This paper explored the case on how science master teachers and department heads practice on science instructional leadership, thereby creating an in-depth description and analysis of their ideals and realities. An electronic open-ended survey questionnaire and semi-structured individual interviews with six participants were used to collect data. Findings revealed that the practices of master teachers and department heads on coordinating the science curriculum dimension include fostering professional development among science teachers, providing technical assistance to science teachers, and organizing programs, projects and activities related to science. Meanwhile, ensuring instructional competence of science teachers and performing classroom observation as prescribed by Department of Education are their practices under supervising and evaluating science instructions. For monitoring student's progress, participants' practices include focusing diverse assessment strategies towards science process skills. This study also unveiled that the participants faced dilemma in their role as instructional leaders because of additional tasks aside from the prescribed duties and responsibilities of science master teachers and department heads expected from them. Moreover, documentary analysis disclosed that the instructional leadership of science master teachers and department heads significantly influences the school performance. Further study on the relationship between instructional competence of school leaders to its performance indicators is warranted.

Keywords: science instructional leaders, managing instructional programmes

Introduction

Societal dynamics necessitate adaptive measures in promoting knowledge, skills and applicability. Thus, in order to provide society with adaptable and life-long learners, the education sectors must catch up to these demands. One profound consideration in realizing these demands is the thorough and functional practice of instructional leadership across levels of the educational arena. Congruently, refining and cultivating instructional processes does not only revolve through the leadership of the school principals but also the distributed efforts across designated personnel such as department heads and master teachers (Spillane & Diamond, 2007; Spillane, Diamond, & Jita, 2003). Master teachers' and department heads' instructional leadership practices are far more relevant than those of the principals. Thus, examining these practices can provide input to the improvement of the way education is delivered to its important clientele – the students.

True enough, a number of authors (Dania & Andriani, 2021; Day, *et al.,* 2016; Hallinger & Heck, 2010; Hallinger &

Hosseingholizadeh, 2019; Harris, *et al.*, 2019; Manaseh, 2016; Moeketsane, *et al.,* 2021; Munna, 2021; Spaull, 2013; Spillane & Zuberi, 2009; and Wood & Olivier, 2008) highlighted that instructional leadership is important, suitable, and strongly felt to have promoted the improvement the school's and student's performance. Additionally, Weller (2001) suggested that master teachers and department heads are in a good position to promote instructional advancement due to their constant interaction with teachers and because of their instructional expertise.

However, to reinforce the instructional leadership skills and competency of the master teachers in the Division of Biliran, a development plan must be created (Laude, *et al.,* 2018). Manaseh (2016) argued that programs aimed at enhancing school leaders' capacities should put a particular emphasis on introducing them to the instructional leadership model and preparing them to supervise instructional modifications that would improve all students' levels of learning. Furthermore, follow-up research concentrating on teachers' instructional leadership should also be conducted to evaluate the impact of the inputs, according to the study Malitic (2020).

Munna (2021) emphasized that although the field of instructional leadership has been treated seriously, there is hardly any academic literature and no suitable guidance for carrying out the function of science instructional leadership. In order to strengthen instructional leadership in schools even when senior administrators are not present and to get subject leaders ready for success as senior managers in the future, Moeketsane, *et al.* (2021) recommended that subject leaders be completely integrated into instructional leadership programs. In conjunction with, since science instructional leaders are expected to provide administrative support to the program with attention for science laboratory activities in addition to the typical pedagogy, assessment, and curriculum improvement on the components of science, they may provide extra obstacles and challenges. Other than this, the high-stake assessments such as the Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) results revealed disappointing results (Raya, 2021). Another issue is the frustrating results of the national achievement test for science. The instructional leadership practices used by department heads and master teachers in science may be accountable for these shortcomings and predicaments.

Thus, it is important to study master teachers' and department heads' practices in order to prepare them to carry out their responsibilities and functions, given the significant role they play in achieving the educational system's goals. Furthermore, despite the plethora of literature on instructional leadership, there are only few studies that highlight the science instructional leadership practices and challenges encountered by science instructional leaders in basic education within the realities in the Philippine schools. As a matter of fact, in the Philippines, the principals of the basic education schools are the main subjects of the most studies on instructional leadership (Arrieta *et al.*, 2020; Basañes, 2020; Bush *et al.*, 2016; Cahapay, 2022; Gamata, 2021; Laude *et al.,* 2018; Lincuna & Caingcoy, 2020; Malitic, 2020; Mendoza & Bautista, 2022; Pitpit, 2020; Sindhvad, 2009; Villa & Tulod, 2021) and it appears that science instructional leadership practices and roles of the master teachers and the department heads are unnoticed and snubbed. Peacock (2014) also argued that additional exploration and investigation is needed to specify the roles of Science Department Chairs such as Master Teachers and Head Teachers in science instructional leadership.

This study explored the practices of science master teachers and science department heads on Instructional Leaders using Hallinger and Murphy's (1985) Instructional Leadership Model specifically on "Managing Instructional Program"

dimension as a conceptual lens. In this model, there are three dimensions in instructional leadership activities, namely determining school missions, managing instructional programmes, and creating school learning environments. The managing instructional programs dimension, which includes working with teachers on topics pertaining to curriculum and instruction, is the focus of this study. This dimension includes three sub-dimensions such as supervising and evaluating instruction, coordinating curriculum, and monitoring student progress. Providing teachers with instructional assistance, monitoring classroom instruction through a variety of casual classroom visits and matching the classroom objectives of teachers with those of the school are all parts of supervising and evaluating instruction. In coordinating curriculum, practices ensuring and guaranteeing the continuity of learning objectives for each grade that are directly connected to the material covered in class and in achievement exams are involved. Monitoring student progress includes giving teachers test results in a timely and helpful manner, talking with teachers about test results, and giving teachers interpretative analysis that succinctly summarizes the test data. However, as noticed, this model offers a general view of instructional leadership practices, hence, in this study, the context of science instructional leadership is specified.

Thus, the following research questions were asked in this study: (a) What are the practices of science master teachers and department heads in assuming their duties and responsibilities as instructional leaders in managing instructional programs?, (b) How are these practices different from the existing science instructional leadership standards on managing instructional programs?, and (c) Will these science instructional leadership practices on managing instructional programs affect the school performance?

Methodology

Research Design

This qualitative study employed a case study approach to explore and develop an in-depth description and analysis of the practices of science instructional leaders on managing instructional programs. According to Creswell (2013), a case study involves collecting detailed, comprehensive data over time from multiple sources of information about one or more cases. Through analysis of the data from multiple sources of information, in-depth understanding is provided through themes and issues identified by the researchers. Aside from the interviews with the key informants, we also evaluated relevant documents provided by the participants to provide a better and in-depth description of each case.

Participants and Sampling

For this study, we purposefully selected six participants from the public secondary schools in the Schools Division of the City of Meycauayan. Each participant currently holds a science instructional leadership role, serving as either a science master teacher or a science department head/chair for more than two years. They were asked to participate in this study and willingly agreed to partake in this endeavour as evidenced by their signed informed consent document.

Data Collection

We obtained approval and permission from the Schools Division Office of the City of Meycauayan to include science master teachers and department heads as study participants. Once we received their acceptance letter, we provided all participants with an informed consent document outlining the study's details and obtained their voluntary consent to participate. To gather the necessary data, we developed semi-structured interview questions and administered them to participants either face-to-face or via virtual conference platforms, depending on their preference. This interview format known as the "semi-structured interview" has become the most popular method for gathering qualitative data (DiCicco-Bloom & Crabtree, 2006). A semi-structured interview is a qualitative research technique that involves a

prepared list of open-ended questions, but also allows for researchers to explore specific responses in greater depth. This approach enables the researchers to ask follow-up questions for clarification. In this study, the semi-structured interview questions were designed to elicit information on the participants' practices in enacting science instructional leadership roles, with a specific focus on managing instructional programmes.

Data Analysis

We utilised MS Excel to analyse the data collected and employed the thematic analysis framework proposed by Braun and Clarke (2006). This six-phase method provided a valuable framework for conducting our analysis. We read and reread the transcripts in the first stage to familiarise ourselves with the data. By creating initial codes, we arranged our data in a sensible and methodical manner. Third, when we looked over the codes, some of them clearly fitted together to generate preliminary themes. The basic themes that we had discovered were revised, improved, and developed in the following phases so that they are now well-defined and capable of supporting interpretations and conclusions.

Ethical Considerations

The researchers have taken steps to comply with data management protocols, beginning with the collection, storage, and analysis of data. Participants were fully informed and provided with guidance on their involvement in the study through the informed consent document, which they signed. The information gathered was treated with the utmost confidentiality, privacy and anonymity. The research participants received no remuneration or other financial benefits in exchange for taking part.

Conclusion and Recommendations

As science education continues to evolve and teachers encounter major overhauls on science curriculum, pedagogy, and assessment, science instructional leaders in the person of master teachers and department heads need to demonstrate science instructional and professional competence and support science teachers to adapt to societal dynamics.

With the paucity of research undertaken about the instructional leadership roles of science master teachers and department heads, this study has shown significant strides to account the efforts of instructional leaders in supervising and evaluating instruction, coordinating science curriculum, and monitoring student progress.

Findings of the study demonstrate practices that allow instructional leaders to manage the curriculum programs in schools by providing teachers with instructional assistance, monitoring classroom instruction, ensuring continuity of learning objectives, and managing student progress aligned to science process skills. Despite the ambiguity of the roles in the instructional leadership in schools, and even the additional ancillary tasks handed over to science master teachers and department heads, these practices are identified to provide significant contributions to the students' academic achievement, teacher's professional and teaching career growth, and the entire school's performance. By maintaining learning environments that have a favourable impact on teaching outcomes, effective science instructional leaderships roles are essential for engaging, empowering, and supporting high-quality teachers.

The findings present an initial insight into how instructional leadership practices of school science master teachers and department heads can be delved into and influence the school teaching outcomes. However, further study on the relationship between instructional competence of school leaders to its performance indicators is warranted.

Future research could include expanding the scope to reach more additional inputs on school instructional leadership practices. It is

also worthwhile to investigate the other dimensions of the instructional leadership framework of Hallinger and Murphy (1985) to extend the understanding of other types of leadership practices and their prediction of performance indicators.

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