

# Looking into the Pedagogical Adjustments of In-Service Mathematics Teachers

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**Abstract:** It has been observed that there are Mathematics teachers in some schools who are assigned to teach subjects other than their field of specialization. Being assigned to teach other disciplines requires a sense of efficacy, subject matter knowledge and pedagogical knowledge for these teachers. Hence, this study determined the pedagogical adjustments of Mathematics teachers handling other disciplines in selected national high schools at the Division of Lipa City. Specifically, it dealt with the respondents' assessment on their pedagogical adjustments in teaching other discipline and the suggested activities that may help the respondents adjust their pedagogical practices to the demands of the subjects they are teaching.

Results revealed that the respondents are adjusted pedagogically by summarizing important points and considering the students' existing knowledge and experiences when discussing the lesson. They also give challenging but doable tasks to their students and help students to learn effectively through varied activities.

The above-mentioned findings recommend that Mathematics education supervisors may initiate the conduct of seminars in utilizing the appropriate strategies for in-service Mathematics teachers who are teaching other disciplines. It is also recommended that future researches be done contemplating on the effectiveness of the activities suggested for the benefit of the students.

**Keywords:** Pedagogical Adjustment, In-service Teacher

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## Introduction

Education has a great impact to the changes that had happened and are still happening in the world. The existence of different studies like the discovery of elements, formulation of various mathematical formula on solving mathematical problems and existence of different literatures with different genres and forms are just a few of all the contributions that education had made for the society. Education itself is the process on the pursuit of knowledge which produces locally and globally competitive people. One of those highly competitive people is in the field of teaching—the teachers.

A licensed teacher is a professional who possesses dignity and reputation with high moral values as well as technical and professional competence. He adheres to observe and practice a

set of ethical and moral principles, standards and values. But before considering him a professional teacher, he must have gone through four to five-year period of rigorous academic preparation in teaching in the field of specialization he has chosen. The combination of a broad knowledge of mathematical pedagogies and general pedagogies makes a potent force that could ensure high quality mathematics teaching in schools.

Every teacher should have a good, solid general pedagogical knowledge. This knowledge includes the understanding of students and their development as learners, knowledge of general teaching methodologies and classroom processes, including lesson planning techniques, knowledge of theories of assessment and understanding of professional responsibilities. Thus, teacher education is seen as a continuous process, beginning with a phase of initial training and continuing throughout the teacher's professional life.

The outstanding personal cognitive qualities of Mathematics teachers meet the standard to teach other fields. Mathematics teacher education in the Philippines is in its most precarious state. The Mathematics component will surely lead us to question our practices in developing future teachers of Mathematics.

Teachers are continually faced with the challenge of assessing the progress of the students. Assessment decisions could substantially improve students' performance, guide the teachers in enhancing the teaching-learning process and assist policy makers in improving the educational system. In the same way, poor assessment procedures could adversely affect the students, teachers and administrators (De Guzman-Santos, 2007).

In the fast changing world of the early 21st century, public education is also changing. As part of the changes, the role of the school and education will also be different both in the educational system and in the society. Together with them, the role of teachers will also change.

More often than not, evergreen questions cannot be answered without understanding the real contexts of teaching. However, researchers have examined and prescribed the different components of teachers' knowledge and characteristic features. They have come up with the importance of content knowledge, pedagogical content knowledge, general pedagogical knowledge, curricular knowledge, contextual knowledge and process knowledge. When one thinks of the classroom teacher's roles and responsibilities, most likely, planning instruction, delivering instruction, assessing student learning and managing the classroom environment come to mind (Stronge, 2007).

The amount of knowledge required to be a competent and effective teacher is not found solely in the university classroom nor obtained from classroom teaching experience alone. Classroom knowledge and experience are necessary ingredients to develop competence in this field. This is one of the reasons that some Mathematics teachers in some schools are assigned to teach other subjects instead of teaching in the field they were expert in. Being assigned to teach other disciplines requires a sense of efficacy, subject matter knowledge and pedagogical knowledge for these teachers. This leads to different pedagogical adjustments of Mathematics teachers handling other disciplines.

It is in this context that this study was conceived. The researcher, as a Mathematics instructor, has seen the necessity of working on this study because she believes that a teacher must be

knowledgeable not only in their area of specialization but in other areas of discipline as well to prepare them in the actual situation in the academe.

### Objective of the Study

This study determined the pedagogical adjustments of Mathematics teachers handling other disciplines. These teachers were those who were employed at the selected high schools in the Division of Lipa. Specifically, this study sought answers to the following questions: How may the respondents’ pedagogical adjustments in teaching other discipline be described?; and, what activities may be suggested to help the respondents adjust their pedagogical practices to the demands of the subjects they are teaching?

### Material and Methods

The main purpose of this study was to assess the pedagogical adjustments of in-service Mathematics teachers handling other disciplines at the selected national high schools in the division of Lipa. Descriptive research was used in the study which aided the researcher to present, analyze, and interpret the gathered data. For this reason, the researcher made a 15-item statements questionnaire to determine the pedagogical adjustments practiced by the respondents in handling other discipline with the following interpretation:

Scale	Mean Ranges	Interpretation
4	3.51 – 4.00	Often/Highly Adjusted
3	2.51 – 3.50	Sometimes/Adjusted
2	1.51 – 2.50	Seldom/Slightly Adjusted
1	1.00 – 1.50	Never/Not Adjusted

### Results and Discussion

#### 1. Respondents’ Pedagogical Adjustments in Handling other Discipline

This part of the study determined the pedagogical adjustments of mathematics teachers handling other disciplines. It reveals the computed mean for each statement with its corresponding interpretation.

**Table 1. Respondents’ Pedagogical Adjustments**

Item Statements	Mean	Verbal Interpretation
As Mathematics graduate teaching other discipline, I... 1. integrate strategies in Mathematics that allow students to become active learners.	2.36	Seldom
2. give clear instructions for tasks by modelling.	3.61	Often
3. teach my students self-learning strategies to understand better the lesson.	3.25	Sometimes
4. use manipulatives in conveying the lessons to my students.	3.25	Sometimes
5. help my students to learn effectively through varied activities.	3.70	Often
6. investigate my students’ learning needs and encourage them to set specific learning goals for themselves.	3.57	Often

7. give challenging but doable tasks to my students.	3.75	Often
8. start my lessons with diverse presentation technique.	3.11	Sometimes
9. show my students how much they have progressed or learned.	3.57	Often
10. highlight creativity and resourcefulness by facilitating activities.	3.25	Sometimes
11. manage classroom routines using modified approaches.	2.84	Sometimes
12. summarize important points and consider my students' existing knowledge and experiences when I discuss my lesson.	3.78	Often
13. use interdisciplinary approach through integration of content from more than one content area.	3.64	Often
14. implement a teaching strategy that stimulates higher-order thinking skills	3.32	Sometimes
15. use problem solving strategy by defining the problem and brainstorming the solution.	3.16	Sometimes
<b>Composite Mean</b>	<b>3.34</b>	<b>Adjusted</b>

The table reveals the respondents often summarize important points and consider the students' existing knowledge and experiences when discussing the lesson. Acquiring the highest mean of 3.78, this signifies that the respondents adjust their pedagogical practices in order to translate the lesson to the learners in a manner where students could easily handle.

Teachers often summarize important points considering the students' existing knowledge and experiences during discussion due to the fact that most students get engaged in classes when it is applied and experienced in real life. In addition, Humphreys and Hyland (2002) argues that teachers use assessment for motivational purposes, to get pupils to work harder, to provide practice for national exams, to gather information about what to teach next and, last, to evaluate the success of their methods, tasks or materials. The purpose of classroom assessment is not just to generate information for decision making, but also to foster learning improvement. For this reason, if properly offered on a frequent basis, it would help students to refine and deepen their understanding of what they learn. In addition, Marasigan (2018) mentioned that it is necessary for the faculty force to administer effective assessment measures to evaluate student achievements. One must also model poise and self-confidence when encountering teaching difficulties.

## 2. Suggested Activities to Help the Respondents Adjust their Pedagogical Practices

After revealing the respondents' pedagogical adjustments, the researcher suggested activities which may help the respondents adjust their pedagogical practices to the demands of the subjects they are teaching. The suggested activities are presented in tabular form along with each specific purpose and brief description.

**Table 2. Suggested Activities to Help the Respondents Adjust their Pedagogical Practices**

Activity	Purpose	Description
Conduct of seminar with resource speakers to talk on pedagogical practices of teachers handling various disciplines	To engage the education program supervisors to challenges that embed real-world and real-life scenario of the applications of the concepts learned and show the apparent relevance of the adjustments in pedagogy in teaching.	This can be carried out by conducting a seminar and facilitate discussion containing the different pedagogical practices applicable in different disciplines.
Team Huddle	To discover the different motivational patterns in teaching other disciplines. The idea is to tap the interests of teachers and use it as a motivating factor to enhance pedagogy in teaching.	Teachers will be grouped according to subjects handled and will classify their styles according to the degree of how often and seldom they apply such style to reach a certain goal in effectively teaching other subjects they handle.

**Conclusion and recommendation**

The study revealed that the respondents are adjusted pedagogically by summarizing important points and considering the students’ existing knowledge and experiences when discussing the lesson. They also give challenging but doable tasks to their students and help students to learn effectively through varied activities.

Considering the conclusions drawn in this study, the researcher suggested the following recommendations: Mathematics education supervisors may initiate the conduct of seminars in utilizing the appropriate strategies for in-service Mathematics teachers who are teaching other disciplines; and future researches may be done contemplating on the effectiveness of the activities suggested for the benefit of the students.

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