



Republic of the Philippines
Department of Education
Region III
Schools Division of City of Balanga
CITY OF BALANGA NATIONAL HIGH SCHOOL
City of Balanga



**INCREASING THE PERFORMANCE OF STUDENTS THROUGH THE SYMDAMA
GAME IN LEARNING THE PERIODIC TABLE OF ELEMENTS
(AN ACTION RESEARCH)**

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I. Situation

Students in this generation are not as performing as ones before them. It is much different from what we truly expect and what we actually wish them to become. They seem to be listening attentively in class but their scores in their quizzes are below average which shows their inattentiveness. Lack of interest is what being perceived due to different distractions that impede them to learn based on the study of Dr. Alma V. Poblete about the drop out case.

To be more creative makes the learning inside the classroom more meaningful and remarkable, as educators always state. Moreover, "Learning by doing", as our guiding learning principle, is significantly reckoned this far. Allowing our students to manipulate all the materials to be utilized in class promotes good learning experiences.

In line with the quality education we offer, the conduct of any form of innovation/intervention as lesson pedagogy in all fields such as Chemistry must highly be prioritized. Basically, the value of the Periodic Table of Elements as an organizing tool to facilitate learning Chemistry should be learned by our students since topics in this subject always depend on this table (*Chang, 2007*).

II. Statement of the Problem

This proposal aimed to improve the classroom learning routine of the students that would lead to the increase of their academic performance level in Chemistry. Specifically, it sought to address the following concerns:

1. What is the impact of SYMDAMA game in the learning of the students and teaching of the teachers?
2. How effective is the SYMDAMA game in increasing the performance of the students in learning the Periodic Table of Elements?

III. Proposed Solution

In the K to 12 Curriculum, "Localization and Contextualization" is now incorporated to the teaching-learning process. Exploring of what is available in a locality should be done and then contextualized. To meet this end and address the students' unsatisfactory performance in Chemistry class, a proposal of a simple innovative yet an improvised instructional material was introduced in the form of a game. This innovation was utilized as part of the teaching strategy called "SYMDAMA game" or game of the symbols of elements. The mechanics of Filipino Dama game has been adapted for an easy grasp of this game with minor modification. Mastery of the mechanics was taken into account for the positive result of the lesson evaluation.

IV. Actions Undertaken

Figure 1 illustrates the Conceptual Framework of the study:



From the Science Content Matrix in the K to 12 Curriculum, only Grade 7 had taken Chemistry in the first quarter and Grade 9 in the second quarter. Two heterogeneous sections in this grade levels were the respondents of this intervention and their Science teachers were the facilitators of the said scheme. The control group, Grade 7-Helium and Grade 9-Malvar had taught using the traditional way of teaching while the experimental group, Grade 7-Carbon and Grade 9-Zamora were treated with the use of SYMDAMA game.

The target date of utilization was done right after the discussion of the Elements and their Classifications, which was scheduled on the first and second quarters, certainly the duration of this study.

Below, the proposed instructional material, the SYMDAMA board is patterned to Dama or Chess board. This playing board shows the horizontal rows and vertical columns indicating the Periods and Group or Family of Elements where the symbols are written in each box in alternate position. The symbols of elements must be aligned according to the correct features of the Periodic Table of elements.

Before the game begins, the mechanics below should be explained carefully and to be followed strictly by the students.

The Mechanics of the Game:

1. Two teams play in every game. Each team consists of two players.
2. To start the game, one representative from each team will toss a dice. Whoever gets the higher number shall be the first player and will start the first move.
3. The first player lets his opponent (*second player*) guess the name of the element and its kind as he moves it. Once the opponent has made the correct answer, he gets the point (*one point for every correct answer-name and kind*) and starts his own move; however, if he fails to make the right response, the score/point will be earned by the opponent. Hence, he is given the privilege to continue his next move.
4. The direction should be in any diagonal position forward only.
5. When the player conquers the stone of the opponent, he/she gets it and earns two points.
6. When a player gets to the center of the square, the value of the point system will increase by two since he has to proceed to the more challenging level, which is to invade the opponent's territory until he reaches the edge of the playing board and be declared winner regardless of the value of the scores he has made.

V.Evaluation Criteria

For the data analysis, lesson evaluations were administered after the implementation proper in order to determine and compare the students' academic performance by getting the Mean Percentage Scores (MPS) of the given tests. The impact of the SYMDAMA game to learners and teachers was described according to the results of students' MPS of the control and experimental groups as interpreted with the scale below.

MPS	Descriptive Equivalent
96-100	Mastered
86-95	Close Approximating Mastery
66-85	Moving Towards Mastery
36-65	Average Mastery
16-35	Low Mastery
5-15	Very Low Mastery
0-4	Absolutely No Mastery

This tool is adapted from the study of Dr. Helen R. Bose on *Using Peer Teaching, Small Group Discussion, and Presentation as Tools in Conducting Inquiry-Based Activities to Manage Large Classes in Central Azucarera De Tarlac High School- Annex, year 2013.*

VI. Data Presentation, Analysis and Interpretation

After the execution of the lesson, students' evaluation in the form of quiz both in traditional and experimental groups was noted to determine the impact and effectiveness of the said instructional material to the learning process. The results were presented below.

GRADE & SECTION	HS	LS	N	RS	MEAN	MPS
7-Helium	9	2	39	192	4.92	49
9-Malvar	10	1	38	193	5.08	51

Table 1: The Control Groups taught using Traditional Method

Table 1 showed that the MPS of the two Control groups, 49% and 51% (Average Mastery), are somewhat insufficient considering the students' 75% levels of proficiency. Teaching instructions used by the teacher need to be upgraded to meet the school target.

GRADE & SECTION	HS	LS	N	RS	MEAN	MPS
7-Carbon	10	2	42	306	7.29	73
9-Zamora	10	2	42	279	6.64	66

Table 2: The experimental Groups treated with SYMDAMA Game

In Table 2, the experimental groups acquired MPS, 73% and 66%, with corresponding description *Moving towards Mastery*. It proves that the students are receptive for some kind of adaptation and capable of doing new learning innovation. This pedagogy promotes experiential learning to the students.

VII. Conclusion

Based on the data gathered, the following conclusions are drawn:

1. This instructional material as an improvised tool had been contextualized in response to the learning interest of the students.
2. Learning through this game increased the retention rate of the students as proven in the test results.
3. Participation and cooperation among the students were observed and developed through teamwork.
4. This tool can aid the teaching process and learning of students.
5. Students experienced a meaningful learning in this pedagogy.

VIII. Reflection

Doing an innovation needs a creative mind to have a meaningful learning output. Experiment as teacher's resort to monitor and increase the students' performance must highly be considered. Improvisation of the materials, utilization of innovation and gathering of data are the challenging parts of it. However, the result reveals the present status of the teaching and learning scenarios of the class that will remind us about our undertakings.

The following recommendations are emphasized firsthand.

1. This innovation can only be utilized by the teacher who displays control to manage the class. Students, specifically the Grade 7, need appropriate attention during the lesson execution.
2. Before the game starts, instructions should be delivered clearly and understood by the students.
3. The mechanics of the game should be mastered by the facilitator so he/she can be an effective one and by the students so they can play better.
4. Review (on the symbols and names of the elements) should be done by the teacher due to the students' low retention in learning. The groups/sections were heterogeneous types.
5. This instructional material can be used as review tool in Chemistry class of any grade level.