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Effectiveness of Reflective Judgment Model on the Critical Thinking Skills of Grade 7 Students

Miralona M. Elarcosa

Secondary School Teacher III
Department of Education- Hagonoy National High School
miralona_elarcosa[at]yahoo.com

Abstract: ***The main purpose of conducting this study was to determine the effectiveness of the Reflective Judgment Model as an approach in developing the critical thinking skills in Filipino subject of Grade 7 students. The subjects of this study were the students in the two Grade 7 classes in Sacub High School Annex. The two sections with comparable mean ratings were the subjects of this study. The experimental and the control groups have 52 students each. A total of 104 students comprised the respondents of the study. This study utilized the modified two-group experimental design otherwise known as the two-group post-test - only randomized experiment (Trochim 2008). Based on the analyses and interpretations of the data, the researcher gathered these findings: The pretest mean score rating of students in the reflective judgment model approach was 25.96, and the step reading learning development approach has a mean of 26.59. This implies that both groups have probably the same level of knowledge before the conduct of the study. The posttests mean score rating of students in the reflective judgment model approach was 73.27 and in the step reading learning development approach it has a mean of 62.84. Both groups have achieved learning's. For the significant difference in the pretest mean score, a very small t - value (0.319) compared to the t - tab (1.983) with a p-value of 0.750 is higher than the 0.05 level of significance. The result revealed that the performance of students assigned to both groups was comparable to their performance before the conduct of the experiment. For the significant difference in the post-test, a larger t-value (3.680) compared to the t-tab (1.983) means that the posttests mean score ratings of both the reflective judgment model and the step reading learning development approaches differ significantly. For the significant difference in the mean gain score ratings of the Grade 7 students using the Reflective Judgment Model and the Step Reading Learning Development Approach, a larger t-value (2.986) compared to the t-tab (1.983) and supported by the p-value (0.004) which is lower than 0.05 level of significance. The result confirmed that the reflective judgment model approach was effective than the step reading learning development approach in improving the performance of the students in Filipino subject on the critical thinking skills of the Grade 7 Students under the Reflective Judgment Model and the Step Learning Development Approach.***

Keywords: Reflective Judgment, Critical Thinking Skills, Students, Philippines

1. Introduction

In today's trend where dynamic classrooms have been observed, educators internationally need to change their teaching strategy catering to the current needs and behavior of learners enabling them to improve the latter's critical thinking skills.

Facione (2007), in his study, stated that critical thinking is routinely discussed as a way to improve one's ability to think more objectively and holistically. While this is indeed a worthwhile goal, it should be noted that critical thinking does not have a definitive definition. Therefore, it is difficult to truly identify what aspects of critical thinking one should utilize to improve thinking skills.

Critical thinking skills are essential to help middle school students develop into intelligent, open-minded adults. Activities for developing these skills can be performed in any classroom or at home, and they often encourage students to question aspects of their personalities and the opposing perspectives of others. Critical thinking is not necessarily being "critical" and negative. A more accurate term would be evaluative thinking. The result of evaluation can range from positive to negative, from acceptance to rejection or anything in-between. Critical evaluation can produce a glowing recommendation (Pierre 2008).

The Department of Education in its thrust to evaluate the academic performance of students of different public schools throughout the country, conducts a yearly National Achievement Test. This is to determine the strengths and weaknesses of students in the different subject areas taught. The results of the test will also determine the level of performance of teachers in carrying out their tasks as mentors most specifically in the knowledge transfer. The test items are constructed to measure the knowledge of students in terms of their developed learning skills, such as analysis, evaluation, application, and synthesis using critical thinking.

Republic Act No. 10533 or the enhanced basic education curriculum specifies that every graduate of basic education shall be an empowered individual who has learned, through a program that is rooted on sound educational principles and geared towards excellence, the foundations for learning throughout life, the competence to engage in work and be productive, the ability to coexist in fruitful harmony with local and global communities, the capability to engage in autonomous, creative, and critical thinking, and the capacity and willingness to transform others and one's self.

In like manner, all teachers in the entire schools in Region XI, Division of Davao del Sur undergo training in consonant to the directive of Department of Education to enhance their capabilities in the performance in carrying out their task especially on the learning process in the development of the different skills particularly on the critical thinking skills of their learners.

For this reason, educators, nowadays demonstrate the reflective model in their teaching. Education classes utilize instructional activities such as cooperative learning strategies, class interaction, role-playing, and higher-order questioning strategies. Thus, the ultimate goal of a teacher is to empower and develop students' critical thinking skills leading to informed decision making while applying values to action.

In Sacub High School Annex located at Hagonoy, Davao del Sur, Philippines, a problem on the development of the critical thinking skills of the learners is prevalent. In the 2014 National Achievement Test, the school ranked10, with an MPS of 62.18, among all schools of Davao del Sur. Results showed that Science got 75.46%, Mathematics, 69.57%; English, 66.16%; Filipino, 58.38%; and Araling-Panlipunan with 44.59%. Based on this, learners cannot give a sensible explanation of the things observable in their surroundings.

Along with this context, the researcher being a teacher in Filipino in Grade 7 was greatly surprised by the National Achievement Test results between English and Filipino subjects, because Filipino is our national language and is easy to understand compared to English which is a foreign language. With this outcome, the researcher was prompted to conduct an experimental study utilizing the reflective teaching model approach in the classroom using the Question-Answer Relationship (QAR) Strategy in the presentation of the lessons aiming to improve the critical thinking skills of the learners in the hope that its results will improve the academic performance of Grade 7 students in the next National Achievement Test.

2. Statement of the Problem

This study aimed to answer the following questions:

1. What is the pre-test mean score rating in Filipino on the critical thinking skills of the Grade 7 Students using the Reflective Judgment Model and the Step Learning Development Approach.
2. What is the post-test mean score ratings of the Grade 7 students using the Reflective Judgment Model and the Step Reading Learning Development Approach.
3. What is the significant difference in the pre-test mean score ratings of the Grade 7 using the Reflective Judgment Model and the Step Reading Learning Development Approach.
4. What is the significant difference in the post-test mean score ratings of the Grade 7 using the Reflective Judgment Model and the Step Reading Learning Development Approach.
5. What is the significant difference in the mean gain score ratings of the Grade 7 students using the Reflective Judgment Model and the Step Reading Learning Development Approach.

Conceptual Framework

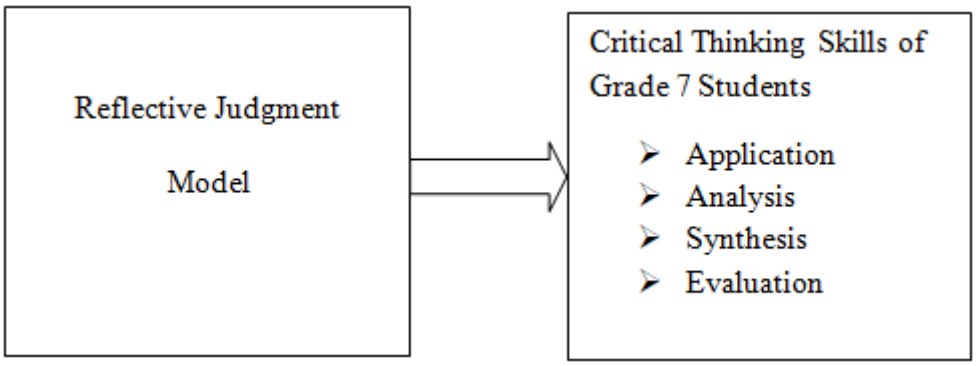

Figure 1: The Conceptual Framework Showing the Independent and Dependent Variables of the Study

3. Methodology

Research Locale

This study was conducted in Sacub, Hagonoy Davao del Sur, Philippines. Sacub is one of the barangays of the Municipality of Hagonoy in the Province of Davao del Sur in Davao Region which is part of the Mindanao group of islands. As of May 2010, Sacub had 2, 583 residents. Sacub High School Annex is the area where respondents were taken from. Sacub High School Annex is the second public high school in the municipality of Hagonoy, Province of Davao del Sur. The school was established and started to operate last June 2008 with the strong support of Sacub Barangay Council. The school aims to be the center of excellence in the delivery of basic education services through quality management and instructional leadership to ensure an effective teaching-learning process in a caring and nurturing environment. It further envisioned producing highly competent and life-skilled Filipino youth imbued with values and who actively participate and contribute towards the building of a humane, healthy, and productive society (SHS Annex Vision, Mission & Goals 2009).

The Respondents

The subjects of this study were the students in the two Grade 7 classes in Sacub High School Annex. The two sections with comparable mean ratings were the subjects of this study. They made up a significant number relevant to this research. The experimental and the control groups has 52 students each. A total of 104 students comprised the respondents of the study.

Research Design

This study utilized the modified two-group experimental design otherwise known as the two-group post-test - only randomized experiment (Trochim 2008). In design notation, it has two lines- one for each group-with an R at the beginning of each line to indicate that the groups were randomly assigned. One group got the experimental/treatment or program (the X) and the other group was the control/comparison group and doesn't get the program.

The design is shown in the following diagram:

Experimental Group R X O_1

Control Group R -X O_2

Where:

O_1 refers to the post-test scores in Filipino of Grade 7 students in the experimental/treatment group.
O_2 refers to the post-test scores in Filipino of Grade 7 students in the control/comparison group.
X refers to the utilization of the reflective teaching model, a question-answer relationship on reading learning development in the experimental group.
-X refers to the usage of the reflective teaching model; the traditional step-by-step reading learning development in the control/comparison group.

Research Instruments

The content of the 40-item test on the application, analysis, synthesis, and evaluation levels on the critical thinking skills of the students served as the instrument which was administered during the post-test. The test items composed the reading competency in the third grading period.

This was subjected to item analysis and content validation by a team of experts. The criteria in validating focuses on the clarity and direction, presentation and organization of items, suitability, adequateness, attainment of purpose, and objectivity.

Below was the scaling used to measure critical thinking skills.

Scale (%)	Level	Criteria
96-100	Mastery	The student at this level exceeds the core requirements in terms of knowledge, skills, and understandings and, and can transfer them automatically and flexibly through authentic performance tasks.
86-95	Closely Approximating Mastery	The student at this level has developed the fundamental knowledge and skills and core understandings and, and can transfer them independently through authentic performance tasks.
66-85	Moving Toward Mastery	The student at this level has developed the fundamental knowledge and skills and core understandings and, with little guidance from the teacher and/or with some assistance from peers, can transfer these understandings through authentic performance tasks.
35-65	Average	The student at this level possesses the minimum knowledge and skills and core understandings but needs help throughout the performance of authentic tasks.
15-34	Low	The student at this level struggles with his/her understanding; prerequisite and fundamental knowledge and/or skills have not been acquired or developed adequately to aid understanding
5-14	Very Low	The student at this level struggles so much with his/her understanding; no fundamental knowledge and/or skills were acquired or developed to aid understanding
0-4	Absolutely No Mastery	The student at this level has zero knowledge with his/her understanding.

The results were gathered and subjected to statistical treatment. This served as the basis for the evaluation of this study.

Data Gathering Procedure

The following procedures in data gathering were utilized:

1. Flipped coin to further verify which section was the experimental and the control group.
2. After the groups have been identified, the researcher already conducted the study. For the experimental group, the researcher administered the Reflective Judgment Model: Question-Answer strategy. The question-Answer Relationship (QAR) strategy was used in the judgment mode approach where students learn that the answers to some questions are "Right There" in the text, that some answers require a reader to "Think and Search," and that some answers can only be answered "On My Own, " students recognize that they must first consider the question before developing an answer (Raphael, T.E., & Au, K.H.2005). A post-test was given in both classes after the desired lessons were conducted. Moreover, in teaching the experimental group, the following steps were undertaken:

Step 1. (5 minutes). The teacher gave the objective of the lesson to the class based on the topics stated in the Filipino teacher's guide.

Step 2. (40 minutes) The teacher utilized the Reflective Judgment Model in teaching, using the Question-Answer Relationships Strategy in reflective reading learning development in the presentation of the lesson.

a. Teacher divided the class into small groups, ideally with five students in each group.

b. Teacher distributes reading material in the class. The reading material is divided in proportion to the number of groups. The group reads orally the text in the class. Teacher stops reading periodically to ask questions. The teacher first generates at least one question for each Question-Answer Relationship type, the "right there, think and search, author and you, and on my own". As the teacher ask a question, she posts it on the board and invites students to collaborate first with their groups, and then with the whole class to develop responses. Teacher records responses on the board as well.

c. After completing the story, the teacher distributed the Question-Answer Relationships handout and reviews the four QAR question types. The teacher asked the students to match the questions she posted to the types described in the handout. Students may complete this task with their groups and then share their notes with the class.

d. After matching the questions, the teacher asked students to write a short reflection on the impact of each question type on their thinking and reading. Possible prompts include:

- Which questions were more difficult and why?
- Why did some questions invite more responses than others?
- What happened to your reading and understanding of the text based on this activity?

e. After which, students now generate questions within the groups. The groups should design one question for each Question-Answer Relationships type and write them in a web format on a large piece of construction paper. Then, ask students to pass their papers to other groups. Give each group about 3 minutes to respond to the questions. The group should record their answers directly on the construction paper. Continue this process until all groups have read and responded to each other's questions. Give a group a different color marker so you can identify their responses.

f. Post each group's web in the classroom so students can compare the types of responses.

g. After the class discussion, ask students to write about different question types and responses, and what the Question-Answer Relationships strategy revealed about their understanding of the text and their reading process. Encourage students to not only focus on what they read but also what they learned about the process of reading.

Step 3. (15 minutes) Daily Evaluation: The teacher gave a 10-item quiz/test comprising application skills, analysis skills, synthesis skills, and evaluation skills on the levels of critical thinking, and be answered individually by the student.

The teacher assessed the activities and launched in the class through the following rubrics:

Rubrics on designing/formulating questions within the group:

Numerical Rating	Descriptive Rating	Verbal Description
5	Outstanding	Formulate questions describing all the elements in the four-type question-answer relationships strategy
4	Very satisfactory	Formulate questions describing three key elements of question-answer relationships strategy
3	Satisfactory	Formulate questions describing two key elements of question-answer relationships strategy
2	Fair	Formulate questions describing with only one key element of question-answer relationships strategy
1	Poor	Formulate questions describing no elements in the question-answer relationship strategy

Step 4. A post-test was administered to the Grade 7 students under the experimental group at the end of the six weeks.

3. For the control group, the following steps were undertaken:

Step1. (5 minutes) The teacher gave the objective of the lesson in Filipino based on the topics stated in the teacher's guide.

Step 2. (40 minutes). The teacher utilized the other way, the step reading learning development in the presentation of the lesson.

a. The teacher instructed the students to read the story silently with their group. After which, the students read the question at the end.
b. The teacher discussed through asking questions in drawing the inference of the story entertaining discrimination questions, review of the problem statement, identification of rule, locating and converting indirect information, and making the text-based inference which the students responded orally.
c. The teacher assisted and directed the students in crucial steps of the thinking/analysis process. The teacher pointed out the small steps in the strategy so that students: (1) see how a successful step-by-step solution to the problem works; and (2) can correct errors

immediately. Teachers, for their part, can see exactly where breakdowns occur and solved particular comprehension problems more easily.

d. If the students have difficulty in answering the questions
e. Then the teacher can again direct the students back to the text.

Step 3. 15 minutes) Daily Evaluation: The teacher gave a 10 item quiz/test comprising the application skills, analysis skills, synthesis skills, and evaluation skills on the levels of critical thinking, and was answered individually by the student.

Step 4. A post-test was administered to the Grade 7 students under the control group at the end of the six weeks.

4. Assessed the students learning through the administration of post-test.
5. Provided statistical analysis from the post-test data.

Statistical Tools

In the treatment of data, the following statistical tools were utilized:

1. The arithmetic mean and the standard deviation was used to determine the level of critical thinking of the Grade 7 students in the experimental and control classes.
2. The T-test was utilized to identify significant differences in sub-problems 2 and 3.

4. Results and Discussion

Pre-test Mean Score Rating in Filipino on the Critical Thinking Skills of the Grade 7 Students Using the Reflective Judgment Model and the Step Reading Learning Development Approach

The pretest mean score rating of students in the reflective judgment model approach was 25.96 or Low. Consequently, on average, the mean score rating of Grade 7 students ranged from 15.97 to 35.95. Based on the mean, the performance of the students in the pre-test under the reflective judgment model varies from low to average.

However, the pre-test mean score rating in the step reading learning development was 26.59 with a rating of Low. The result revealed that on average, students' mean score rating was 16.63 to 36.55. The result indicated that on average students' performance ranged from low to average. Furthermore, the result in both groups revealed that the level of students' performance in the pre-test failed to meet the minimum level of extent of the desired achievement. This implies that both groups have probably the same level of knowledge before the conduct of the study.

Post- Mean Score Rating in Filipino on the Critical Thinking Skills of the Grade 7 Students Using the Reflective Judgment Model and the Step Reading Learning Development Approach

The post-tests mean score rating of students in the reflective judgment model approach was 73.27 or Moving toward Mastery. Consequently, on average, the mean score rating of Grade 7 students ranged from 59.22 to 87.32. Based on the mean, the performance of the students in the post-test under the reflective judgment model varies from moving toward mastery to closely approximating mastery.

However, the post-test mean score rating in the step reading learning development approach was 62.84 or Average. The result revealed that on average, students' mean score rating was 47.99 to 77.69. The result indicated that on average students' performance ranged from average to moving toward mastery. Furthermore, the result in both groups revealed that there was an increase in the level of students' performance in the post-test. The increase in the performance of students in both reflective judgment model and step reading learning development approaches implies that Grade 7 students using the two approaches have achieved learning.

Significant Difference on the Pre-test Mean Score Ratings of the Grade 7 Using the Reflective Judgment Model and the Step Reading Learning Development Approach

It disclosed that the result is further analyzed using a t-test for independent samples with equal variances are assumed. Based on the result, a very small t - value (0.319) compared to the t - tab (1.983) with a p-value of 0.750 higher than the 0.05 level of significance that is, failed to reject the null hypothesis (Ho). This result indicated that there is no sufficient evidence to reject the null hypothesis (Ho). This means that there is no significant difference between the pre-test mean score ratings of Grade 7 students in the Reflective Judgment Model and the Step Learning Development Approach.

The result revealed that the performance of students assigned to the experimental group, that is, reflective judgment model and the control group, step learning development approach were comparable on their performance before the conduct of the experiment. Thus, the null hypothesis which stated that there is no significant difference between the pre-test mean score rating of the pupils in the experimental group and the control group was not rejected. This implied that the subjects used in the study were comparable. This result served as the basis for the initial comparison of the performance level of the subjects of the study.

Significant Difference on the Post-test Mean Score Rating in Filipino on the Critical Thinking Skills of the Grade 7 Students under the Reflective Judgment Model and the Step Reading Learning Development Approach

It shows the differences in mean score ratings of the two approaches, the reflective judgment model and the step reading learning development approach. Differences in means are further tested using a t-test for independent samples equal variances are assumed. Based on the result, a larger t-value (3.680) compared to the t-tab (1.983) means that the posttests mean score ratings of both the reflective judgment model and the step reading learning

development approaches differ significantly. The finding is supported by a p-value (0.0004) which is smaller than the 0.05 level of significance. Thus, the null hypothesis which stated that there is no significant difference between the posttest means score ratings of Grade 7 students under the reflective judgment model and step reading learning development approach was rejected. This implied that students' performance in the reflective judgment model approach was significantly higher than the step reading learning development approach. It was due to the reflective judgment model as one of the different techniques that help Grade 7 students increase their performance on the critical thinking skills in Filipino. The result proved that the reflective judgment model was effective in improving the critical thinking skills of the Grade 7 students in Filipino than the step reading learning development approach.

Significant Difference in Students Mean Gain Score Rating under the Reflective Judgment Model and the Step Reading Learning Development Approach

Based on the result, the mean gain score of the pupils under the reflective judgment model approach is 47.31 with a standard deviation of 17.92. This indicated that on average, the mean rating increase of scores of the students assigned in the experimental group ranged from 17.92 to 29.39.

Likewise, the mean gain score rating of the students assigned in the control group is 36.25 with a standard deviation of 19.79. This indicated that on average, the students' mean increased of scores ranged from 16.46 to 56.04. Differences in mean gain score rating were noted and further tested using a t-test for independent samples equal variances are not assumed. Based on the result, a larger t-value (2.986) compared to the t-tab (1.983) and supported by the p-value (0.004) which is lower than the 0.05 level of significance, thus, reject the null hypothesis. This denotes that there is very strong evidence in rejecting the null hypothesis. This implies that there is a significant difference in the mean gain score ratings between the two groups of students, experimental and control. The result confirmed that the reflective judgment model approach was effective than the step reading learning development approach in improving the performance of the students in Filipino on the critical thinking skills of the Grade 7 Students under the Reflective Judgment Model and the Step Learning Development Approach.

The result conforms to the research study that the Reflective Judgment Model has distinguished itself by its ability to describe the development of reasoning from adolescence to adulthood. An extensive database containing both longitudinal and cross-sectional research has informed the work of developmental and educational psychologists, college faculty, student affairs educators, and those concerned with college outcomes assessment. The Reflective Judgment Model describes changes in epistemic assumptions and how these affect the development of critical or reflective thinking skills and related constructs in young adults and adults, especially college students.

Further, this was supported by John Dewey (1933, 1938) who observed that reflective thinking is called for when people recognize that some problems cannot be solved with certainty. Drawing from this observation, King and Kitchener chose the term "reflective judgment" to describe the kind of epistemic cognition that includes the recognition that real uncertainty exists about some issues. The Reflective Judgment Model describes the development in reasoning about such issues in late adolescence through adulthood.

5. Conclusions

1. The pretest mean score ratings in the Reflective Judgment Model and the Step Learning Development Approach are low.
2. The post-test mean score rating in the Step Learning Development Approach is average and the Reflective Judgment Model is moving toward mastery.
3. There was no significant difference between the pre-test mean score ratings of Grade 7 students in the Reflective Judgment Model and the Step Learning Development Approach.
4. There was a significant difference between the posttest mean score ratings of Grade 7 students in the reflective judgment model and step reading learning development approach. The result proved that the reflective judgment model was effective in improving the critical thinking skills of the Grade 7 students in Filipino than the step reading learning development approach.
5. There is a significant difference in the mean gain score ratings in the reflective judgment model and step reading learning development approach. The result confirmed that the reflective judgment model approach was effective than the step reading learning development approach in improving the performance of the students in Filipino.

6. Recommendations

Based on the results, the following are suggested:

1. DepEd officials may recognize and support teachers who innovate teaching strategies that would develop critical thinking skills.
2. School heads may benchmark this study in their respective school and use the Reflective Judgment Model to address learning gaps among students.
3. Teachers are encouraged to conduct classroom-based researches like the one conducted by the researcher. In this way, they will be able to improve the literacy levels especially the critical thinking skills of the learners in Filipino.
4. Future researchers may conduct using the Reflective Judgment Model using other variables such as academic and school performances.

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Conflict of Interest

When it comes to conflict of interest (COI) wherein no trace of COI, there will be no set of conditions in which a professional judgment concerning primary interest such as participants' welfare or the validity of the research tends to be influenced by a secondary interest such a financial or academic gains or recognitions. Deceit will be also avoided in which evidence that the benefit of misleading the respondents outweigh any possible harm to them.

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