RESEARCH ARTICLE

PROCESS ORIENTED GUIDED INQUIRY LEARNING MODULE IN TEACHING EARTH SCIENCE: IT'S ACCEPTABILITY

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Manuscript Info	*Abstract*
	The aim of this study was to determine the acceptability of the developed Process Oriented Guided Inquiry Learning (POGIL) Module in teaching Earth Science as to grade 8 selected students of Pasig City Science High School and improve student's success rate in learning. POGIL is an acronym for Process Oriented Guided Inquiry Learning. It uses guided inquiry – a learning cycle of exploration, concept invention and application as basis for the teachers carefully designed instructional materials that students use to guide them to construct new knowledge. It is also a classroom and laboratory technique that seeks to simultaneously teach content and key process skills such as the ability to think analytically and work effectively as part of a collaborative team.

Introduction:-
There were 33 students in Grade 8 taking up Earth Science as their elective subjects utilized the POGIL Module. The result showed that the amount of learning using the developed material is much better than the traditional method. The material enhances the interest and made the students think better using inquiry-based questions, diagrams, illustrations and the likes. This implied that the performance of the students exposed to the Process Oriented Guided Inquiry Learning Module was significant.

Specifically, it seeks to answer the following questions:
1. What are the Least Mastered Skills in Earth Science for the last two years?
2. Based from the findings, what Process Oriented Guided Inquiry Learning (POGIL) Module may be developed?
3. How acceptable is the developed Process Oriented Guided Inquiry Learning Module as assessed by the administrators and special science teachers in terms of:
3.1 Introduction;
3.2 Objectives;
3.3 Content;
3.4 Application;
3.5 Evaluation;
3.6 Clarity;
3.7 Presentation; and
3.8 Usefulness?

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4. Is there a significance difference in the assessment of the two group of respondents on the aforementioned variables?

5. How do students performed in the pretest and posttest before and after using the Process Oriented Guided Inquiry Learning Module? Is there significance difference, if any?

The study also utilized the descriptive method of research were participants answer questions administered through questionnaires that determined the level of acceptability of the developed Process Oriented Guided Inquiry Learning (POGIL) Module.

The salient findings of the study are as follows:
1. **On the least mastered skills of Earth Science students of Pasig City Science High School.**
The following are the least mastered skills of the students for the school year 2015-2016 and 2016-2017 based on their achievement test result were composed of the following main topics: First Quarter: Astronomy; Evolution of Astronomy, Second Quarter: Atmosphere; Earth's Dynamic Atmosphere, Interaction in the Atmosphere, The Climate, Third Quarter: Hydrosphere; The Global and Fourth Quarter: Geology; The Earth's History and Earth's Mechanisms.

On the Process Oriented Guided Inquiry Learning Module may be developed as assessed by the respondents.
The Process Oriented Guided Inquiry Learning Module was developed to address the least mastered competencies in Earth Science which is highly demanded and hoping that it will be significant in order to improve the performance level of the learners in the subject area. It was divided in four (4) quarters. First quarter includes Astronomy, second quarter includes Atmosphere and meteorology, third quarter includes Hydrology and Oceanography and the fourth quarter includes Geology ang geological processes.

On the Acceptability of the Developed Process-Oriented Guided Inquiry Learning (POGIL) Module.
All indicators were rated as "Highly Acceptable" as reflected by the composite mean values of 4.63, 4.39, 4.48, 4.40, 4.44, 4.43, 4.64, and 4.47, respectively.Furthermore, the presentation ranked number 1, followed by the introduction, then by contents, followed by usefulness, then by evaluation, followed by clarity, then by application, and lastly by objectives.

The findings of this study revealed that the developed Process-Oriented Guided Inquiry Learning (POGIL) Module. In teaching Earth Science is highly acceptable material and can be a tool in developing the potential skills of the students.

On the significant difference in the assessment of the two group of respondents on the aforementioned variables.
The obtained t values of 0.356 for introduction, 0.222 for objectives, 0.663 for contents, 0.221 for application, 0.628 for evaluation, 0.177 for clarity, .652 for presentation, and 0.926 for usefulness all fell below the critical value of 1.960 at five percent level of significance and verbally interpreted as not significant accepting the null hypothesis that there is no significant difference between the assessment of the administrators and teachers on the acceptability of the developed Process-Oriented Guided Inquiry Learning (POGIL) module in Earth Science.

On the students' performance in the pretest and posttest before and after using the Process Oriented Guided Inquiry Learning Module and its significance.
Comparing the results of the pre-test and posttest of the students after using the developed ProcessOriented Guided Inquiry Learning (POGIL) module in Earth Science, yielded the mean difference of 27.30 and the mean performance score of 36.30 from the pretest scores increased to 90.90 and verbally interpreted significant rejecting the null hypothesis that there is no significant difference on the pre-test and posttest result of the group of students.

The results proved that the amount of learning using the developed material improved the performance of the students. The material enhances the interest and made the students think better using inquiry-based questions, activities, application, pretest and posttest.

Conclusions:-
Based on the findings of the study, the following conclusions are drawn:

1. The topics of the Process Oriented Guided Inquiry Learning Module were based on the least mastered skills of the school year 2015-2016 and 2016-1017.
2. The Process Oriented Guided Inquiry Learning (POGIL) Module was developed to improve the academic performance of students in special science class.
3. The developed Process Oriented Guided Inquiry Learning (POGIL) Module as assessed by the respondents was highly acceptable for utilization for Grade 8 Earth Science students.
4. The assessment of the two groups of respondents on the acceptability of the process Oriented Guided Inquiry Learning (POGIL) Module has no significant difference.
5. The group of students usedthe Process Oriented Guided Inquiry Learning (POGIL) Module performed higher after utilizing the developed instructional material.

Recommendations:-
Based on the findings and conclusions presented, the following recommendations are suggested:
1. The developed Process Oriented Guided Inquiry Learning (POGIL) Module in teaching Earth Science be utilized to the Special Science Class in the Division of Pasig City.
2. The Process Oriented Guided Inquiry Learning (POGIL) Module maybe used by the Earth Science students to enhance and improved their performance.
3. Conduct similar study to verify the consistency of the high-level acceptability of the developed Process Oriented Guided Inquiry Learning (POGIL) Module instructional material.
4. Teachers may exert more time and effort in teaching Earth Science with encouragement to motivate and strengthen skills of the students.
5. Incentives and awards be given to faculty members who exerted efforts in developing Process Oriented Guided Inquiry Learning (POGIL) Module instructional material.

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