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Biology in High School: Skills of Biology Teachers in The University of Eastern Philippines Laboratory High School

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ABSTRACT

Nurturing students' performance in science classes is hard in the intermediate level. This is because of the overwhelming science and math subjects present on that level. This study aimed to assess the skills of the teachers in terms of science process skills and critical thinking skills and the performance of the students in biology. This study is a descriptive-correlation research design with a questionnaire checklist and standardized set of questionnaires form as research instrument in gathering the data. The results showed that the teachers of UEPLHS was assessed as highly skilled in science process skills and critical thinking skills. On the relationship between the teachers' profile and their skills, the data revealed that only age is significantly related to the science process skills of the teachers, while educational attainment is significantly related to the critical thinking skills of the respondents.

Keywords

high school teacher, science skills, science process skills, critical thinking skills

Introduction

The capacity of developing Asian countries to provide quality science education is hampered by several factors poor training and lack of science teachers, lack of science education specialists in teachers' colleges, and the high cost of science education in terms of thee needed human and material support (school laboratory, materials, assistance, etc.) Specialized science subjects are taught by teachers by with poor or no background in science, while integrated science is taught by teachers who have no such training. By science teachers continue to adopt ineffective teaching the strategies that do not encourage creative thinking and the development of higher order thinking skills. Students' assessments do not match the goals of science instruction. There is a wide gap between the goals of the planned curriculum and the outcomes of the implemented curriculum.

For several decades, improving science education in the both elementary and secondary schools is one of the main concerns of the Philippine government. Dismal performance of elementary and secondary school1 students both in national and international levels particularly in TIMSS has been a strong driving force in focusing efforts toward the improvement of teaching Science since quality science education is perceived to be related to economic development. Reform efforts for several decades range from establishment of science high schools, enrichment of the elementary school science curriculum, training of science teachers for upgrading of knowledge and teaching skills performance competence, equipping some schools through improvisation programs and instructional materials development. In spite of all these efforts, quality Science education is still as elusive as ever. Problems and issues remain to be related to unqualified teachers, lack of to be facilities, classrooms and textbooks, irrelevant curriculum and instruction. Of these, the issue of irrelevance of science is one major concern because science is envisioned to provide learners skills to improve their 1ives and become productive citizens. Science is focused on the content and process with very 1ittle link to everyday life giving the students idea that science is something separate from their lives. Thus, even if Filipino students are very much interested in science, they do not find relevance of what they learn to their everyday 1ife and science learning becomes useless in improving their lives. This phenomenon is thought to be associated with the policy of having one prescribed curriculum for all schools in the Philippines. The problematic situations cited above prompted the researcher to undertake this study with the end in view of assessing the different factors relative to the teacher's skills and the students' performance in biology.

This study determined the skills of the teachers and the performance of the students in biology in

the laboratory high schools of the University of Eastern Philippines system.

Methodology

This study was conducted in the laboratory high schools of the three campuses of the University of Eastern Philippines, namely: UEP-Main Campus in Catarman; UEP- Laoang Campus, and the UEP-PRM Campus in Catubig. Three biology teachers and ninety-five second year students served as respondents. They came from the three student's laboratory high schools of the University of Eastern Philippines. Complete enumeration was used by the researcher to obtain the data. A descriptive-correlational research design was utilized for this study. The main research instrument used in this study was composed of 3 parts, namely: the personal profile of the respondents; the set of questions to elicit the teachers' skills and the test questions on biology for the students.

Results and Discussion

It is revealed in Table 1; science process skills were interpreted as "highly skilled". This interprets that the biology teachers are well-skilled in teaching biology in their high school students. This also means that these teachers are competent for their jobs as a result of the survey. It is also noted that there are only four (4) science processing skills that were rated as "skilled". Although they are within the range of being a competitive biology teacher, they are likewise encouraged to improve their skills that they lack into.

Table 1. Science process skills of UEPLHS Biology Teachers

Science Process Skills	Weighted Mean	Interpretation
A. Discovering	4.4	Highly Skilled
B. Classifying	4.5	Highly Skilled
C. Measuring/Using Numbers	4.3	Highly Skilled
D. Communicating	4.2	Highly Skilled
E. Inferring	4.1	Skilled
F. Predicting	4.2	Highly Skilled
G. Collecting, Recording, and Interpreting Data	4.3	Highly Skilled
H. Identifying and Controlling Variable	4.1	Skilled
I. Defining Operationally	4.3	Highly Skilled
J. Making Hypotheses	4	Skilled
K. Experimenting	4.3	Highly Skilled
L. Making ad Using Model	4.1	Skilled

Results in Table 2 revealed that the critical thinking skills of the biology teachers of UEPLHS gained a remarks of "highly skilled". This tells us that in terms of the critical analysis of these teachers are suitable in a high school level. Thou there are only two (2) skills rated as "skilled" the researcher suggests to improve or dive-into seminars that could help boost their critical analysis.

Table 2. Critical thinking skills of UEPLHS Biology Teachers

Critical Thinking Skills	Weighted Mean	Interpretation
A. Analyzing	4.5	Highly Skilled
B. Synthesizing	3.8	Skilled
C. Evaluating	4.1	Skilled
D. Applying	4.5	Highly Skilled
E. Generating Ideas	4.2	Highly Skilled
F. Expressing Ideas	4.9	Highly Skilled
G. Solving Problems	4.5	Highly Skilled

With the 95 students, 1 or 1.1 percent belonged to a score of 64 and above, 26 or 27.3 percent to the 40 to 63 score of 64 bracket, 39 or 41.1 percent to the 33 to 39 bracket, and 30.5 percent to the 19 to 30 group.

The students' performance has 64 points for its highest score and 19 for its lowest score and a highest mean of 35.41 which is interpreted as "fair". Most of the students belonged to the fair level of performance.

The print out revealed that educational attainment was found to be significantly related since the value of the F-ratio is greater than the significant F thus this led to the confirmation of the research hypothesis that relationship existed between them.

It implies that the higher the educational attainment the better critical thinking skills while the age, sex, number of years in the service, number of years in teaching biology, and trainings attended were not found to be considering the F-ratio is smaller than their significant F.

Conclusion

After analyzing and evaluating the data gathered in this study, the following conclusions are given:

Science Skills of the Biology Teachers. It can be gleaned from the data that the Biology teachers are highly skilled professionals. Therefore, they are expert in their field of specialization. Moreover, the university imposed a strict selection/admission policy on hiring teachers such that teachers had a rating of highly skilled.

Level of Students' Performance. Data revealed that most of the students belonged to the fair level of performance.

Educational Attainment. In terms of educational attainment, it was also found to be significant because the F ratio of 0.61 is greater than the significant F of 0.56, thus the research hypothesis was confirmed that there is a significant relationship between the teacher respondents and the performance of the students. The coefficient of determination of 37.88 indicates the degree of influence by the educational attainment of the teacher to the performance of the students. It implies that the higher the educational attainment, the better is the performance of the students.

Relationship between Teachers' Profile and Students Performance. It was found out that the 5 independent variables namely: age, educational attainment, number of years in the service, number of years in teaching biology, and number of trainings attended were found to be significantly related to the students' performance while sex was found to be no significant to the students' performance. Therefore, the five variables influence the students' performance; the higher the independent variables, the higher the students' performance. On the other hand, the independent variable the independent variable, sex does not influence the students' performance.

Relationship between Teachers' Skills and Students' Performance. It was found out that significant relationship exists between the teachers" skills and the students' performance in biology. This means that students' biology. This means that the teachers' skills influence the students' performance.

Relationship between the Teachers' Profile and their Skills. The data revealed that only age was found to be that only age was found to be significant in relation to the science process skills and educational attainment was found to be significantly related to the critical thinking skills of the teachers.

Based on the findings and observations of this study, the following recommendations are proposed:

- Evaluation of the teachers' skills may be conducted not only by the teacher herself, but also by the supervisors/imnediate heads and the students to cross check or determine the validity and reliability of the rating.
- Teachers were found to be moderately skilled in some of areas of synthesizing, evaluating and interpreting data. Therefore, it is recommended that teachers should attend trainings and workshops particularly on these areas so that they can be better equipped to teach their students on these skills.
- Since the teacher-respondents were rated as highly skilled, the researcher recommends that a Memorandum of Agreement be entered by the University laboratory school in coordination with the Regional Science Teaching Center (RSTC) and other schools to conduct trainings wherein the teachers from laboratory schools serve as trainers or facilitators to further enhance the skills of the other Biology teachers.
- The data revealed on the educational qualifications of the respondents that no one among them attained the master's degree or doctoral degree and only one majored in biology. Hence, it is recommended that Biology major teachers should be hired and encouraged to pursue graduate studies in biology in order to improve the level of performance of the students.
- Based on the low performance of the students particularly in ecology, it is recommended to implement a joint collaborative activity with the Centre for Environmental Care and Advocacy and the Local Government Unit on environmental activities through trainings and seminars for the teachers and students to promote environmental awareness and

stewardship which will value development and preservation of ecology.

- Similar studies should be conducted in other schools to test other variables that may have possible effect on the performance of the students.

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