11. RESEARCH AS AN INTEGRAL COMPONENT OF BIOLOGY EDUCATION IN PHILIPPINE SCHOOLS

ABSTRACT

This paper examines the progress of Biology education in the Philippines over two decades. A lack of laboratory equipment and funds were some factors students had to contend with. The study highlights current Philippine colleges and universities which place a high premium on performance rating measured in terms of outputs in academic and professional organizations. One example was the University of Santo Tomas which had integrated research into the curriculum. Under-graduate students are required to undertake experimental research under the supervision of faculty members and to present the research work to a panel, as a requirement for graduation. Most studies focus on the testing medicinal plants against parasites, and human diseases, such as diabetes, hypertension, and cancer. Other fields for student project work include allergy, immunology, molecular systematics, and bioinformatics. Insufficient number of animal models and small sample size for a statistically robust research are factors impeding the progress and development of research and development and Biology education in the country.

KEYWORDS
Animal Models, Curriculum, Integration, Research Project, Supervision

INTRODUCTION

In the 1950s, Philippines enjoyed the distinction of being second only to Japan in East Asia in terms of socio-economic and science and technology (S&T) development. More than 50 years later, the country has remained underdeveloped scientifically, technologically and economically, overtaken by its East Asian neighbors with the exception of Vietnam, Myanmar, Laos and Cambodia. According to Posadas (2009), in his analysis of the low performance in S&T development, he outlines the most important international measure of S&T supply subsystem including (i) the country’s number of full-time equivalent (FTE) researchers per million population, and (ii) the country’s world share of internationally recognized or ISI publications. In the most recent UNESCO (2010) report, the Philippines has only 81 FTE researchers per million of its population in
2005. It has dropped from 155 FTE per million in the 1990s. This was below the 380 FTE target set by the UN for developing countries in 1980. In terms of ISI publications, Philippines was ahead in the number of publications in the 1980s but now ranks behind Indonesia and Vietnam (Figure 1a).

Lacanilao (2009) pointed out that the Philippines has the lowest scientific productivity and growth rate. The country has an education policy and development programmes in science. However, the quality of information disseminated through resources such as extension materials, books, and review articles may affect the desired outcomes of science education. This will in turn affect the country’s state of scientific development. To ensure the quality of educational materials and resources, Lacanilao emphasized the need for an increase of ISI publications, especially in areas of scientific research.

Drastic measures in educational reforms on Philippines’ research progress have to be initiated immediately to catch up with other East Asia countries. There are several neighbour-models to choose from. A landmark example of enriching research capabilities is seen in China where research is greatly emphasized by the government in the form of the growth in the grants-in-aid system, international collaborations, growth of high-tech enterprises, cutting-edge facilities and succession training of young scientists to replace older scientists (Mervis, 1995; Mervis and Kinoshita, 1995). If these models could be applied to the Philippine setting, this could provide the impetus to boost S&T capabilities and jumpstart the lethargic state of science and technology development.

**BIOLOGY EDUCATION IN PHILIPPINES BEFORE THE 1990’S**

Biology students, hampered by the lack of proper equipment and funding, have to resort to research work which are mere compilations of previous work done.