My Teaching Philosophy

Promoting scholarship and learning among my students is a major component of the basic principles of my teaching philosophy.

As an experienced teacher, I have aspired to provide my students with opportunities to understand the significance of Biochemistry as a dynamic science, and to do their best in learning it, both inside and outside the class room / laboratory. Achieving these goals requires dedication, patience and firmness, as well as understanding, a good sense of humor and an ability to encourage each student to actively participate in learning.

During my formative years, my outstanding teachers and research supervisors were my mentors and role models. These distinguished academics and scientists taught me to think critically, to be creative, and to engage in honest and serious pursuits that satisfy my academic curiosity. They inspired me to continuously develop my analytical skills in searching for scientific truth. Their enthusiasm and passion for Biochemistry inspired me to strive to maintain rigorous standards of academic honesty, high ethical standards and respect for my peers.

As a teacher and researcher, I have also tried to instill these qualities in my students. In class, my enthusiasm and passion for learning are combined with respect and understanding for each of my students. I truly care for their intellectual and emotional growth in science.

My first full-time appointment as biochemistry lecturer was in the Department of Biochemistry, Faculty of Medicine, University of Jos, Plateau State, Nigeria. I was happy to accept this appointment, as I considered it to be a great honor and opportunity for me to be able to contribute to the education, training, scientific development and, ultimately, the lives of many talented young Nigerians. Ever since discovering my vocation in science, I have continued to grow, as an academic, teaching also in the Latvian Medical Academy in Riga, Latvia, and the University of Papua New Guinea, Port Moresby.

I have always viewed teaching and research in Biochemistry from an integrated perspective of Molecular Biology, Physiology, Pharmacology, Nutrition and other biomedical sciences. Since I have worked mostly in resource limited countries, my research philosophy emphasizes the ability to creatively improvise and adapt to existing circumstances through in-depth understanding and effective use of optimal available laboratory methods and techniques; I set out to teach my students how to solve practical problems at hand through innovation and improvisation. This core principle has never failed to stimulate my students' imagination, creativity, independent critical thinking, and to inspire them in their pursuit of knowledge and analytical skills in Biochemistry.

In my teaching, I always try to convey the idea that Biochemistry is the chemistry of the living cell and that, as such, it is central to medicine and other areas in medical sciences, including genetic engineering and biotechnology. It is a highly interdisciplinary subject with great intellectual challenges and enormous practical implications and potential. My teaching methods at all levels reinforce this message through the use of multimedia, on-line

applications, self designed illustrations, computer software, and appropriate examples to describe the structure and functional relationship of the various macromolecules in the organelles of the living cells, both in health and in disease states.

Over the almost 30 years of teaching undergraduate and postgraduate students, I have been closely following advances in Biochemistry, Clinical Biochemistry and Molecular Biology. Thus, I have always given high priority to staying current with most recent developments in my lectures at all levels. In addition, I have always tried to be current and relevant in my research. I strive to accurately reflect the knowledge and excitement of the times in my lectures, tutorials and seminars, to fill my students with amazement at the wonder of Biochemistry, so as to prepare them in the best possible way for the challenges that they will ultimately face after graduating.

I always convey the background and current knowledge of the fundamental scientific principles and significance of each topic, and do it in a way that excites, inspires and motivates students. I want to ensure that they see and appreciate the relevance of Biochemistry to science as a whole and to their daily lives. Some of the assignments, which include Directed Own Learning Task (DOLT) and Case Oriented Learning Task (COLT), are specifically designed to encourage students to think critically and express their thoughts as clearly as possible in writing. In addition, they are usually required to do on-line research and identify scientific information that is current and relevant to the major issue in each assignment. My teaching approach has been working well, because of the high positive evaluations that students have consistently given to my courses over the years. My web site (www.victorjtemple.com) illustrates the scope and depth of my teaching through a selection of some of my lectures and assignments. As an academic, I never stop learning from my teaching and from the work done by my students.

Years of teaching and research have shown me that assisting students to acquire effective techniques for navigating through the different biochemical pathways and flowcharts, understanding the various biochemical mechanisms, concepts and interrelationships between biological systems, and for critically interpreting laboratory data empowers students by providing them with means and opportunity to proactively participate in their own learning. I have successfully met the challenges of working with students with diverse backgrounds in science, ranging from secondary /high school leavers to graduate honors in science and postgraduate students.

My experience in using the Didactic and Problem Based Learning (PBL) curricula has enabled me to conceptualize learning and teaching as a collaborative experience, in which both teacher and students are engaged in the process of providing and receiving information.

Most of my students like the PBL curriculum, which is an inquiry-based approach to learning. A group is made up of about 10 to 15 students, sitting around a table in the “tutorial room”. The teacher plays the role of a facilitator with very limited participation in the active discussion among the students, as they try to systematically solve a problem. An issue that is in dispute is put down in the form of a question “Learning Issue”. At the end of the session,

which usually takes about three hours, each student selects a learning issue for preparation and presentation at the beginning of the next session. Lectures are presented in the form of seminars, because the students are encouraged to ask questions at any time. The lecturer and students can freely exchange views and concerns, and discuss or debate scientific data without hesitation. My students are encouraged to regularly send in feedback after completion of each topic. This helps me evaluate their progress more effectively and make appropriate modifications in my work with my next group of students, if necessary. Prompted by student feedback, whenever I use scientific terms for the first time, I pronounce them syllable by syllable, and explain their meaning clearly by putting them in different contexts. For example, explaining the term 'Glu-co-neo-gen-e-sis', I would break it into constituent morphemes: gluco = glucose, neo = new, genesis = birth/ beginning; it makes it easier for students then to understand the term 'gluconeogenesis' as the process of formation of new glucose molecules which occurs mainly in liver cells. Specific issues, relevant to the students (such as fasting, for example), are used to illustrate the importance of the process. A typical scenario that I use at the beginning of this lecture is: "When a healthy individual wakes up after 8 to 10 hours' sleep, the blood glucose level is within the normal range." What is the major source of the blood glucose? The whole process is then separated into several simple steps, to enable students to understand the concepts. The relevance of the scenario is usually included as part of the summary of the lecture which, according to most of my students, is an effective way of ending the lecture.

This teaching method enables me to identify students that need additional help in either conceptualizing the major issues being discussed or in resolving other concerns that may prevent them from actively participating in class activities. Some of the obstacles students may have include shyness to speak for fear of making mistakes in front of their colleagues; inability to appreciate the relevance of the issues because of unfamiliar terminology; feeling intimidated by a few colleagues that always dominate the discussion in class, etc. Spending time in one-on-one discussion usually helps to reassure these students, arouse their curiosity and remove the barrier to their participation in class activities. Most students become more comfortable in talking about their academic problems when they realize that I am approachable, and detect my willingness to listen to them at all times. It is always rewarding to me, as a teacher, to see my students actively participating in class after our one-on-one discussions.

I am delighted at the success of the Biochemistry and Clinical Biochemistry Road Map that I developed for the PBL Medical Curriculum in the School of Medicine and Health Sciences (SMHS), University of Papua New Guinea (UPNG), and the positive student feedback it has received. Student attrition rate has dropped off significantly since the commencement of the PBL Curriculum.

It is also gratifying for me to see that the two-semester Biochemistry and Molecular Biology curriculum, which I was instrumental in designing and implementing at SMHS, UPNG, has had a very positive impact on the performance of most students who use the didactic curriculum in studying for their graduate degrees in Pharmacy, Medical Laboratory Sciences and Dentistry.

As a researcher, I try to inspire my research students and constantly impress upon them the synergy and interrelatedness between Biochemistry and other areas in the Medical, Biological and Natural Sciences; this perspective is vital for any meaningful collaboration in solving challenging multidisciplinary research problems.

That is why, in my introductory lectures (designing and conducting research and instrumentation) to final year students wishing to do their major research projects in Biochemistry and Molecular Biology; I emphasize the interrelationship that exists between disciplines. Students are encouraged to familiarize themselves with my research areas, and those of my colleagues in the Medical and Natural Sciences departments, before they suggest research questions for discussion and selection.

I am committed to my students' academic development; I try to guide them into becoming life-long learners and logical, reflective thinkers, equipped with adequate knowledge and positive, creative approach to critical inquiry. To achieve this objective, I make sure that they acquire effective problem solving skills and are able to use modern scientific techniques.

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