SABBATICAL REPORT
Submitted to The Office of the Provost
by
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PROJECT DESCRIPTION
I. Objectives
The overall objective of this one academic year (2010-2011) sabbatical leave was to devote time to research on an indigenous medicinal plant as activator of stem cell differentiation, and to adapt and teach two courses at the University of Ibadan (UI). An additional goal was to explore and collect information for future distance learning and international education/Study Abroad opportunities between UI and UW-Platteville.

II. Project Outcomes
A. Fulbright Award
I applied for and received the 2010-2011 Fulbright scholarship that funded my travel and a portion of my maintenance in Nigeria. I have also forged long term relationships with other Fulbright recipients of similar scholarly endeavors.

B. Research and Development
This research was a collaborative effort with a cohort of students and faculty from three disciplines, Biochemistry Department, Pharmaceutical Chemistry and Anatomy Departments at UI. The plant Ageratum conyzoides was harvested from various localities of Ibadan and sent to UI Botany Department and also the Forestry Research Institute of Nigeria (FRIN) for identification and voucher specimen number. It was then necessary to grow the plants to ensure consistency in extract quality.

Our preliminary study using a batch of rat femur bone marrow stem cells using the complete unresolved plant extract revealed cytotoxic effects of some extract components. Chemical resolution allowed us to identify three major fractions that either, supported stem cell growth, caused inconsistent growth pattern, or was responsible for cell mortality. Our next direction was to further resolve the components by HPLC and determine 1) optimum concentration for activation of stem cell differentiation, 2) preponderant tissue types obtained, 3) conditions for restrictive differentiation, and 4) the dose at which components exhibited toxicity.

Unfortunately, the research was inundated with numerous obstacles that are not unexpected in a developing nation such as Nigeria, causing major delays and stalling our work for several months. My cell culture research required 24/7 power supply and aseptic lab conditions. Inconsistent electricity and water supplies at the university campus made our lab space no longer suitable for further work. Relocation to the University College Hospital facility and a 2 month extension of my Fulbright award only enabled us to re-standardize my culture conditions just before my sabbatical leave ended. However, I engaged three highly dedicated university of Ibadan students to continue with the research as their theses project. Two graduate students are working on the plant extract resolution and optimization of differentiation activation conditions while an undergraduate student is investigating the toxicity of HPLC resolved components under co-supervision of the Head of the Oncology and Toxicology Unit of the Biochemistry department at UI.

A portion of the sabbatical leave was also used to travel to professional conferences – the Nigerian Society for Experimental Biology (NISEB) in Nigeria and the West African Society For Pharmacology conference on Phytochemistry in Ghana.

Benefits
The sabbatical leave enabled intensive professional activities that enhanced my interdisciplinary collaborations, skills in phytochemistry, toxicology, and bone marrow extraction,
experience in graduate level scholarly supervision, broadened my geographical and cultural experience, and expanded my professional network that my current 100% teaching appointment at UW-Platteville alone would not have accomplished. Although I was unable to accumulate enough data for publications, these professional knowledge and skills will enhance my teaching and scholarly work.

In return, UI faculty and students learned skills in stem cell techniques from me. Also since my return, I have trained four and currently engaged another four UW-Platteville undergraduates in my research project.

C. Teaching

Another goal was to forge pedagogies of challenge-based learning through teaching Molecular and Cancer Cell Biology (Experimental oncology) courses at an international setting. However, the University of Ibadan operates a co-taught course structure in which several instructors teach modules/units of each course. My full teaching load therefore exposed me to diverse courses in the Biochemistry Department that included graduate level courses - Environmental & Experimental Oncology (BIC 705), Molecular Biology (BIC 708), and M. Sc. Seminar Series (BIC 709), and under graduate level courses (Molecular Biology - BIC 416, Analytical Methods In Biochemistry - BIC 307, Chemistry & Biochemistry of Macromolecules -BIC 340, and Industrial Training Seminar - BIC 400L). However, I was assigned the bulk of the molecular biology courses to gain more insight for developing the online course.

My teaching responsibilities fortuitously disposed me to academic and scholarly advising of over 50 UI students during the sabbatical period, some were students doing molecular and biochemical analyses in their research project and students seeking scholarships, direction and advise on career options, postdoctoral opportunities, preparing for graduate project defense or pursuing further studies in Nigeria or the USA. I wrote their recommendation letters.

Benefits

I adapted the curricula and developed signature pedagogies for the courses. I acquired and developed a repertoire of teaching techniques, strategies, and best teaching practices best suiting the UI classroom by drawing from the best of both our cultures, politics and ethics. Students were engaged intellectually and challenged to think globally, critically, analyze creatively, and reflect carefully from a variety of perspectives through the high impact activities. Learning was assessed using the tool I developed from my UW-System Teaching Fellow project and a SoTL project funded by the UW-Platteville Activity Assessment Funds. Student evaluations of and comments on the courses and teaching techniques were extremely positive. Pre and post-learning assessment showed improved performance from base-line in all the courses I taught. Student engagement in classroom was enhanced based on anecdotal assessment. I also forged long term relationships with student, staff and faculty.

The pedagogies are currently under experimentation for improvement of my UW-Platteville classrooms with same assessable objectives (and UW-System Shared Learning Goals) for student learning, developing critical, creative thinking and skills, and incorporation of diverse global perspectives to learning. This will further strengthen the position of the UW-Platteville’s Biology program

D. Explore Distance Learning Opportunities

In Nigeria today, just like many other nations, admission into universities is becoming more competitive as result of limited physical spaces, faculty, and funds, coupled with the increasing number of non-traditional students needing to access education in an off-campus setting. There is extreme need for online courses. I participated in a training/workshop on ‘Moodle’ E-content Learning Management System, Capacity Building & Open Courseware Resources sponsored by the University of Ibadan (UI) Distance Learning Centre to introduce online system to UI. I extensively use Desire2Learn at UW-Platteville and had no difficulty
developing the online based Molecular Biology (BIC 416) course for UI using ‘Moodle’. I also assisted in training UI faculty and staff who would pilot the delivery of their new online courses. With the support of my department and assistance from the UW-Platteville and UW-Madison Distance Education Centers, I will review and assess the infrastructure in place that will expedite expansion of my current tools to facilitate collaboration in the delivery of the online course here in the United States. The University of Ibadan has expressed strong interest this collaboration.

E. Explore international education & Study Abroad Opportunities

A secondary goal to explore distance learning and international education opportunities for UW-Platteville was pursued through four strategies -
1. developing the on-line Molecular Biology course that could potentially link UW-Platteville with UI students in the future,
2. collecting information for developing future Study Abroad or International Exchange relationship between the UI and UW-Platteville,
3. presentations to student organizations at UW-Platteville and UI on the importance of international education and exchange programs
4. partnering with the UI Office of International Programme committee in conducting a workshop to encourage and assist faculty/staff in preparing Fulbright application packages for travel to the United States. Consequently, three applicants from my host institution UI were successful with 2011 Fulbright award.

III. Dissemination of Current and Past Projects

I served on many committees at UI including the Fulbright Alumni Association of Nigeria (FAAN) local organizing committee, Office of International Programme committee that forged curricula for online Humanities courses, and the Fulbright committee that planned the workshop on "Building An Award-winning Fulbright Application Package".

I reached out to student organizations promoting research and advising on career opportunities. I travelled to and partnered with several universities in Nigeria including the University of Lagos, the University of Benin, ABIA State University, Imo State University, Owerri, the University of Nigeria, Nsukka, Obafemi Awolowo University, Ife, the Wesley University of Science & Technology Ondo (WUSTO), Ondo State, the Redeemer’s University, Ogun State (and nearby universities - Caleb University, Babcock University, Bowen University), and my host university to promote the incorporation of Nanotechnology and stem cell Technology into their graduate and undergraduate curricula research through seminars and workshops. As a result, I serve as a link between faculty and students in Nigeria and the United States for scholarly collaborations.

I visited communities in Nigeria promoting Biotechnology in agriculture and medicine

I visited Chemical Research Institutes and Pharmaceutical Research and Development institutes to promote cutting edge technologies such as Stem cell and Nanotechnologies.

Since my return back to UW-Platteville, I have concerted effort to share my sabbatical experience and promote pursuit of Fulbright Award and international teaching opportunities

I have made oral presentations at:
1. the Biology Department professional development meeting in Fall 2011
2. the Biology Department student organization – Bioclub-sponsored forum
3. the UW-Platteville International Education Week,
4. University of Dubuque, Iowa
5. Dr. Yuan yuan Hu’s UW-Platteville Linguistics (English 3250) class

I will continue to be available to share my sabbatical outcome both inside and outside UW-Platteville

IV. Self Assessment

Overall. I believe I had a rich and fulfilling experience that is unparalleled. I truly enjoyed teaching the UI students - they were very eager to learn, interactive, thankful, and respectful.
Learning to facilitate rather than "teach", and to adapt in the international environment without much equipment to work with was transformative for me and the students. We managed to carry out some simple lab exercises such as DNA extraction and analysis with so much excitement that made my sabbatical leave worthwhile. I also enjoyed the plethora of networking and collaboration that resulted from my travels to various universities and communities to present seminars.

Regardless of the challenges, the leave enabled high impact innovative research and development leading to mutual technology transfer at my host institution through training and implementation of new technologies - an important objective of the Fulbright award. Furthermore, the sabbatical project has opened up research opportunities for UI and UW-Platteville students.

Also, teaming with UI faculty to move their Biochemistry program forward and visiting several institutions in Nigeria to promote pedagogies offered me opportunities to give back to a country that gave me my foundational knowledge and skills. Also, lecturing in this different environment helped me to question, further refine, and gain new insights into time-worn pedagogies.

Having being refreshed from the leave, I believe that my students at UW-Platteville are experiencing a more invigorated teaching atmosphere in my classrooms and laboratories, and also in our undergraduate research team. The international perspective will invariably continue to enhance my teaching at UW-Platteville.

Finally, I thoroughly enjoyed the exposure to cultural and traditional experiences in Nigeria such as traditional marriages, church weddings and events, burial ceremonies, birthday receptions, and banquets.

V. Acknowledgements
This opportunity for one year sabbatical leave has been the most memorable, enjoyable, transformative, and rewarding experiences so far of my life. I would like to thank UW-Platteville, Fulbright, my Chair Jeff Huebschman and colleagues in Biology Department (for covering my teaching, advising, and service responsibilities), the 2009-2010 ILC, the BILSA Dean Dr. Duane Ford, the Provost & Vice Chancellor Dr. Carol Sue, and the University of Ibadan (UI) Nigeria and the Chair and technical staff of the Biochemistry Department of UI.