

ABSTRACT: 2014 ELAM Institutional Action Project Poster Symposium

Project Title: Boost the recruitment of talented US undergraduates into biomedical graduate education at UNMC by initiating new programs and reforming existing programs

Name and Institution: Vimla Band, Ph.D., University of Nebraska Medical Center

Collaborators: Mentor: Bradley Britigan, M.D., Dean of College of Medicine; **Collaborator:** Herbert Dele Davies, M.D., Vice Chancellor of Academic Affairs and Dean of Graduate Studies

Background, Challenge or Opportunity: Currently, we see flat or decreasing NIH budgets for biomedical research and training grants, a clear trend of ever-decreasing numbers of talented US undergraduates joining biomedical PhD career path, a lack of passion for biomedical research in our younger generation, and increasing numbers of graduate/ postdoctoral trainees without skills to go into non-traditional career paths. **Therefore, it is a matter of utmost institutional and national urgency that graduate programs be reformed to address this bleak scenario.** A 2012 NIH Biomedical Research Workforce Group Report recommended to “Align biomedical graduate school training and educational experience with the reality that students will pursue a range of career outcomes aside from research science, and provide them with a broader set of skills”. The **Challenge** is to change the institutional mindset to embrace the training of a majority of PhD students for non-traditional career paths. Diminishing funding is a formidable obstacle but also provides an **Opportunity** to involve stakeholders to reform the methods of training so that the most talented US students elect to join our graduate programs in order to prepare for traditional and/or non-traditional career paths.

Purpose/Objectives: i) Initiate new educational program that will attract talented US undergraduates to our campus; ii) Modify current system of multiple graduate programs into an Interdepartmental/interdisciplinary biomedical sciences PhD program at UNMC; ii) Modify graduate curriculum with the goal of developing skills required for traditional as well as emerging non-traditional career opportunities.

Methods/Approach: Various stakeholders, including the Chancellor, Vice Chancellor of Research, Vice Chancellor of Academic Affairs and Dean of Graduate Studies, Deans of the College of Medicine, College of Allied Health Sciences and College of Public Health, Graduate Program Directors in various departments and colleges, Chairs of basic science departments, faculty members, and graduate students across the campus, were engaged in intensive discussions. The goal was to build consensus around the concept of creating new programs, and an Inter-departmental/interdisciplinary PhD training program at UNMC including paths towards a Biology degree combined with other specific disciplines, such as Anatomy teaching, Bioinformatics, Public Health or Clinical Genetics. With tremendous help from the VC of Academic Affairs and Dean of Graduate Studies, we initiated dialogues across the campus.

Outcomes and Evaluation: Three initiatives were taken; two were accomplished in 2013-2014, and the third one is ongoing. In order to attract talented US undergraduates into graduate education, a one-year Master in Anatomy program was created and will start in the fall of 2014. This 1-year opportunity, including coursework and laboratory research rotations in various disciplines, will help students choose graduate/medical education tracks that best suit them. Second, a comprehensive Anatomy teaching track PhD program was established to train students to be teachers of medical anatomy while also developing their scientific research skills. This program has already enrolled two students. To create an interdepartmental/interdisciplinary graduate program, I chaired a “Graduate Taskforce 1”. This Herculean task is ongoing and will be accomplished with support from VC of Academic Affairs and Dean of Graduate Studies, and includes team-building, delegating responsibilities, and making everyone accountable for the success of this program. The concept was accepted by various stakeholders and we have now moved on to “Graduate Taskforce 2” to develop guidelines and curriculum. The success of the program will be measured by the establishment of a well-designed curriculum that leads to increased enrollment of talented US undergraduates, who will become fully skilled for traditional and/or non-traditional career paths.



Boost the recruitment of talented US undergraduates into biomedical graduate education at UNMC by initiating new programs and reforming existing programs

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Mentor: Bradley E. Britigan, M.D., Dean of College of Medicine
Collaborator: Dele H. Davies, M.D., Vice Chancellor of Academic Affairs and Dean of Graduate Studies

Background, Challenge or Opportunity:

- Currently, we see flat or dwindling NIH budgets for biomedical research and training grants.
 - A clear trend of ever-decreasing numbers of talented US undergraduates joining biomedical PhD career path.
 - A lack of passion for biomedical research in our younger generation.
 - Increasing numbers of graduate trainees without skills to go into non-traditional career paths.
- Therefore, it is a matter of utmost institutional and national urgency that graduate programs be reformed to address this bleak scenario.**
- A 2012 NIH Biomedical Research Workforce Group Report recommended to "Align biomedical graduate school training and educational experience with the reality that students will pursue a range of career outcomes aside from research science, and provide them with a broader set of skills".
 - The **Challenge** is to change the institutional/faculty mindset to embrace the training of a majority of PhD students for non-traditional career paths.
 - Diminishing funding is a **formidable obstacle** but also provides an **Opportunity** to involve stakeholders to reform the methods of training so that highly talented US students elect to join our graduate programs in order to prepare for traditional and/or non-traditional career paths.

Purpose/Objectives:

- i) Initiate new educational programs that will attract talented US undergraduates to our campus;
- ii) Modify current system of multiple graduate programs into an interdisciplinary biomedical sciences PhD program at UNMC;
- iii) Modify graduate curriculum with the goal of developing skills required for traditional as well as emerging non-traditional career opportunities.

Methods/Approach:

- Various stakeholders, including the Chancellor, Vice Chancellor of Research, Vice Chancellor of Academic Affairs/Dean of Graduate Studies, Deans of the College of Medicine, Graduate Program Directors in various departments and colleges, Chairs of basic science departments, faculty members, and graduate students across the campus, were engaged in intensive discussions.
- The goal was to build consensus around the concept of creating new programs to bring US undergraduates on campus and an interdisciplinary PhD training program at UNMC
- Future goals will be to combine Biology degree with other specific disciplines, such as Anatomy teaching, Bioinformatics, Public Health or Clinical Genetics.
- With tremendous help from the VC of Academic Affairs/Dean of Graduate Studies, I initiated dialogues across the campus.

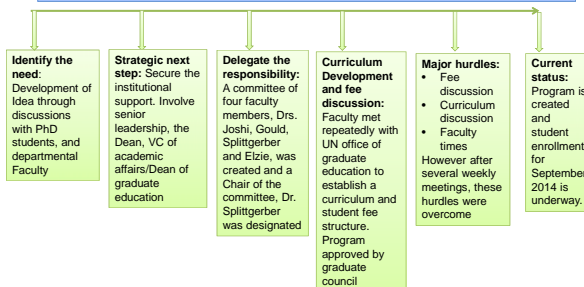
Found Pilot:

- UNMC has a small interdepartmental program called Biomedical Research Training Program (B RTP) directed by Dr. Daniel T. Monaghan.
- Dr. Monaghan and GCBA Graduate Director Dr. Karen Gould shared my passion and idea to develop an institution-wide interdisciplinary Biomedical Graduate Program.
- Recruitment of Dr. Davies, who brought a similar vision to UNMC, brought on board the needed leadership to move the project forward.
- A non-structured teaching track existed in the GCBA department. This served as a Found Pilot to develop a structured program involving the student Shayla Reffert and Drs. Joshi and Gould, previous and current Directors of GCBA graduate program, respectively.

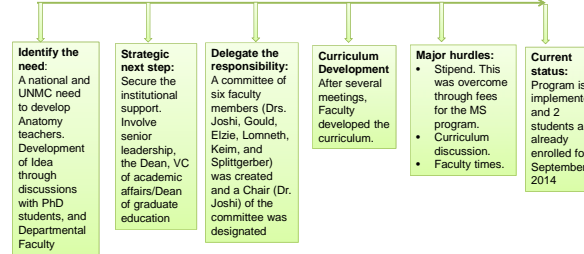
Major Observations made during the course of these initiatives:

- Difficult to change mindset of some persons--needed several meetings and persuasion
- Some stakeholders agreed with the concept during one-to-one interaction but were afraid to side with me in group meetings -- needed to remind them that they agreed in principle
- Some stakeholders did not like to adopt changes - needed repeated emphasis
- Found Pilot was the best concept
- Delegating the responsibilities is a great idea
- One can not achieve the goals unless senior leadership is on board
- Financial support is of utmost importance to move the idea forward

Initiative 1: A New "Masters in Anatomy" Program is created to recruit talented US undergraduates on UNMC campus to provide a pipeline for PhD and other medical sciences programs (Brochure included)



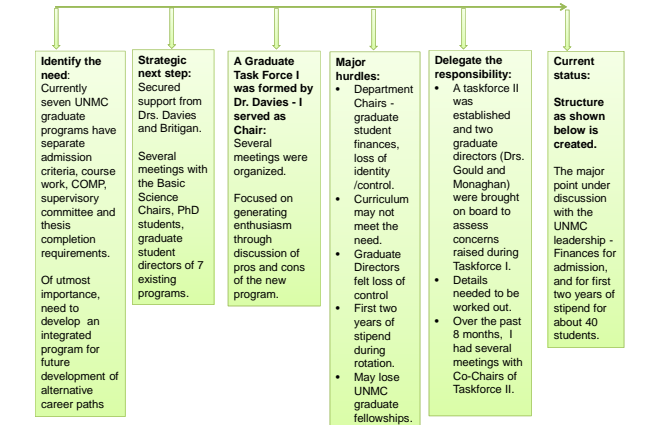
Initiative 2: Structured "Teaching track Anatomy Ph.D. program" stresses education and research training (brochure included)



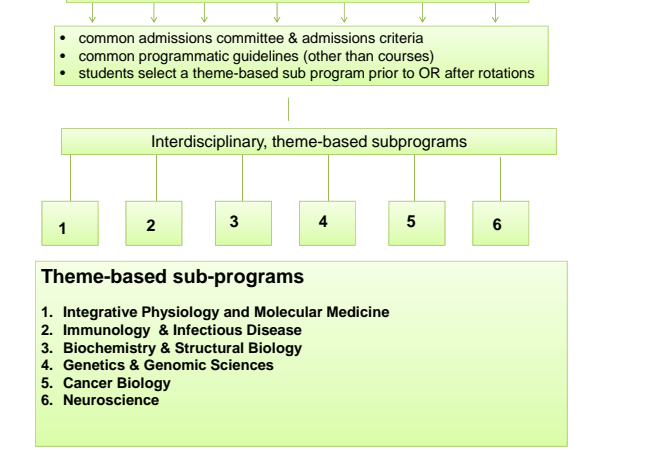
Outcomes, Evaluation and Discussion:

- A "Masters in Anatomy program" is implemented to begin in the Fall of 2014. Currently, recruitment is underway.
- A structured "Anatomy teaching track PhD" program is implemented and two students are currently enrolled
- With the involvement of senior UNMC leader Dr. Davies, a "graduate taskforce I" was established where several stakeholders became fully involved and I served as Chair of the committee. The first meeting of the committee was held on March 28, 2013. We discussed about team-building, delegating responsibilities, and making everyone accountable for the success of this program.
- After several meetings, the groundwork was accomplished that led to the formation of "graduate taskforce II" with co-Chairs Drs. Gould and Monaghan to develop the interdisciplinary theme-based program.
- Current discussions with the leadership to secure financial support for the admissions and maintenance of the program, and to provide fellowship support for all students admitted through interdisciplinary program during rotations and program/laboratory selection.
- The success of the programs will be evaluated by establishing a well-designed curriculum that will increase enrollment of talented US undergraduates, who will become fully skilled for traditional and/or non-traditional career paths.

Initiative 3. Create an Interdisciplinary Biomedical graduate program at UNMC - Collaboration with Drs. Dele Davies, Daniel Monaghan and Karen Gould



Interdisciplinary /Umbrella "Biomedical Sciences Graduate Program"



Acknowledgements: Drs. Britigan, Davies, Joshi, Gould, Monaghan, Elzie, Spittgerber, Keim, Todd and Lomneth

