



COLLEGE OF EDUCATION
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August 4, 2010

To: Dr. Lesia Lennex

From: Dr. Cathy Gunn
Dean

Re: Adron Doran Endowed Professor proposal

Based on a review by a panel consisting of CoE department chairs, the assistant dean, and dean, I am pleased to tell you that you were selected as a 2010-2011 Adron Doran Endowed Professor. The committee agreed that your proposal was well written and could have far-reaching impact.

Please provide a title for this project and a short summary in electronic format, which can be used in media announcements. Also, please provide the Dean's Office with a short mid-year summary of progress on the project and budget by January 30.

Your budget has been approved as submitted. My office will process the supplemental salary PAR. You should work with Virginia Bocook in my office to process travel and we will reimburse you from the college's endowment account. Greg Wilcox will help monitor the award so you will work with him to purchase any technology or software.

Congratulations and we look forward to learning more about your project throughout this next year.

Cc: Dr. Cal Meyer, Department Chair
James Shaw, VP University Advancement
File

1. Plan for Endowment Work 2010-2011:

The Adron Doran Endowment Award would allow research of the classroom use of 3-D technology to be completed that would otherwise not be financially possible. The grant would be utilized to purchase equipment to develop inquiry science materials for grades 5-12 and to supplement salary. In the last year, 3-D technology has become a very topical area within teaching and curriculum. It is only now being researched as to its uses in the college classroom (Presidents Leadership Academy visit to Miami University, April 2010). Few pieces of literature are written about use of 3-D materials in P-12 schools. These are anecdotal and focus on the "gee whiz" factor of the technology. Dr. Lennex seeks to develop science inquiry curriculum and materials, grades 5-12, for the Kentucky science curriculum *Biological Change* theme. The NSF-MSP Start grant research of CATS scores in grades 5-9 showed this theme to be the least successful achievement in 2008-2009. As a result, secondary students are entering college at a deficit in conceptual understanding. Research of technologically supportive inquiry materials would increase the depth of understanding at a time that coincides with the newly released Kentucky Science Standards. The National Science Education Standards are set for review release in late 2010. The standards will be commented and revised in late 2011. This original research would poise MSU to make valuable contributions to science and technology education. Additionally, University Marketing and Enrollment Services have both shown great interest in developing 3-D materials for recruitment. They have purchased a camera and editing software with the intention to begin production of recruiting materials. By producing materials for secondary curriculum, students using and viewing would have more familiarity with MSU. They could become more likely to enroll and remain if they believed MSU offered the latest in technology support for education.

Conducting 3-D development and research for use in P-12 classrooms requires specific equipment and professional development. The funds would be used to purchase equipment, travel to conferences and acquire professional development, and support scholarly efforts toward production of original research and curriculum. Dr. Lennex has two ongoing initiatives at MSU that tie into this research, making it accessible to large groups of teachers, teacher education candidates, and diverse situations.

Dr. Lennex has recently co-authored a chapter describing an emerging educational anthropological field: technodiversity. Technodiversity is the intersection of culture, diversity, and technology (See vita addendum: Lennex & Nettleton, 2010, submitted). In this context, the learner utilizes their own culture of place to define possible uses of instructional technologies in the P-12 classroom. Dr. Lennex and Mrs. Nettleton have recently received acceptance of their book proposal, "Cases on Inquiry through Instructional Technology in Math and Science: Systemic Approaches" (See vita addendum: Lennex & Nettleton, 2010, accepted and in progress). 3-D technologies, with its many facets and roots in technodiversity, will be used in developing a chapter on emergent technologies for P-12 inquiry science. The original research will serve as an focus of the possibilities for emergent technologies in the 21st century.

Dr. Lennex is working with science faculty toward an application to National Science Foundation Math Science Partnership for Targeted Populations (See vita addendum: Wymer, et.al., in progress). This grant seeks to transform Grades 5-8 inquiry science teaching, teacher education, and use of diversity and technology in teaching science. It is a perfect medium for an educational anthropologist to introduce original research and development of curriculum with an emergent technology. Dr. Lennex has been a steering committee member of the NSF-MSP Start Grant 2008-2010 and will be listed as such for the application to a five-year NSF-MSP grant. As Dr. Lennex is concerned with both middle grades and secondary education, she would like to produce materials for Grades 5-12. This will assist in developing curriculum materials for NSF-MSP as well as for teacher education in EDSE 312.

In both cases, Dr. Lennex would be able to better support efforts to develop inquiry science materials and methods if additional funding were available to provide equipment, professional development, and salary. Without the endowment, Dr. Lennex will still pursue the opportunities, but would be severely hampered in development and research of actual 3-D materials by lack of funds.

2. Timeline 2010-2011:

June-

Develop materials for review and finalize timeline for book production. The materials will be distributed to potential reviewers and contributors.

Define parameters for book chapter on 3-D technologies for science inquiry.

See timeline for book production (attached). The book has its own specifics for the next twelve months.

July-

Distribution of request to review case studies and theoretical chapters for book. This will continue through August.

Write IRB for gathering evidence from WIKI with EDSE 312 and mentor teachers, Grades 5-8 participants in NSF-MSP Start grant.

August-

Purchase equipment for 3-D technology development.

Begin personal professional development with After Effects software. This will be accomplished through "classroom in a book" materials.

Begin working with current and incoming Undergraduate Research Fellows (URF) on meta-analysis of 3-D literature in curriculum and P-12 school use. The current URF will leave in December. The new one will begin in January. She has agreed to begin some work in preparation to make presentation proposals.

September-

Train URF with After Effects, iLife, and 3-D camera.

Continue discussion with IT (Mike Hogge) and resolve purchase of replacement 3-D capable projectors on the MSU campus. Discussions have been ongoing since April 2010. Specific locations will be determined by IT.

Continued discussions with University Marketing (Jami Hornbuckle) and Admissions (Jeffrey Liles) about the use of 3-D in their campaigns for increased student enrollment. Agreements to produce comparable items for P-12 curriculum use will be secured. All specifics will be outlined.

Begin WIKI collaboration with teacher education candidates and mentor teachers involved with EDSE 312, Educational Methods and Technology. The WIKI will serve as a sounding board for concept ideas in using 3-D technology in varying discipline areas. The research will be gathered with an IRB approval so as to use it in future with publication of ideas. A separate WIKI will be maintained for Grades 5-8 teachers in the NSF-MSP Start grant.

October-

Attend E-LEARN conference from the Association for Advancement in Computing Education. A presentation proposal was submitted in March for this conference.

Submit grant application to NSF-MSP. Preparation for this grant has been ongoing from May to October 2010. Response is expected between three and six months.

Send proposal to Society for Information Technology and Teacher Education (SITE).

November-

Attend the regional National Science Teacher Association (NSTA) conference in Baltimore, MD.

December-

Attend the regional NSTA conference in Nashville, TN.

Awards for NSF-MSP scheduled to be announced.

January-

Train URF with After Effects, iLife, and 3-D camera.

Conclude meta-analysis of 3-D curriculum and models for school use.

February-

Production of 3-D science materials to begin and continue until May 2011. The overall focus for materials is secondary, Grades 8-12. The purpose being to tie in to MSU marketing efforts to increase student enrollment. Marketing plans to use 3-D materials to gain interest and awareness of MSU. If similar materials are used in lessons, students will have a reasonable expectation of familiarity with MSU.

March-

Attend SITE conference (AACE) in Nashville, TN. A proposal will be made for this conference.

Submit a proposal to Celebration of Student Scholarship using the research and production of 3-D materials.

Submit an application to Mid-West Research Association (MWERA) on meta-analysis research in October 2011, Columbus, OH.

April-

If an award was made for NSF-MSP, concerted efforts to produce 3-D materials and curriculum relevant to grades 5-8 if at all possible. These materials would be used in workshops for teachers throughout the grant period.

Present, if accepted, to the Celebration of Student Scholarship.

May-

Finalize written curriculum materials and ascertain that WIKI is functional for summer. It is intended that production efforts, reflections, and other materials not directly used for NSF-MSP would be prepared for publication in a chapter for the book on science inquiry. A separate publication on related topics with the URF is highly likely.

Finalize 3-D materials produced by the URF and Dr. Lennex. The URF will leave at this time, but Dr. Lennex will continue production through June.

June-

Final materials available from 3-D production. Curriculum should be available at this time.

3. VITA:

Please see attached vita, vita addendum, and spreadsheet of performance evaluations. Dr. Lennex has consistently performed at the "above expected" level in research. She has been recognized as excellent in teaching online and hybrid courses. Other evaluations are available upon request.

4. Professional Growth of Applicant:

The measurement in growth to attend appropriate professional development and purchase equipment for immediate use is potentially huge. This is a relatively new field in education. One which is just now on the bleeding edge of development. It is potential that Dr. Lennex could become a leading researcher in this field. It is also potential that this research could open new avenues for exploration in teaching pedagogy and practice. With all of this, MSU could become well known for its innovation and excellence in teaching and learning. The forthcoming book on science inquiry and dissemination of materials through the NSF-MSP Targeted grant would potentially give great support to teacher education and science education, middle and secondary, at MSU.

Dr. Lennex and Mrs. Kim Nettleton have recently received acceptance of their book proposal, "Cases on Inquiry through Instructional Technology in Math and Science: Systemic Approaches" (See vita addendum: Lennex & Nettleton, 2010, accepted and in progress). The book seeks cases from inquiry science teaching P-12 and chapters of support in theoretical research. 3-D technologies, with its many facets and roots in technodiversity, will be used in developing a chapter on emergent technologies for P-12 inquiry science. The original research will serve as a focus of the possibilities for emergent technologies in the 21st century.

Dr. Lennex is working with science faculty toward an application to National Science Foundation Math Science Partnership for Targeted Populations (See vita addendum: Wymer, et.al., in progress). This grant seeks to transform Grades 5-8 inquiry science teaching, teacher education, and use of diversity and technology in teaching science. It is a perfect medium for an educational anthropologist to introduce original research and development of curriculum with an emergent technology. Dr. Lennex has been a steering committee member of the NSF-MSP Start Grant 2008-2010 and will be listed as such for the application to a five-year NSF-MSP grant. As Dr. Lennex is concerned with both middle grades and secondary education, she would like to produce materials for Grades 5-12. This will assist in developing curriculum materials for NSF-MSP as well as for teacher education in EDSE 312.

To be able to have the financial support of this endowment would give Dr. Lennex the necessary skills and equipment to begin research in a much-anticipated field of technology.

5. Explanation and Tie to College of Education Conceptual Framework and Mission:

The mission of the College of Education and its conceptual framework of the College of Education has many ties to engagement with innovative technologies. MSU regards the learner as one who creates their own knowledge and pedagogy within the social construct of formal teacher education. Dr. Lennex has recently co-authored a chapter describing an emerging educational anthropological field: technodiversity. Technodiversity is the intersection of culture, diversity, and technology (Lennex & Nettleton, 2010). In this

context, the learner utilizes their own culture of place to define possible uses of instructional technologies in the P-12 classroom. The emphasis in the COE conceptual framework on the culture of place is appropriate to the study and development of 3-D technologies. By funding this research, MSU would be exchanging ideas with a professional learning community of teachers in the service region. Not only would access to skilled mentors in instructional technology through EDSE 312 mentors be established, it would also include many teacher education candidates.

As part of the establishment for the definition of technodiversity, a pilot study was conducted by Dr. Lennex and Mrs. Kim Nettleton in Spring 2010. The results of this study have been submitted for publication. The study consisted of conversations and surveys of diversity among different ethnic groups from across the United States. As MSU's conceptual framework is built on the embracing of diversity, cultural knowledge and transmission of such within the Appalachian culture, it is hoped that a larger network of diversity exchanges can occur during 2010-2011.

Instructional technology is highly valued at MSU as well. The conceptual framework clearly outlines that "information technologies support the use of data-driven decision-making using strategies such as the development of e-portfolios, email, e-journals, Web logs, wikispaces, bulletin/discussion boards, chat rooms, listserv, i-Chat, and digital video." (p. 13) Further evidence of support for innovative technologies occurs pages 34-37 in which detailed descriptions of specific projects and professional activities are written. EDSE 312, a required course for most P-12 and 8-12 teacher education candidates, is an integral part of this proposed project. Candidates would be involved in production and research aspects of 3-D technologies. The conceptual framework highly regards EDSE 312 as a repository of knowledge for instructional technology (p.37).

6. Product Plan:

Products from this endowment would include lesson plans and 3-D materials for the KY core content concept *Biological Change*. Grades 5-12 are targeted as it would highly relate to joint efforts from MSU Marketing and Enrollment Services. Other products may include presentations and publications in using 3-D technologies. It is anticipated that materials for a chapter on 3-D technologies integration would be submitted for use in Dr. Lennex and Mrs. Nettleton's book on inquiry science. Materials would also be disseminated through the NSF-MSP Targeted grant participants. It is also anticipated that materials from the research could be published or presented with URF in Spring and Fall 2011, Spring 2012.