Montana Office of the Commissioner of Higher Education

Improving Teacher Quality State Grants
Title II, Part A
No Child Left Behind Act of 2001 (NCLB Act)

Grant Period: January 1, 2015 – December 31, 2015

Office of the Commissioner of Higher Education
2500 Broadway, Helena, MT 59620-3201
Phone: (406) 444-6570
Fax: (406) 444-1469
Scaling up the Bozeman Side-by-Side Learning Model

Montana State University

Nicolas Lux, EdD
Gilbert Kalonde, PhD
Jayne Downey, PhD
Brock LaMeres, PhD
Christine Lux, EdD
Marilyn King, EdD
Kathryn Will-Dubyak, EdD Candidate
FORM 1: COVER PAGE

1. Project title (maximum eight words): Scaling up the Bozeman Side by Side Learning Model

2. Institution of higher ed. (or nonprofit organization):

   Academic department: Education  
   Address: 209 Reid Hall, Montana State University  
   City: Bozeman  
   State: MT  
   Zip: 59715

3. Project Director(s): (please list principal project director first)

<table>
<thead>
<tr>
<th>Name</th>
<th>Telephone (work)</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Nicholas Lux</td>
<td>406-994-6581</td>
<td><a href="mailto:nicholas.lux@montana.edu">nicholas.lux@montana.edu</a></td>
</tr>
<tr>
<td>Dr. Gilbert Kalonde</td>
<td>406-994-5775</td>
<td><a href="mailto:kalonde@montana.edu">kalonde@montana.edu</a></td>
</tr>
<tr>
<td>Dr. Jayne Downey</td>
<td>406-994-7426</td>
<td><a href="mailto:jdowney@montana.edu">jdowney@montana.edu</a></td>
</tr>
<tr>
<td>Dr. Brock LaMeres</td>
<td>406-994-5987</td>
<td><a href="mailto:lameres@ece.montana.edu">lameres@ece.montana.edu</a></td>
</tr>
<tr>
<td>Dr. Christine Lux</td>
<td>406-994-5005</td>
<td><a href="mailto:christine.lux@montana.edu">christine.lux@montana.edu</a></td>
</tr>
<tr>
<td>Dr. Marilyn King</td>
<td>406-522-6003</td>
<td><a href="mailto:marilyn.king@bscl7.org">marilyn.king@bscl7.org</a></td>
</tr>
</tbody>
</table>

4. Mailing address of principal project director (if different from above):

5. Core content area(s): STEAM  
   Grade level(s): P-8  
   Other: Number of participants: 95

6. Does this proposal constitute a continuation or expansion of a previously funded project?  
   ☑ Yes  
   ☐ No  
   If yes, please give the year of the original grant(s): 2014

7. List names of all collaborating school districts:  
   Bozeman Public School District

8. Proposed funding:

<table>
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<th>Type</th>
<th>Amount</th>
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<tbody>
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<td>A. NCLB Grant</td>
<td>$100,165</td>
</tr>
<tr>
<td>B. Institution of higher ed. or nonprofit org.</td>
<td>$</td>
</tr>
<tr>
<td>C. Collaborating school districts</td>
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</tr>
<tr>
<td>D. Other</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$100,165</strong></td>
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</tbody>
</table>

9. Fiscal or grant administrator responsible for grant:

   Name: Carmen Fike  
   Title: Fiscal Officer  
   Telephone: 406-994-1939  
   E-mail: cfiike@montana.edu

Project Director  

Chief Academic Officer  

11/7/14
FORM 2: PARTNERSHIP ELIGIBILITY

Project Title:
Scaling up the Bozeman Side by Side Learning Model

Project Director:
Dr. Nicholas Lux

Required Members (please list as indicated):

(1) A private or state institution of higher education (IHE) and the division of the institution that prepares teachers and principals

   Dr. Nicholas Lux, Assistant Professor, Department of Education, Montana State University
   Dr. Gilbert Kalonde, Assistant Professor, Department of Education, Montana State University
   Dr. Jayne Downey, Department Head, Department of Education, Montana State University
   Kathryn Will-Dubyak, Director of Field Placement and Licensure, Department of Education, Montana State University

(2) A school of arts and sciences

   Dr. Brock LaMeres, Department of Electrical & Computer Engineering, Montana State University

(3) A high-need Local Education Agency (LEA)

   Dr. Marilyn King, Deputy Superintendent Instruction, Bozeman Public Schools

Additional Members (if applicable):
(This list may include another LEA, a public charter school, an elementary school or secondary school, an educational service agency, a nonprofit educational organization, another IHE, etc.).

Partner:
Dr. Christine Lux, Assistant Professor, Department of Health & Human Development, Montana State University

Partner:
Mike Van Vuren, Hyalite Elementary School Principal

Partner:
Adrian Avincula, Irving Elementary School Principal

Partner:
Darren Schlepp, Whittier Elementary School Principal

Partner:
Brian Ayers, Chief Joseph Middle School Principal & Randy VanDyke, Chief Joseph Middle School Asst. Principal
INSTITUTION OF HIGHER ED. / NONPROFIT ORGANIZATION: Montana State University

PROJECT DIRECTOR(S): Dr. Nicholas Lux, Dr. Gilbert Kalonde, Dr. Jayne Downey, Dr. Brock LaMeres, Dr. Christine Lux

PROJECT TITLE: Scaling up the Bozeman Side by Side Learning Model

PRIORITY AREA(S): (Check applicable boxes)

☒ Substantive participation and "vertical teaming" of teachers and administrators and higher education faculty
☐ Collaboration/partnerships involving one or more IHE's
☒ Multi-year projects focused on long-term, sustainable, and widely-disseminated models
☒ Development and/or demonstrated models of success through partnerships with high-need schools
☒ Improving % of highly qualified teachers

GRADE LEVEL(S): ☒ 6-8 ☐ 9-12

PROJECT FORMAT: (Check applicable boxes)

☒ Summer workshop(s) with follow-up activities
☒ Workshops or other activities during school year
☐ Other (specify):

PROJECT SERVICE REGION(S): Bozeman, MT

INSTRUCTIONAL TIME FRAME (actual dates of instruction): From 1/1/15To 12/31/15

NUMBER OF CREDIT HOURS PER PARTICIPANT: Graduate 2 Undergraduate ☐ CEU ☒ None

NUMBER OF CONTACT HOURS PER PARTICIPANT: 77 formal contact hours

ABSTRACT: In a paragraph of approximately 100 words, please summarize the project's goals, objectives, activities, target population(s) and expected number of participants.

The primary intent of this proposal is to build upon, expand, and more thoroughly evaluate a teacher-quality endeavor that simultaneously supports the professional development of practicing in-service teachers and preservice teachers at three elementary schools and one middle school, all Title I schools. Major goals of the project include further distributing and evaluating the side-by-side teacher professional development model currently being piloted between MSU and the BSD in which P-8 teachers, P-8 students, MSU preservice teachers, and MSU faculty will receive innovative STEM-related learning and teacher training.
1. Have any of the project directors for this proposal had previous grants through the Montana Office of the Commissioner of Higher Education?

☐ Yes
☐ No

If yes, please give the following information:

- The name of the project director/s and the year of the grant/s:
  
  Dr. Nicholas Lux & Dr. Brock LaMeres, 2014

- For each grant, the amount of the original award and the total amount expended:
  
  Original Award: $63,179.24; Total Amount Expended: N/A (grant ends 12/31/14)

- For each grant, the number of participants projected and the number who participated:
  
  Projected: 27; Participated: N/A (grant ends 12/31/14)

If yes, provide a brief description of the results of the evaluation of each grant. Evidence of improvement in classroom instruction or student achievement would be most significant.

Although the grant is still in progress and data collection regarding evaluation of the project has not yet been completed, anecdotal findings suggest the pilot project has been very successful establishing a foundation for site-based side-by-side learning. The following lessons have been learned, with each of these being addressed and accounted for in the new 2015 ITQ proposal:

1) More opportunities are needed for inservice teachers, preservice teachers, and MSU faculty to meet and discuss learning and professional development needs; as a result, the 2015 proposal includes more concrete needs assessments procedures to be conducted in spring 2015 to more clearly establish learning and professional development needs at each school site, as well as a more substantive planning retreat to be held in the summer 2015, and more frequent stakeholder meetings during the fall 2015.

2) More precision, including a framework to structure the relationships between inservice and preservice teachers; as a result, the 2015 proposal will use the lesson study approach to structure the collaborations.

2. For each project director, please list any other grants or other significant obligations (summer school teaching, consultancies, book contracts, etc.) during the period of proposed grant activity. Please describe how the project director's time will be allocated between the NCLB project and these other obligations.

Dr. Lux is currently a Co-PI on the NSF-funded "Using Technology to Research After Class (UTRAC)" grant that runs Sept. 2014 through Sept. 2016. If funded for the OCHE project outlined in this proposal, no time conflict will occur as academic year duties for this grant align directly with Dr. Lux's current teaching, research and service obligations per his contract. Therefore, Dr. Lux will arrange his workload in such a way that all grant-related work will occur in-load during the academic year.

Dr. Kalonde's efforts on the project during the fall and spring will comprise part of his existing teaching, research, and service workload, and his participation in the summer retreat will not interfere with his MSU employment. He is not currently involved in any other grant-funded projects.

Dr. Downey is not currently involved in any other grant-funded projects. Her OCHE grant-related efforts will be distributed throughout the entire year. Given her full-time administrative role at MSU, she is able to arrange her workload in such a way that all grant-related work will occur in-load.
Dr. LaMeres is currently the PI on one National Science Foundation research grant and on three NASA research grants. These other research commitments support Dr. LaMeres in the summer for 2.5 months. This leaves 0.5 months of time that Dr. LaMeres can commit to other projects in the summer such as this one. Dr. LaMeres’ academic year research component of his contract is 55%. The work Dr. LaMeres will contribute to this project will be allocated from this component of his contract.

Dr. Christine Lux’s activities with the Side by Side Learning needs analysis during the spring semester will comprise part of her existing research and service workload. Similarly, course delivery to students and professional development to teachers during the fall semester will comprise part of her existing teaching, research, and service workload. During the Summer 2015, Dr. Lux will oversee early childhood practicum placements mid-May through June, and will not have other research or service responsibilities since the contractual term at MSU ends May 15th. Participation in the summer retreat for the Side by Side project therefore will not interfere with her MSU employment.

3. If the applicant is an institution of higher education, does it have a school or department of education?

☐ Yes
☐ No

If yes, describe the joint efforts that were involved in preparing this proposal and planning project activities between the school or department of education and a core academic area department at the institution. (Please identify participants by name and title at the institution.)

Since an existing relationship already exists between the project directors in the department of education and academic area department (College of Engineering), efforts for the preparation and planning for this proposal have been occurring for several months leading to the submission of the proposal. Further, Dr. LaMeres continued to serve as an invaluable asset connecting the project components to STEAM. Dr. Nick Lux has had numerous conversations with Dr. Downey, Dr. Christine Lux, and Ms. Will-Dubyak over two years about expanding the current site-based side-by-side model beyond Hyalite Elementary School. Dr. Kalonde is new to MSU and, fortuitously, brought an interest in evaluating the efficacy of professional development and teacher education efforts. This fall he has been involved in these planning meetings and online conversations as he crafted the evaluation plan for the project.

4. Does the applicant institution of higher education or nonprofit organization have a pre-existing agreement with one or more local school districts for providing professional development for teachers or teams of teachers (and appropriate school personnel) of that district?

☐ Yes
☐ No

If yes, in the space below give the name of each such local school district and provide documentation of the agreement/s (with signatures) in Appendix B of the proposal. If no, in the space below give the name of one or more local school districts that have provided a letter of agreement indicating official support of proposed project activities and provide the letter/s (with signatures) in Appendix B of the proposal.

A letter of support from the Bozeman School District has been provided in Appendix B.

5. Describe the participation of teachers and/or administrators of the local school district(s) named in question four in preparing this proposal and planning proposed project activities. LEAs must consult with private school officials during the design, development, and implementation of the professional development program to ensure equitable participation. Title IX, Section 9501 of ESEA requires that
Title II, Part A services for professional development that are provided to private school teachers and other educational personnel be equitable in comparison to those provided to public school teachers. (Please identify participants by name and title within the school system.)

Numerous ongoing discussions have been taking place with both district-level (Deputy Superintendent Instruction Marilyn King) and school-level administration (Mike Van Vuren, Hyalite Elementary Principal; Adrian Advincula, Irving Elementary Principal; Darren Schlepp, Whittier Elementary Principal; Brian Ayers, Chief Joseph Middle School Principal; Randy VanDyk, Chief Joseph Middle School Assistant Principal) about collaboration opportunities as they relate to the project. The conversations focused on planning potential points of collaboration, and how preservice teachers might best work with inservice teachers in the design and implementation of high-quality STEAM-related instruction. School administrators and various teaching staff have expressed eagerness to begin the project.

6. Describe any other involvements with K-12 schools any project director has had in the last five years (e.g., supervising student teachers, teaching on-site courses, judging nominations, etc.).

Dr. Nick Lux has focused his involvements with K-12 schools in technology professional development. This has included teaching a number of technology-related professional development courses, both for graduate level credit and CEUs, for Belgrade Public Schools. Further, Dr. Lux has conducted professional development sessions for teachers around Montana, including work with Anaconda School District, as well as a large number of rural schools as part of previous grant work. Most recently, he has been leading the "MSU/Hyalite Collaborative Classroom" pilot project, funded by OCHE in 2014, to explore and pilot the site-based side-by-side learning model. And lastly, Dr. Lux worked closely with the Bozeman School District during the 2013-2014 AY conducting a large scale research project on the implementation of a 1:1 Chromebook Pilot initiative.

Dr. Kalonde has focused his involvements with K-12 schools in the last five years in middle school science and math. This work was done largely in southern Illinois. This has included teachers’ technology integration professional development training, and research based on those efforts.

Dr. Jayne Downey has been involved in multiple service opportunities with Montana’s K-12 community for the last 5 years, including professional development workshops for teachers in Belgrade, Anaconda, and Missoula on topics such as Educational Neuroscience in the Middle School Classroom; The Learning Brain: Principles and Applications of Educational Neuroscience; Issues Surrounding Retention and Social Promotion. She serves as the President of the Board of Directors for the Montana Small Schools Alliance, and has served on various OPI committees including: for 2 years as a member of OPI’s Teaching, Learning, & Leading Collaborative (TLLC) Work Team; Member of the Chapter 58 ARM Revision Working Group; Member of the STEM Leadership Team and Working Group; Member of the State Consortium on Educator Effectiveness (SCEE) Work Group; and Member, Montana Math Science Teacher Initiative Taskforce.

Dr. LaMeres has been involved in numerous outreach activities with elementary schools in the Bozeman School District. He routinely gives presentations on robotics, science topics, and engineering as a profession to K-8 students, and serves annually as a judge at MSU’s First Lego League Robotics competition for grades 6-8.

Dr. Christine Lux has been connected to K - 12 classrooms through supervision of students in special education settings for the Exceptional Learner Lab course, coordination of student observation of and visits to K and first grade classrooms for the Environments & Management in Early Childhood Course, and volunteering in K, grade 1 and grade 2 classrooms to provide literacy instruction support to children.

Finally, project collaborator Ms. Will-Dubyak has been connected to K-12 classrooms focused on building mutually beneficial partnerships in her roles as Assistant Director and now Director of Field Placement and Licensure. Additionally, Ms. Will-Dubyak worked closely with the Bozeman School District during the 2013-2014 AY conducting a large scale research project on the implementation of a 1:1 Chromebook Pilot initiative.
PROPOSAL PROJECTIONS AND PROGRAM REPORT: TEACHERS

Please complete first column in proposal; then complete other columns in year-end report.

<table>
<thead>
<tr>
<th>Provide the number of participants in the program by each of the following categories:</th>
<th>Number Projected in Proposal</th>
<th>Actual Number of Participants</th>
<th>Sub-category</th>
<th>Sub-category</th>
<th>Comments</th>
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<td>Number of K-12 districts served:</td>
<td>1</td>
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<td>Number of high-need districts served:</td>
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<td>Number of schools served:</td>
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<tr>
<td>Number of K-12 teachers served by school level:</td>
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<td>Out of field or uncertified:</td>
<td>Without major in subject taught</td>
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<tr>
<td>1 Elementary</td>
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<tr>
<td>2 Middle school</td>
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<td>3 High school</td>
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<td>Number of administrators served:</td>
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<td>6 High school</td>
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<table>
<thead>
<tr>
<th>Intensity of Professional Development</th>
<th>Projected in Proposal</th>
<th>Actual Number</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Total Number of Hours</td>
<td>77</td>
<td></td>
<td>This accounts for only the formalized professional development events (Three day retreat in summer 2015, 8 PIR hours, 15 hours co-teaching &amp; graduate level course in fall 2015). Additional informal professional development, including spring PIR-day planning sessions, will be provided throughout the spring 2015 and fall 2015.</td>
</tr>
<tr>
<td>Total Number of Events</td>
<td>3 retreat days, 1 semester course, 4 ½ PIR days at ea. school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Number of Participants Per Event</td>
<td>Retreat-45; course-20; PIR-6 ea.</td>
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<td></td>
</tr>
</tbody>
</table>
Part Four: Proposal Narrative - Scaling up the Bozeman Side-by-Side Learning Model

Identification of Need

The “Scaling up the Bozeman Side-by-Side Learning Model” project is a professional development teacher quality endeavor intended to simultaneously support practicing in-service teachers and preservice teachers within the context of a real school. This project will build upon, expand, and more thoroughly evaluate a teacher-quality endeavor that has been pilot tested. The model will be expanded from one school and one teacher preparation focus to four schools with multiple faculty and multiple teacher prep coursework arenas, all centered on Science, Technology, Engineering, Art, and Math (STEAM) themes. More specifically, these themes will range from a focus on the integration of technology, science, and English language arts at one site, to computer science concepts like coding used to address literacy instruction at another, to the integration of technology to support instruction in early childhood. The program will simultaneously support student learning and the professional development of practicing in-service teachers and preservice teachers at three elementary schools and one middle school, all Title I schools. The curricular focus of this student learning and professional development work will be largely rooted in each individual school site’s needs, and directly connected to the Montana Common Core Standards (MCCS).

A key goal of this on-going effort is to support symbiosis, where all involved gain something from participation. Beneficiaries of this design include practicing inservice teachers, P-8 students, MSU preservice teachers, and MSU faculty members. And this learning happens simultaneously via relationships where these stakeholders are working together, or “side-by-side”. The participating cooperating teachers gain professional development in MCCS and other standards-based instruction, and the help and assistance of eager education students excited to begin honing their skills as teachers. Participating P-8 students benefit from the opportunity to engage in often innovative and exciting STEAM-based activities delivered by the preservice teachers that have been co-planned in tandem with inservice teachers. Preservice teachers are provided opportunities to gain invaluable experience by working with expert practicing teachers. Lastly, teacher education faculty are provided opportunities for close collaboration with practicing teachers, reducing the gap between higher education and P-12 instruction. And all of this instruction and training happens within the
context of a real school, a concept we are calling "site-based". Therefore, the concepts of "site-based" and "side-by-side" become hallmarks of the design for this project.

The plans outlined in this proposal build upon the momentum created by this very special partnership, in addition to a previously funded OCHE Title II project aimed at providing high-quality interdisciplinary and STEAM-related professional development. Combined, these efforts are working toward advancing teacher growth across all levels of the professional continuum, from preservice teachers to veteran inservice teachers, and ultimately to improve student learning.

In regard to identifying specific local needs, this project addresses three key domains indicative of need: 1) The project continues to build upon a partnership between a high-needs LEA and a teacher preparation program; 2) The project addresses teaching and professional needs as indicated by partner schools’ administrators and teachers; and 3) The project addresses the coursework and clinical practice needs of a teacher education program.

**High-Needs LEA:** First, the participating Bozeman School District schools participating in this grant are considered high-need, with each partner school being Title I school wide or having targeted assistance. By building upon a successful model based on the side-by-side, site-based approach, this project can leverage the presence of preservice teachers in the school to bring to bear additional resources for the high-need P-8 students. More trained educators in the building will provide more opportunities to support those high needs P-8 students. Table 1 provides each partner school’s Title I status and percentage of students who qualify for free and reduced lunch.

**Table 1.** Partner schools’ Title I status and free/reduced-price lunch eligibility

<table>
<thead>
<tr>
<th>School</th>
<th>Title I Status</th>
<th>% of students that qualify for free and reduced lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whittier Elementary School</td>
<td>Title I School Wide</td>
<td>48.99%</td>
</tr>
<tr>
<td>Hyalite Elementary School</td>
<td>Title I Targeted Assistance</td>
<td>38.48%</td>
</tr>
<tr>
<td>Irving Elementary School</td>
<td>Title I Targeted Assistance</td>
<td>40.27%</td>
</tr>
<tr>
<td>Chief Joseph Middle School</td>
<td>Title I Targeted Assistance</td>
<td>26.52%</td>
</tr>
</tbody>
</table>

**Partner Schools Professional Development Needs:** First, a large set of research on technology and
STEM suggests that digital learning tools hold potential to significantly advance students' learning in the STEM content areas (Bell & Trundle, 2008; Finkelstein et al., 2005; Fisch, Lesh, Motoki, Crespo, and Melfi, 2010; Kebritchi, Hirumi, and Bai, 2010; Klisch, Miller, Beier, and Wang, 2012; McKagan et al., 2008; Miller, Chang, Wang, Beier, and Klisch, 2011). In these cases, technology provides learner support for the collection and analysis of data, generation of models to test hypotheses, and simulations that provide insight into invisible processes that support students' construction of complex scientific understandings. Further, research has found that technology can be leveraged to significantly improve students’ learning in science, especially when accompanied and supported by high-quality professional development (Gerard, Varma, Corliss, and Linn, 2011).

Out of all elementary teachers in the District, there are presently no K-5 classroom teachers with a math or science endorsement. In addition, despite nominally appropriate formal certifications among BSD teachers, none have endorsements specific to STEAM content; there is a strong need for expanding STEAM competencies among elementary and middle school teachers in the Bozeman Public School District. Additionally, a series of ongoing formal conversations have been taking place between the Department of Education and the principals at the participating schools. During these discussions, the principals have each indicated that there is great interest in: 1) Continuing to build upon the partnership established between MSU and the Bozeman School District; 2) Providing more opportunities for their P-8 learners to engage in high-quality STEAM-related instruction as it aligns to MCCS and standards-based instruction; 3) Providing their practicing teachers high-quality, innovative, continuous and on-going professional development in STEAM instruction as it aligns to MCCS and standards-based instruction; 4) And providing the new generation of teachers, in this case MSU preservice teachers, increased opportunities to work with P-8 learners and inservice teachers in the interest of contributing to professional practice and improving education.

Teacher Education Needs: Research indicates that clinical field experiences provide preservice teachers critical opportunities to wrestle with and think about how students learn, and contend with the issues surrounding technology integration (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005). Teachers must also experience the positive effects technology has on teaching and learning. New teachers entering the profession need opportunities to develop positive beliefs about
“the use of technology in a wide variety of ways” (p. 309). These kinds of experiences can readily evolve out of co-teaching scenarios where preservice teachers are paired with expert in-service teachers. Further, a field-based approach to preparation for technology-integration affords occasions where preservice teachers are able to not only design, but also deliver, technology-based instruction in a hands-on environment (Hay, 2006). Given this approach, preservice teachers can design these STEAM-related activities in tandem with cooperating teachers, providing those in-service educators with exposure to new learning innovations, and providing support the teachers need to successfully integrate these innovations into their classroom practice. For example, preservice teachers may work closely with a cooperating inservice teacher to design and implement a developmentally appropriate lesson that introduces computer coding and programming, and co-plan the integration of English Language Arts (ELA) concepts into that lesson to support purposeful interdisciplinary instruction. Zeichner (2010) reiterated the importance of this approach, and points out that field experiences serve as a place for preservice teacher learning that is much more than just application of theory or skills. These types of clinical experiences allow preservice teachers opportunities to identify their own educational beliefs, develop a sense of what defines good teaching, affirm career decisions, and develop self-confidence (Bennie, 1982; Byrde & Garofolo, 1982; Erdman, 1983).

Most importantly, this project will reduce the gap between teacher education and practice. By embedding teacher educators and preservice teachers within the context of a school, and providing continuous opportunities to study theory, and immediately apply pedagogies in a real classroom, preservice teachers will more readily connect theory and practice. Further, project design gives teacher education faculty immediate contact with practicing teachers and learners, directly engaging common complaints about the disconnect between teacher education and practice. The site-based side-by-side learning practice will directly link teacher education and practice.

Goals of the Project and Alignment to Requirements and Priorities

Goals for this project align with the grant requirements, as well as a number of the priorities for funding. These requirements and funding priorities will structure implementation of the “Side-by-Side Learning Model”. The following section details how the structure of the project aligns with both
general grant requirements and funding priorities.

Alignment with the Basic Grant Requirements: First, the foundation for this proposal lies in the growth of an already-established and significant partnership between MSU and the Bozeman Public School District. Collaborative partners include the MSU College of Education, Health, and Human Development (EHHD) and the MSU College of Engineering (COE), and the Bozeman School District, a high-need LEA as outlined above. Secondly, this proposal focuses its impact on helping the high-need schools ensure teachers are highly qualified and have the knowledge and teaching skills they need to help all students achieve to high standards. A primary end goal in this domain is to equip teachers with the necessary knowledge of how to use digital learning tools to enhance student learning. Third, the teacher professional development outcomes of this partnership and capacity-building effort are in-service and pre-service teacher training on the skills needed to utilize technology to enhance student learning in STEAM. For example, training might include a focus on the use of technology as a mechanism for integrating science instruction with language arts, or using technology to bridge connections between science and engineering practices.

Another key component of the planned professional development will include lesson study (Fernandez & Yoshida, 2004). Lesson study is the professional development model in which teams of teachers research, co-plan, and co-teach instruction in an effort to systematically and scientifically study how students learn (see Figure 1). Several key components of lesson study define this unique approach to professional development. First, lesson study includes emphasis on planning based on researched best practices. Secondly, there is an iterative nature to the lesson cycle, where teachers work together to plan a lesson, observe one another teaching that lesson, and then revise the lesson based on conclusions drawn about instructional strategies and student learning, all in the interest of driving future practice. In the lesson study approach as it applies to the side-by-side model outlined in this proposal, preservice teachers and inservice teachers will work together to form goals for student learning and their own professional development, collaboratively plan research-based lessons, teach the lessons while being observed by other team members, and then revise and re-teach based on debriefing conversations and lessons learned. Ultimately, “lesson study places teachers in the role of researchers in their classrooms through a teacher-led process of professional
development” (Hurd & Licciardo-Musso, 2005, p. 389).

Figure 1. Lesson Study Cycle

Adapted from Hurd & Licciardo-Musso (2005).

What is learned about the efficacy of the side-by-side model for P-8 and preservice teacher learning and inservice teacher professional development will be disseminated throughout Montana through presentations at statewide conferences such as Montana Education Association/Montana Federation of Teachers (MEA/MFT) and the Montana Conference on Educational Leadership (MCEL) annual meetings, as well as regional research conferences such as Northern Rocky Mountains Educational Research Association (NRMERA). Further, there is vast potential for teacher education programs within Montana to partner with rural districts, using the side-by-side model to provide opportunities for high-quality P-12 instruction and teacher professional development. To address this need, findings from the evaluation of the side-by-side project will be leveraged in the establishment of further partnerships between MSU and school districts in Southwest Montana and beyond, including building stronger connections with rural partners. And finally, program evaluation and assessment on the effectiveness of the model will be systematic and scientifically rooted in an effort to validate and discover potential for improvements to the side-by-side design.
Alignment with the OCHE Mission: If funded this project will provide opportunities for high-quality learning and professional development in contexts ranging from preschool age children through adult professionals. The project design will provide innovative school-site-based curricula for pre-service teachers in which an authentic school environment serves as the hub for side-by-side learning for all participants. This results in symbiosis in which early childhood and elementary preservice teachers learn about in-service teachers’ professional development needs and student skill development needs, and the pre-service teachers provide the outside impulse and momentum for learning and engaging their teacher/student partners in classroom lessons. The cooperating teachers are afforded professional development and the help and assistance of eager education students excited to begin honing their skills as teachers through these field experiences. Participating students benefit from the opportunity to engage in often innovative and exciting learning activities delivered by the preservice teachers. Preservice teachers are provided opportunities to gain invaluable experience by working with expert practicing teachers. And teacher education faculty are granted entrée into local schools and given the opportunity to work side-by-side with preservice and inservice teachers, further shrinking the divide between teacher education and practice.

Alignment with Improving Teacher Quality Funding Priorities: This proposal directly aligns with many of the Improving Teacher Quality (ITQ) funding priorities. First, the side-by-side learning addresses the student learning and professional development needs of four Title I schools in a high-need LEA. Second, although the professional development and teacher training work will focus on the individual needs indicated by each school site, all partner schools have agreed to a STEAM focus with discrete connections to MCCS and standards-based instruction. For example, at Hyalite Elementary, K-5 student learning, teacher professional development, and preservice teacher training will continue to emphasize an interdisciplinary approach to English language arts and science instruction, and how technology can be used to support teaching and learning in an integrated domain. Both the MCCS ELA standards and Next Generation Science Standards (NGSS) will continue to be an integral part of designing that instruction. Further, cooperating teachers will be able to take a graduate course in using technology to support STEAM instruction, a professional development opportunity that connects to their work with their P-8 students and MSU preservice teachers.
In addition, although the side-by-side model does not necessarily provide for concrete teacher recruitment and/or induction activities, it does provide preservice teachers a truly unique opportunity to become deeply embedded within a school context, affording them the chance to experience many facets of a school environment they wouldn’t otherwise experience as practicum students or student teachers completing a more traditional clinical field experience.

And lastly, the focus on technology-rich, STEAM-focused professional development aligns with the ITQ funding priority to address professional development as it relates to student achievement. Digital learning tools have potential to provide rich, relevant, and situated learning experiences. Instruction situated within technology-rich learning environments that support this kind of learning is becoming more and more commonplace as teachers work toward active and engaged learning partnerships between students and teachers (Rosen & Beck-Hill, 2012). Technology-rich environments have demonstrated the ability to increase student achievement, enhance differentiation in teaching and learning, raise student attendance, and decrease disciplinary actions (Moyer-Packenham & Suh, 2012; Pulford, 2011; Rosen & Beck-Hill, 2012). Researchers from the MSU Department of Education recently completed an extensive effectiveness study on Bozeman School District’s adoption of Chromebook computers. Among the many compelling findings from the study, results indicate that the use of the technology, in this case the Chromebook computers, positively influenced student achievement. More specifically, results from this study indicate that elementary Chromebook pilot participants scored significantly higher than non-Chromebook pilot participants for both the math and reading standardized district assessments. These results align with other research on technology-rich instruction that indicates that, under the right contextual circumstances, technology can be used to increase student achievement. This project will build upon this research, and support technology-rich student learning and professional development in P-8 instruction.

**Sustainability:** The project directors have designed this project with the intent to achieve sustainability in the model’s implementation across the four participating schools at a minimum. Funding will be used entirely for capacity building, planning, and evaluation. Once this groundwork has been completed, we expect the model will be able to continue with little or no additional
resources. If expanded, eventually the model may fully utilize current teacher educator capacity. One possible solution to continue expansion is to establish additional partner locations, but cycle through them from semester to semester or year to year. This scalable and distributed approach would serve two key purposes in sustainability: 1) It will manage resource constraints; 2) It will potentially distribute the model beyond Bozeman, allowing for high quality learning opportunities, teacher training, and professional development to be offered to rural districts and schools.

**Description of Project Activities**

The activities of the Side-by-Side Learning project can be broken down into three distinct phases: 1) Needs Assessment and Piloting; 2) Planning Retreat; 3) Implementation and Evaluation. Table 2 outlines these distinct phases, including the activities and participants who will be engaging in each.

*Needs Assessment and Small-Scale Side-By-Side Pilots*

During the spring of 2015, MSU faculty will meet with teachers and administrators during PIR days at each of the participating partner schools (Hyalite, Whittier, Irving, and Chief Joseph). During these meetings, formal and informal needs assessments will take place that will be used by MSU teacher education faculty to begin planning for the potential courses to be taught at each school site. Key to the program’s success will be addressing each school’s unique needs as it relates to STEAM education and technology-rich teaching and learning. Project directors have two purposes in ensuring that the focus of the student learning and professional development at each site will be organically derived based on the needs of each school. First, this approach will ensure that the reciprocal relationship between inservice teachers and preservice teachers is aligned directly to teaching and learning needs relevant to that particular school and context. Second, it will ensure that the focus of respective teacher education courses to be taught at each school site is directly aligned to practice. This will prevent potentially irrelevant and disconnected content from being addressed in these courses, and instead will ensure that what is being taught in those courses has direct application and relevance to the clinical context in which the instruction will be delivered.

In addition to discussing alignment of teacher education courses to the instructional and professional development needs of each school, MSU faculty will discuss logistical components of the
site-based side-by-side learning. This includes such practicalities of arranging space at appropriate times for the MSU teacher education courses to be taught at the school site, and scheduling the collaborations between preservice and inservice teachers.

This phase of the project will also include small-scale pilot implementations at each school site. These will not be full-scaled courses where the entire class is taught at the school site and conducted in collaboration with inservice teachers. Instead, pilot activities will provide for stakeholders an introduction to the site-based side-by-side model, and offer opportunities for one or two individual classes (not entire courses) to be taught at that site in collaboration with inservice teachers. For example, the Early Childhood Curriculum course may visit Whittier Elementary preschool and early elementary classrooms several times over the course of the spring, and deliver small group lessons in different content areas aligned to that school’s particular curricular needs. Again, the intent of these small-scale pilots is to offer opportunities to begin to explore how the full-scale model might work, and what learning and professional development needs the model may address at each school site.

Planning Retreat

The primary goal of the 3-day planning retreat to be held in June 2015 will be to provide a venue in which the participating BSD teachers and principals, MSU preservice teachers, MSU faculty, and BSD instructional coaches or administrators can discuss the reciprocal nature of the partnership. The planning retreat will also include technology-focused professional development provided by Montana consulting firm Beyond the Chalk that specializes in technology integration across disciplines. The retreat will be largely modeled after the very successful 2-day planning retreat held in May 2014 for the OCHE Title II-funded project upon which this proposal is built.

Retreat Day One discussion will address how MSU preservice teachers can provide BSD teacher professional development regarding uses of technology to improve learning for BSD students. Efforts will focus on how to improve the design and delivery of innovative, technology-rich lessons in a co-teaching fashion that pairs BSD teachers and MSU preservice teachers. Retreat discussions will also address how the MSU preservice teachers can work more closely with the BSD teachers on designing and implementing standards-based instruction.

Retreat Day Two will focus on lesson study, the professional development model in which teams
of teachers research, co-plan, and co-teach instruction in an effort to systematically and scientifically study how students learn. In this case, preservice and inservice teachers will engage in lesson study collaboratively, further cementing the site-based learning approach and reciprocal relationships. Day two will include being introduced to and analyzing the protocols for lesson study, and building the necessary relationships for successful lesson study design, concluding with development of principles and plans for how the inservice teachers and preservice teachers will work together using the lesson study approach. As time allows, inservice teachers will begin co-planning with MSU teacher education faculty lessons to be taught in the fall with preservice teachers.

Retreat Day Three will provide professional development focused on technology-rich instruction, STEAM, and the meeting of MCCS and other standards-based instruction. Teachers will spend time exploring several simple, yet innovative and best-practice technologies that can be used to support teaching and learning across content areas. A particular focus will be on the use of technologies to bridge content areas while simultaneously addressing MCCS math and ELA standards, as well as other standards-based instructional frameworks like Next Generation Science Standards (NGSS), which are currently being piloted at several locations in BSD. For example, digital storytelling will be introduced to teachers, along with the wide variety of technical web-based tools that can be used to produce digital stories. Then, teachers will explore how the digital storytelling concept can be applied across content areas in an effort to address a variety of content standards.

**Implementation**

In Fall 2015, full implementation of the site-based side-by-side model will take place. During this period, each partner school will host MSU teacher education courses in one fashion or another. The specific details for the relationships at each of these schools will vary from site to site. However, what is known is that the curricular content for P-8 learning, preservice teacher training, and inservice teacher professional development, will be organically derived based on each school’s needs and curricular foci. Again, that particular data and needs assessment will be collected in the Spring 2015. Further, what is known is that the curricular foci at each site will have connections to STEAM, technology-rich teaching and learning, and MCCS and standards-based instruction. And lastly, the lesson study approach will have a presence at each location.
Table 3 provides an overview of all three activity phases and participants. The project's evaluation plan is provided below.

**Table 3. Project Phases and Activities**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Time</th>
<th>Activities</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs Assessment and Pilots</td>
<td>Spring 2015</td>
<td>1) Needs assessment (formal and informal) conducted at each school site 2) Planning meetings with inservice teachers, administrators, and MSU faculty on potential points of collaboration and possible MSU courses to be taught at that school site 3) Small-scale pilots where several possible MSU courses can visit the school sites and co-plan and co-teach with practicing teachers 4) Data collection and program evaluation</td>
<td>MSU preservice teachers</td>
</tr>
<tr>
<td>Planning Retreat</td>
<td>Summer 2015</td>
<td>1) Three-day planning retreat in June to discuss aligning MSU teacher education courses to the curricular and PD needs of participating school sites 2) Logistics work on securing collaborative classroom space at each school site 3) Data collection and program evaluation</td>
<td>MSU preservice teachers</td>
</tr>
<tr>
<td>Implementation and Evaluation</td>
<td>Fall 2015</td>
<td>1) Launch site-based side-by-side model and collaborative classrooms at each school site 2) Co-planning and co-teaching between MSU preservice and BSD inservice teachers 3) Lesson Studies 4) Data collection and program evaluation</td>
<td>MSU preservice teachers</td>
</tr>
</tbody>
</table>
Collaboration Vignettes. The following vignettes offer examples of how the side-by-side model might evolve at each school site.

**Whittier Elementary.** The partnership will build on teachers’ current implementation of STEAM lessons in the early grades (preschool – grade 3). An undergraduate research assistant will help to gather and evaluate the needs of the school. Alignment with MSU’s Early Childhood Education program will include a focus on early childhood literacy. In addition to receiving content instruction on campus, preservice teachers will observe Whittier students and teachers in the classroom, reflect on best teaching practices, and collaborate with experienced Whittier teachers at the preschool, first, second, and third grade levels to implement developmentally appropriate literacy-based activities focused on math, science, and technology. Collaborative debrief and reflection through the fall semester will provide the preservice teachers critical thinking opportunities and allow the Whittier teachers to reflect on their professional practice and document student learning.

**Hyalite Elementary.** This partnership will build on the previously established model piloted with help of 2014 OCHE Title II ITQ funds. Through the needs assessment process, MSU science, ELA, and technology integration methods faculty will have in-depth conversations with cooperating Hyalite teachers about their student learning needs and professional development goals. Because of the already-established partnership, small-scale pilots that address these needs can be implemented in Spring 2015. Then, in Fall 2015, during the full-scale implementation, participating inservice teachers, preservice teachers, and MSU faculty will co-plan and co-teach under the lesson study framework, systematically collecting data on how lessons address student needs and learning, and revise lessons accordingly. This lesson study approach will provide precision to the collaborations between participants, providing structure and focus for addressing Hyalite’s student learning needs and professional development goals.

**Irving Elementary.** The Irving partnership is expected to extend the Collaborative Classroom model established last year at Hyalite Elementary School, building on teachers’ existing planning, implementation, and reflection on STEAM lessons in grades one through five. Throughout the needs assessment process, MSU education faculty will have in-depth conversations with cooperating Irving teachers and administrators in regard to the integration of STEAM content, cultural diversity, and
Chromebook technology, appropriately align MSU teacher preparation coursework, and collaborate to design and test lessons that achieve this integration. Lessons will be studied in small-scale pilot events during the Spring 2015 semester to examine their efficacy and identify avenues for revision and improvement with the goal of full implementation in Fall 2015.

*Chief Joseph Middle School.* Initial conversations with Chief Joseph administrators and teachers have indicated that a desirable curricular focus could be how technology can be integrated into STEAM-related instruction to leverage student literacy instruction. In aligned teacher preparation courses, preservice teachers will use the lesson study approach in cooperation with inservice teachers.

*Possible Collaboration Points with MSU Teacher Education Courses.* The following is a list of the possible teacher education courses taught at MSU that might align with, and be used as points of collaboration with the different school sites. The Spring 2015 needs assessment will determine which courses best overlap with each school’s student learning and professional development needs. MSU courses which could potentially be offered in Collaborative Classroom contexts include: Multicultural Education; Emergent Literacy; Literature and Literacy for Children; Integrating Technology; Assessment; Methods: K-8 Math; Methods: K-8 Language Arts; Methods: K-8 Science; Methods: K-8 Creative Arts; Methods: K-8 Social Studies; Methods: 5-12 Art; Literacy Assessment, Diagnosis, & Instruction; Early Childhood Literacy; and Early Childhood Learning Environments.

**Evaluation Plan**

Measurable outcomes:

- Evaluation of student and teacher learning outcomes from the project (and technology use and integration by the teachers).
- Development of a strategic plan to continue implementation of STEAM teacher professional development programs that could provide annual professional development opportunities to support regional and state teachers in the design and implementation of technology-supported standards-based STEAM instruction with special emphasis on technology integration.
- Pre-service teachers’ performance in terms of application of knowledge and skills after
working with inservice teachers in the program.

- Inservice teachers’ performance before and after acquiring intended content knowledge.

With input from the other project directors, Dr. Kalonde will collect and tally information from all the evaluation instruments and tools described below and submit a written summary of the results as part of the final project report.

To help guide the evaluation of the project, Loucks-Horsley, Hewson, Love, and Stiles (1998) *Designing professional development for teachers of science and mathematics*, suggest several questions that should be asked before proceeding. These questions include: 1) What are the desired goals/outcomes? 2) What outcomes should be assessed and why? 3) How can these outcomes be measured? and 4) How can the results of these evaluations lead to continuous improvement? Using these guiding questions, the evaluation of this project will be done in five levels, and these will involve collection of data and scores as shown below:

**Level One: Participants’ Reactions**

Questions that guide this evaluation part will cover the Side by Side Learning through participation by practicing inservice teachers, P-8 students, MSU preservice teachers, and MSU faculty members. Questions will be addressed by administering a survey, analyzing participants’ performance through observations, and conducting focus groups, with questions covering both process and content.

**Level Two: Participants’ Learning**

This part will delve into participants achieving intended Content Knowledge goals. This will be done using pre and posttests to K-8 students and MSU preservice teachers to determine the project’s impact on classroom instruction and student achievement. Apart from the pre and posttests, the project will use district students’ performance records to follow participant teachers’ students’ performance comparing pre and post participation records for both students and teachers. The Montana Early learning Standards will guide assessment of preschoolers’ learning. Records also will be used to compare participating students to those of non-participating students. The other form of evaluation will include participants’ (both inservice and preservice teachers) learning outcomes and their application of the acquired new knowledge, gathered through classroom observations. The
information gathered will guide improvements in the format, content, and organization of continued implementation of the Side-by-Side on-site learning model. Student achievement records will be collected for the duration of the project and a year after for data analysis and comparative analysis and reporting. The OCHE-provided standardized survey will be administered to participating teachers at the end of 2015.

Level Three: School Support and Involvement

Level three seeks to evaluate how effectively: 1) the project is expanding the partnership between a high-needs LEA and a teacher training program; 2) the project addresses teaching and professional needs as indicated by partner schools’ administrators and teachers; and 3) the project addresses the training needs of a teacher education program. Evaluation methods will include direct observations, focus groups and surveys with both preservice teachers and inservice teachers and administrators. These will involve analysis of the implementation of resources, collegial support, the principals’ support, administrators’ leadership, provision of time, and recognition of success. Results of the evaluation will inform strategic planning to improve and expand the Side-by-Side model in Bozeman and beyond.

Level Four: Participants’ Application of New Knowledge and Skills

This part of the evaluation seeks to assess whether the project reduces the gap between teacher education and practice by embedding teacher educators and preservice teachers within the context of a school, and providing continuous opportunities to study theory, and immediately apply those pedagogies in a real classroom environment. This part will answer the question: Are the practices observed/reported really new or different from teacher educators’ (MSU faculty) prior behaviors? Gathering data will require and involve direct observation; focus groups with the MSU educators’ students, and participant portfolios.

Role of key project personnel

Dr. Nicholas Lux will teach several courses that will make major contributions to this project, and with grant funds will expend 17% of his AY Research effort and one summer month managing the grant and coordinating the project team, leading program plans for Side by Side Learning including
both preservice coursework and inservice Professional Development for each of the four schools, a	hree-day interdisciplinary STEAM curriculum and Side by Side Learning Model planning retreat, and
curricular implementation with Hypite and Irving Elementary Schools during Fall 2015.

Dr. Brock LaMeres will collaborate with STEAM P-8 content curriculum development and STEAM
teacher professional development content in Spring 2015, help plan and participate with the
Planning Retreat, and in Fall 2015 he will spend some time in each of the participating classrooms
where the children will have an opportunity to engage with and learn about the life of a practicing
engineer. His AY effort will be approximately 5% FTE, plus one quarter of a summer month.

Dr. Gilbert Kalonde will teach courses that will contribute to this project, and with grant funds will
expend 15% of his Research effort and .75 summer month contributing to the planning and
implementation of the Side by Side Learning model at Chief Joseph Middle School in collaboration
with various teachers for technology use across the curriculum. He will also collaborate in the
model’s implementation at Irving Elementary School. Dr. Kalonde will lead evaluation of the
project’s teacher preparation and professional development efforts in order to improve the model.

Dr. Christine Lux will teach courses that will contribute to this project, and with grant funds will
expend 10% of her Research effort and .5 summer month contributing to the planning and
implementation of the Side by Side Learning model at Whittier Elementary School, focusing on
supporting preservice and inservice teacher development for their pilot Pre-Kindergarten program.

Dr. Jayne Downey will contribute coordination with Irving Elementary School and overall guidance as
to how the Side-by-Side Learning Model can be more fully integrated across the teacher preparation
curriculum and beyond Bozeman School District school partnerships. She will not be paid on the
grant and no specific effort level can be specified.

Kathryn Will-Dubyak will contribute coordination and guidance in regard to the preservice teachers’
field experiences and clinical work. In addition, she teaches the English Language Arts methods
course at Hyalite Elementary School as part of the partnership. She will not be paid on the grant and
no specific effort level can be specified.

Research Assistants: The project will employ an Undergraduate RA 5 hours/week through the school
year and a GRA 20 hours/week through the summer of 2015 to assist with analyzing evaluation data.
References


### A) Costs for School of Education

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<th>Formula (x FTE or # of hours x amount)</th>
<th>Budgeted Amount</th>
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<tbody>
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<td>1 Salary (Name: Dr. H. Lee, 2. Dr. Katz, etc.)</td>
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### Operating Expenses

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</thead>
<tbody>
<tr>
<td>5 Commodity/Proc Services</td>
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<td></td>
</tr>
<tr>
<td>6 Stipends</td>
<td></td>
<td></td>
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<tr>
<td>7 Materials and Supplies</td>
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<tr>
<td>8 Communications</td>
<td></td>
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<tr>
<td>9 Employee Travel</td>
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<td>3 Employment Benefits</td>
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<td><strong>4 Total Personnel Services</strong></td>
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### Operating Expenses

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<tr>
<td>5 Commodity/Proc Services</td>
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<tr>
<td>6 Stipends</td>
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<td>7 Materials and Supplies</td>
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<td>8 Communications</td>
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<td>9 Employee Travel</td>
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<tr>
<td><strong>10 Total Operating Expenses</strong></td>
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<td><strong>11 Total Direct Costs (Lines 4+11)</strong></td>
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### C) Costs for LEA

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<th>Participant Costs</th>
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<td>1 Centers (Name: Student's Name)</td>
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<td>25 hours (2 days/3 days) Planning Retreat</td>
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<tr>
<td>2 Materials and Supplies for summer institute</td>
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<tr>
<td>3 Communications</td>
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<td></td>
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<tr>
<td>4 Non-employee travel - Beyond the chalk Teacher/ED Firm</td>
<td>$200/day includes travel</td>
<td>40 day, summer Planning Retreat</td>
<td>800</td>
</tr>
<tr>
<td>5 College Credit/Internship</td>
<td>$125/credit course</td>
<td>10 credits</td>
<td>1,250</td>
</tr>
<tr>
<td>6 Other (Specify) - BSD Indirect Costs</td>
<td>$25,390 x 4.40%</td>
<td></td>
<td><strong>1,117.12</strong></td>
</tr>
<tr>
<td><strong>8 Total Budget for LEA</strong></td>
<td></td>
<td></td>
<td><strong>290,605</strong></td>
</tr>
</tbody>
</table>

### D) Costs for Additional Partner(s)

<table>
<thead>
<tr>
<th>Participant Costs</th>
<th>Cost Basis (salary, wage, item cost)</th>
<th>Formula (x FTE or # of hours x amount)</th>
<th>Budgeted Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Centers (Name: Dr. C. Lee-MB) Health/Human Dev</td>
<td>$95/week; 75% 60% base</td>
<td>12/54/26 40% 35% 35% 37%</td>
<td>109,900</td>
</tr>
<tr>
<td>2 Stipends/Robustante - Undergrad Research Assistant</td>
<td>$10/hr + 7% benefits</td>
<td>30 hours/week, 30 weeks</td>
<td>15,15</td>
</tr>
<tr>
<td>3 Materials and Supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Communications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Non-employee travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 College Credit/Internship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Other (Specify) - Indirect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8 Total Budget for Partner School</strong></td>
<td></td>
<td></td>
<td><strong>135,141</strong></td>
</tr>
</tbody>
</table>

A) Total for School of Education (not to exceed 50%) Line A14 | 49,160 | 492,370 |
B) Total for College of Arts and Sciences (not to exceed 50%) Line B14 | 1,335 | 84,315 |
C) Total for LEA (not to exceed 50%) Line C8 | 20,035 | 229,664 |
D) Total for Additional Partners (not to exceed 50%) Line D9 | 12,870 | 125,581 |
E) Grand Total | | | **1,006,447** |

Signature of Institutional Grants Officer/Fiscal Department

**DALE HULS, Assistant Director**
Office of Sponsored Programs
Montana State University

X Dale Huls 11/6/14

Institutional Grants Officer/Fiscal Department
Scaling up the Bozeman Side by Side Learning Model Budget Justification

**MSU Department of Education: $49,237**

**Personnel: $43,738**

**MSU Faculty Salaries: $28,161**

*Dr. Nicholas Lux* will expend 17% of his Research effort and one summer month managing the grant and coordinating the project team, leading the development of joint MSU and school district plans for Side by Side Learning, leading the planning of both preservice coursework and inservice Professional Development for each of the four schools, including planning for and delivering and a three-day summer 2015 interdisciplinary STEAM curriculum and Side by Side Learning Model planning retreat, and implementing the plan and curriculum with Hyalite and Irving Elementary Schools during Fall 2015.

*Dr. Kalonde* will expend 15% of his Research effort and .75 summer month contributing to the planning and implementation of the Side by Side Learning model at Chief Joseph Middle School in collaboration with various teachers for technology use across the curriculum. He will also collaborate in the model's implementation at Irving Elementary School. As important, Dr. Kalonde will provide leadership to the project's evaluation of its teacher preparation and professional development agendas in order to improve the model across Bozeman Public Schools and beyond going forward.

**Graduate Research Assistant and Undergraduate Pre-Service Teachers : $6,900**

The project will employ a Graduate Research Assistant at 20 hours/week through the summer of 2015 to assist with analyzing evaluation data based on needs assessment as well as other project needs, and engage 10 undergraduate preservice teachers in June 2015 to participate with the 3-day Planning Retreat. The GRA will earn a salary of $4500 for the summer, and the undergraduates will earn $10 for three 8-hour days.

**Employee Benefits: $8,577**

Faculty benefits are paid at different rates during the Academic Year (37%) and summer (20%). Both Graduate and Undergraduate Students have a Fringe Benefit Rate of 1%.

**Non-Auditable Contributions:**

Dr. Lux and Dr. Kalonde will be organizing several of their 2015-16 courses to align with the Side-by-Side Learning model, and engaging their Spring 2015 courses in some pilot work with the model. Dr. Lux also will
contribute the use of his set of Chromebooks for lesson implementation.

Education Department Head Dr. Jayne Downey will contribute coordination with Irving Elementary School and overall guidance as to how the Side-by-Side Learning Model can be more fully integrated across the teacher preparation curriculum and beyond Bozeman School District school partnerships. The Department of Education will also contribute space for teachers and students at Irving Elementary School (4 blocks from MSU) to participate in the Side by Side curriculum with preservice teacher candidates, since Irving has no space available to accommodate preservice teacher course instruction. Given the proximity of the school to campus, some of the time the preservice teachers will meet on campus and then walk to Irving to collaborate in participating teachers’ classrooms. Other times Irving teachers and their students will make the journey. Director of Field Placement and Licensure, Kathryn Will-Dubyak, will contribute coordination and guidance in regard to the field experiences and clinical work. Further, Ms. Will-Dubyak currently teaches the English Language Arts methods course taught at Hyalite Elementary School as part of her current teaching load, and she will continue to do so if this grant is funded.

**Department of Education Total Direct Costs: $43,738**

**Indirect costs of 8% figured on the MSU Department of Education total and the first $25,000 of the Bozeman Public School District total (which will be distributed as a subaward): $5,499**

**MSU Electrical and Computer Engineering Department: $8,345**

**MSU Faculty Salary: $6,465**

Dr. Brock LaMeres collaborated with Dr. Lux in the 2014 OCHE Title II grant, including its planning retreat, and its robotics summer camp. He also participated in the fall school district Summit on STEM and robotics/coding education. His role in this 2015 grant will be to engage with the Side-by-Side model planning, collaborate with STEAM K-8 content curriculum development and STEAM teacher professional development content in Spring 2015, help plan and participate with the Planning Retreat, and in Fall 2015 he will spend some time in each of the participating classrooms where the children will have an opportunity to engage with and learn about the life of a practicing engineer. He will be paid $1000/month for two months in Spring and two months in Fall as Additional Compensation, and for one quarter of a summer month.

**Employee Benefits: $1262**
Faculty benefits are paid at 20% for Academic Year Additional Compensation and summer salary.

**MSU Department of Electrical and Computer Engineering**

Indirect costs of 8%: $7727 x 8% = $618

**LEA – Bozeman Public School District: $34,663**

**Teacher and Principal Stipends: $16,776**

The School District will pay twenty teachers at $19/hour plus 20% benefits to participate with the 3-day Planning Retreat (June 2015). They will be paid for 8 hours/day. The Principals or Assistant Principals also will be compensated for attending the Planning Retreat. Average daily rate (inclusive of benefits) for the Principals is $486. During the three-day retreat, teacher and administrator participants will engage in the following activities: Day 1: Teachers will participate in planning conversations about the collaborative site-based side-by-side model, including reviewing data from the current OCHE-sponsored project at Hyalite Elementary and discussing how to implement lessons learned about the collaborative side-by-side model; Day 2: Teachers and administrators will engage in a lesson study facilitator training with preservice teachers and MSU faculty; Day 3: Teachers will participate in technology-focused professional development to catalyze their instructional planning for fall 2015 at which time they will be collaborating with preservice teachers.

**Materials and Supplies: $2,620**

Lunches and snacks will be provided for the **3-day STEM summer institute** for 43-45 people, at $20/person/day. The 43 participants will include 20 teachers, 10 pre-service teachers from MSU, 6 Co-PIs, the principal and/or assistant principal from each of the four participating schools, and 2 BSD administrators and specialists for days 1 and 2, and two Beyond the Chalk STEAM curriculum consultants on day 3.

**Contracted Services: Beyond the Chalk: $2,000**

Mr. Dean Phillips and Dr. Jeff Crews will receive payment of $2,000 (inclusive of travel) to lead one day of professional development focused on technology-rich instruction, STEAM, and the meeting of MCCS and other standards-based instruction for the third day of the 3-day Planning Retreat.

**College Credits for an on-line Fall 2015 Educational Technology course, “EDCI 588: Using Technology to Support STEAM Learning”: $6,500**

Funds are budgeted for twenty participating teachers and/or paraprofessionals to build on and integrate and extend the on-going learning and teaching they are engaged with in the Side-by-Side Learning Model's
implementation in their schools. The 2-credit course is budgeted at $325/person for tuition.

**Non-Auditable Contributions:**

The Bozeman School District will contribute facilities for the PIR days, the summer Planning Retreat, and the Side by Side Learning implementation in the four participating schools. The participating schools will contribute the use of their on-site educational technology (including an iPad cart at Hyalite, and Chromebook carts at all the schools) for lesson implementation.

**Indirect BPSD costs of 5.48%: $26,700 x 5.48% = $1,463**

**MSU Department of Health and Human Development: $13,514**

**Personnel: $12,513**

**MSU Faculty Salaries: $8,400**

*Dr. Christine Lux* will expend 10% of her Research effort and .5 summer month contributing to the planning and implementation of the Side by Side Learning model at Whittier Elementary School with a particular focus on supporting preservice and inservice teacher development for their pilot Pre-Kindergarten program.

**Undergraduate Research Assistant: $1,500**

An Undergraduate Research Assistant will support Dr. C. Lux by gathering data and helping to evaluate the needs of Whittier Elementary School, conducting a STEAM early childhood curriculum review, and collecting data through observing students and teachers engaging in STEAM lessons.

**Employee Benefits: $2,613**

Faculty benefits are paid at different rates during the Academic Year (37%) and summer (20%).

Undergraduate Students have a Fringe Benefit Rate of 1%.

**Non-Auditable Contributions:**

Dr. C. Lux will organize multiple 2015-16 courses to align with the Side-by-Side Learning model, and engage her Spring 2015 courses in some pilot work with the model.

**MSU Department of Health & Human Development Indirect costs of 8%: $12,513 x 8% = $1,001**

**Direct Cost Total, all units = $91,874**

**F & A Total, all units = $8,291**

**GRANT TOTAL = $100,165**
APPENDIX A

STATEMENT OF ASSURANCES

The applicant hereby provides assurance to the Montana Office of the Commissioner of Higher Education that if a grant is received under the terms of the Improving Teacher Quality State Grant, Title II, Part A, it will:

Comply with audit requirements in accordance with the Federal Office of Management and Budget (OMB) Circular A-128 or A-133 as appropriate, and supply the Office of the Commissioner of Higher Education with a copy of the audit report for each fiscal year in which grant funds were expended within 60 days of the completion of the audit;

Comply with the administrative procedures of the Office of the Commissioner of Higher Education and all regulations, policies, and requirements, including Public Law 107-110; Education Department General Administrative Regulations (EDGAR) and the Office of Management and Budget Circulars No. A-102, A-110, A-133, and applicable cost principles (Circulars: A-21 Educational Institutions, A-87 Cost Principles for State and Local Governments, and A-122 Nonprofit Organizations) as they relate to the application, acceptance, and use of federal funds for this federally assisted project;

Comply with Title VI of the Civil Rights Act of 1964 (race, color, national origin), Section 504 of the Rehabilitation Act of 1973 (handicapped), Title IX of the Education Amendments of 1972 (sex) and the Age Discrimination Act of 1975 (age);

Retain all records for a period of five years and give the Office of the Commissioner of Higher Education, the Federal sponsoring agency or the State Auditor through any authorized representatives access to and the right to examine all records, books, papers, or documents related to the grant;

Comply with all provisions of the Title II, Improving Teacher Quality State Grants, Part A and make public all products (e.g., example capstone curricular materials including student assignments, tasks, prompts, and research and project ideas, assessment rubrics, performance exemplars, etc.) resulting from the project and in a format that can be posted to a web site and used by Montana school divisions and teachers.

Seek to provide greater access to all core academic disciplines to historically underrepresented and underserved groups;

Enter into agreement for professional development with school(s), school district or consortium of school districts or nonpublic schools in the area of proposed grant activity; and

Ensure equitable participation of personnel from nonpublic (private) schools to the extent feasible.

Montana State University - Bozeman
Institution/Organization

Dr. Martha Potvin
Name (Typed)

Provost and Vice President for Academic Affairs
Title (Typed)

X
Chief Academic Officer/Executive Director 11/17/14
November 3, 2014

Montana University System
Office of the Commissioner of Higher Education
PO Box 203201
Helena, MT 59620-3201

Re: Scaling up the Bozeman Side by Side Learning Model

Dear Title II Program Committee,

Please accept this letter as indication of my total support for the “Scaling up the Bozeman Side by Side Learning Model” proposal which will engage both the MSU Department of Education and the MSU Department of Health and Human Development within my college. I am delighted to be able to devote faculty, staff and student time to this endeavor, and committed 100% to this collaboration.

As Dean of the College of Education, Health, and Human Development (EHHD), I have witnessed considerable growth over the last year of the MSU/BSD partnership in teacher professional development. This project builds on the exciting new model for teacher training developed by Dr. Lux in collaboration with Hyalite principal Mike Van Vuren. This model engages preservice and inservice teachers together in side-by-side professional development organized around lesson development and delivery. We’re excited about this model because of the kinds of development it generates for our preservice teachers and we want to build on the model for expanding the program across the Bozeman school district and across the interest among our college’s faculty.

Further, this project presents exciting new opportunities for cross-college collaboration at MSU working with the College of Engineering. Engaging in research and outreach project like this with our partners in other colleges provides opportunities for ongoing idea exchanges about better preparing tomorrow’s teachers, and input into improving teacher education

In summary, I believe this project presents an innovative research-based design to deliver teacher professional development and STEAM learning opportunities for BSD students. We appreciate OCHE’s interest in the project and past support for this innovative partnership. Lessons learned from this project will certainly contribute not only to teaching and learning in Bozeman, but statewide and beyond too.

Sincerely,

Lynda Randsell, Ph.D., FACSM, CSCS
EHHD Dean and Professor
November 3, 2014

Dear Title II Program Committee,

I am pleased to express the commitment of the MSU Department of Electrical and Computer Engineering to support Dr. Brock LaMeres’ collaboration with the MSU Department of Education team that will implement the Scaling up the Bozeman Side by Side Learning Model project. Dr. LaMeres offers an extensive background in STEM education and has collaborated with Dr. Lux on the previous OCHE-funded project, Hyalite Partnership Evaluation and Summer STEM Camp. Dr. LaMeres will be able to bring his real-world engineering experience as well as his education expertise into the partnership and into Bozeman Public School classrooms.

Dr. LaMeres’ role in this 2015 grant will be to participate in planning for the Side-by-Side learning model, to collaborate with STEAM K-8 content curriculum development and teacher professional development in Spring 2015, and then to help plan and participate in the June 2015 Planning Retreat. In Fall 2015 he will spend some time in each of the participating classrooms where the children will have an opportunity to engage with and learn about the life and career of a practicing engineer.

Thank you for this opportunity to collaborate in helping K-8 teachers develop better ways to instill the competence, confidence, and enthusiasm among our students that is necessary for success in STEM fields.

Sincerely,

Robert C. Maher
Professor and Department Head
November 5, 2014

Montana University System
Office of the Commissioner of Higher Education
2500 Broadway Street
P.O. Box 203201
Helena, Montana 59620-3201

Re: Scaling up the Bozeman Side by Side Learning Model

To Whom This May Concern:

I am writing on behalf of Bozeman School District #7 to express strong support for the proposal submitted to OCHE for Scaling up the Bozeman Side by Side Learning Model.

In my position as Deputy Superintendent Instruction and as the liaison to Montana State University, I am very aware of three critical issues this grant addresses: (1) the need for teacher professional development in technology integration across the curriculum, STEM disciplines and literacy; (2) the importance of giving preservice teachers real-classroom opportunities well before their student teaching semesters; and (3) the value for our Title I schools to have more trained educators in their classrooms. It is a priority in our school district to engage with MSU to address these critical issues to educational success.

This project will find unique expressions in each of our participating schools: Hyalite, Irving and Whittier Elementary Schools, and Chief Joseph Middle School. Each will work with the MSU team in ways that meet their needs best, but all with themes that involve technology integration and STEAM content areas. At one site this might entail the integration of technology, science, and English language arts; at another a focus on computer science concepts like coding integrated with literacy instruction. At Whittier which is starting up a Pre-Kindergarten program, we expect the collaboration will involve the integration of technology to support instruction in early childhood.

We are thrilled that students, teachers, and future teachers will have the opportunity to continue to learn together in this innovative partnership. We believe that the activities and lessons learned in this grant will be a model for the rest of the Bozeman School District, as well as the state of Montana.

Sincerely,

Marilyn H. King, Ed.D.
Deputy Superintendent Instruction

Individual school letters are available upon request.
December 12, 2014

Montana University System
Office of the Commissioner of Higher Education
2500 Broadway Street
PO Box 203201
Helena, Montana 59620-3201

Re: Scaling up the Bozeman Side by Side Learning Model

To Whom This May Concern:

I am writing on behalf of the Belgrade School District to express strong support for the proposal submitted to OCHE for Scaling up the Bozeman Side by Side Learning Model. Having recently learned of the success of the project in Bozeman, we are excited about the possibility of bringing the model to Belgrade to support the training of pre-service teachers, as well as our in-service teachers’ needs.

In my position as Superintendent of the Belgrade School District, and as the liaison to Montana State University, I am very aware of three critical issues this grant addresses: (1) the need for teacher professional development in technology integration across the curriculum, STEM disciplines and literacy; (2) the importance of giving pre-service teachers real-classroom opportunities well before their student teaching semesters; and (3) the value for our Title I schools to have more trained educators in their classrooms. It is a priority in our school district to engage with MSU to address these critical issues to educational success.

We will work closely with MSU to determine specific sites within our district where this arrangement might be contextualized, and will work with the MSU team in ways that meet both of our needs in regard to professional development and the support of pre-service teacher training.

We are thrilled that students, teachers, and future teachers will have the opportunity to continue to learn together in this innovative partnership. We believe that the activities and lessons learned in this grant will be a model for the rest of the Belgrade School District, as well as the state of Montana.

Sincerely,

Candy Lubansky

Candy Lubansky, Superintendent
Belgrade Public Schools, 312 N. Weaver, Belgrade, Montana 59714
Phone: (406) 924-2006 Email: clubansky@belgradeschools.com
Nicholas J. Lux

(a) Professional Preparation
Pepperdine University  Liberal Arts/Elementary Education  B.A. 1998
Boston University  Educational Media and Technology  Ed.M. 2001
Boston University  Curriculum and Teaching  Ed.D. 2010

(b) Appointments
- 2011-Present  Assistant Professor, Montana State University, Bozeman, MT
- 2009-2011  Full-Time Adjunct Instructor, Montana State University, Bozeman, MT
- 2008-2009  Assessment Specialist, Montana State University, Bozeman, MT
- 2007-2008  Technology Trainer/Consultant, NELINET, Inc., Southborough, MA
- 2002-Present  Adjunct Professor, Bunker Hill Community College, Boston, MA
- 2001-2007  Lecturer, School of Education, Boston University, Boston, MA
- 2000-2001  Instructional Technologist, Boston University, Boston, MA

C. Related Awards and Honors
- 2014 Educational Technology Research & Development (ETR&D) Young Scholars Award
- Department of Education Excellence in Teaching Award, 2012-2013
- Department of Education Excellence in Service Award, 2011-2012
- Montana State University President’s Excellence in Teaching Award Nominee, 2011
- Montana State University Excellence in Online Teaching Nominee, 2011
- Montana State University Excellence in Online Teaching Nominee, 2009
- Pi Lambda Theta national education honor society nominee and inductee, 2001
- Phi Delta Kappa national education honor society nominee and inductee, 2007

D. Related Publications

E. Related Funded Projects

F. Synergistic Activities
- PI for OCHE 2014 ITQ Title II project “Hyalite partnership evaluation and summer STEM camp”
- Lead research on Bozeman Chromebook Pilot Study and Evaluation
- Lead faculty for the Montana State University Afterschool Program Tech Club partnership
- Educational technology professional development provider for Montana in-service teachers
Curriculum Vitae of Gilbert Kalonde

1115 S. Cedarview Dr., Bozeman, MT 59715
Office: 406-994 5775, kalonde@montana.edu

EDUCATION

Ph.D. Curriculum and Instruction, Southern Illinois University Carbondale, USA, May, 2014.


PROFESSIONAL EXPERIENCES

Aug. 2014 – Present Montana State University Bozeman
Assistant Professor – Technology Education and C & I

Research Assistant - Microcomputer Teaching Laboratory

Teaching Assistant - Undergraduate education courses

Mar. 1996 – June 2008 DSD Container Freight Station, LAX/California
Human Resources Director

Human Resources Representative/Analyst

Administrative Aide-Dean’s Office

High School Art & English Teacher

RESEARCH INTERESTS

Technology Integration for Inclusion in School –K-12
Technology Integration for Inclusion in Teacher Education
Educational Technology and Technology Education
Distance Learning
Jayne A. Downey, Ph.D.
Head, Department of Education
Montana State University
Bozeman, MT 59717

Academic Preparation
2002  Ph.D. in Educational Psychology, University of Northern Colorado, Greeley, CO
1996  M.A. in Counseling Psychology, Trinity International University, Deerfield, IL
1994  B.A. in Honors Psychology, University of Waterloo, Waterloo, ON

MSU Appointments
2013-present  Associate Dean, College of Education, Health, & Human Development
2010-present  Head, Department of Education
2008-present  Associate Professor, Department of Education
2005-2007  Assistant Dean, College of Education, Health, & Human Development
2002-2008  Assistant Professor, Department of Education

Sample of Publications


Downey, J. (2008). “It’s not as easy as it looks”: Preservice teachers’ insights about teaching emerging from an innovative Educational Psychology assignment. Teaching Educational Psychology.


Sample of Peer-Reviewed Research Presentations


Brock J. LaMeres

A. Professional Preparation

Montana State University, Bozeman, MT  
Electrical Engineering  B.S., 1998
University of Colorado, Colorado Springs, CO  
Electrical Engineering  M.S., 2001
University of Colorado, Boulder, CO  
Electrical Engineering  Ph.D., 2005

B. Appointments

Associate Professor  Montana State University – ECE Department  
7/12-present  Bozeman, MT 59717
Assistant Professor  Montana State University – ECE Department  
7/06-6/12  Bozeman, MT 59717
R&D HW Engineer  Agilent Technologies - Digital Validation Division  
1/99–7/06  Colorado Springs, CO 80907

C. Related Funded Projects

- NASA ESMD Innovative Project CAN (NNX10AN91A), $163,350 (PI), 9/10-8/13, Engaging Women in Engineering Through an 8-Week, Interdisciplinary Payload Design.
- Montana Space Grant Consortium (MSGC) - Educational Enhancement, $49,298 (PI), 1/13-12/14, Vertically Integrating a Robotics Thread Through the Undergraduate ECE Curriculum at MSU-Bozeman.
- Montana State University - Instructional Innovation Grant, $10,000 (PI), 1/13 - 12/13, Applying Adaptive Learning to a Digital Circuits Laboratory.
- National Science Foundation, (Award ID: 1432373), $298,102 (PI), 8/14-8/17, Deploying Adaptive Learning Environments to Overcome Background Deficiencies and Facilitate Mastery of Computer Engineering Content.

D. Related Publications


E. Related Synergistic Activities

- Invited Talk - "Are there limits to online learning?", National Academy of Engineering Frontiers of Engineering Education meeting, Irvine, CA, 10/26/14.
- Invited Talk - "Online STEM Education – Challenges and Opportunities", MSU Physics Colloquium, Bozeman, MT, 11/14/14.
CHRISTINE J. LUX, ED.D.

EDUCATION
Boston College  Elementary Education / Child in Society  B.A. 1995
Boston University  Educational Media and Technology  Ed.M. 2000
Boston University  Curriculum & Teaching  Ed.D. 2012

PROFESSIONAL APPOINTMENTS
2012 – present  Assistant Professor, Montana State University, Bozeman, MT
2008 – 2012  Non-tenure Track Faculty, Montana State University, Bozeman, MT
2010 – 2012  Preschool Director, MSU Child Development Center, Montana State University
2008 – 2010  Program Coordinator, Early Childhood Education Distance Partnership (ECEDP)
2009 – 2010  Program Evaluator, Early Childhood Education Distance Partnership (ECEDP)
2001 – 2007  Science and Technology Coordinator, Kingsley Montessori School, Boston, MA

PROFESSIONAL LICENSES AND CERTIFICATES
2012 Montana Early Childhood Practitioner Registry, Level 10
2008 Montana Elementary Curriculum (Grades K – 8) License
1995 Massachusetts Teacher Certificate (Grades 1 – 6)
1995 Massachusetts Lead Preschool Teacher Certificate

RESEARCH
RELATED PUBLICATIONS

RELATED PRESENTATIONS

AWARDS AND HONORS
2014 Department of Health & Human Development Outstanding Teacher Award
2013 President’s Excellence in Teaching Award (nomination)
2013 Academic Advising Award (nomination)
2007 Excellence in Teaching Award (nomination)
Kathryn Will-Dubyak

Education

Montana State University  Curriculum and Instruction  Ed.D. in progress
University of Florida  Reading and Literacy  M.Ed. 1993
University of Florida  Elementary Education  B.A. 1992

Leadership and Teaching Roles in Education

2014-present  Director of Field Placement and Licensure, MSU-Bozeman
2013-2014  Assistant Director of Field Placement and Licensure, MSU-Bozeman
2012-2013  Field Placement and Licensure Office, MSU-Bozeman
2012  Adjunct Professor and Field Supervisor, MSU-Bozeman
1997-1998  Practicum Field Supervisor, MSU-Bozeman
1993-1996  Classroom teacher of multi-grades K-8, Ophir School, Big Sky, Montana

Presentations

Refereed Conference Presentations


K-12 Professional Development Presentations


Related Awards

- Montana State University Teaching Innovation Award Nominee, 2015
- Kappa Delta Pi national educational honor society nominee and inductee, 1992

Synergistic Activities

- Developed the Practicum Pilot Project with the Bozeman School District to facilitate collaborative planning for grade level teams in the local elementary schools.
- Researcher on the Bozeman Chromebook Pilot Study and Evaluation