



Research Work Group Proposal Form

Initiative Research Objectives

- Identify highly effective evidence-based educator preparation practices
- Identify which highly effective evidence-based practices can be implemented with fidelity and rigor in Wyoming
- Adapt and refine highly effective evidence-based practices for implementation in Wyoming

Initiative Research Definitions

- **Candidate** – an individual enrolled in a professional educator preparation program
- **Completer** – an individual who has successfully complete a professional educator program
- **Educator Preparation Practices** – professional training, including courses, fieldwork in schools (including student teaching), and other experiences designed to equip prospective educators with the knowledge, attitudes, behaviors and skills needed to support the success of pre-school through grade 12 (P-12) students in their classrooms, schools and wider communities
- **Evidence-Based Practice** – practice developed by integrating the best available evidence including quantitative (numerical) and qualitative data. Data for evidence-based educator preparation practice include but are not limited to:
 - current educator preparation literature
 - meta-analyses (combined data from multiple studies)
 - historical research
 - experimental research
 - non-experimental research
 - exploratory, descriptive, and explanatory (cause and effect) research
 - outcomes data of P-12 students taught by program completers
 - employment outcomes of program completers, including persistence through induction programs and persistence in the profession
 - candidate perceptions of program effectiveness
 - employer (school district) perceptions of program effectiveness

Initiative Research Work Group Name

College of Education

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Proposal for Pilot Implementation (please provide narrative):

Problem Statement: Classroom management skills, collegial interaction, and collaboration skills have been identified as a major need of educator prep candidates. Although the theory behind these skills can be taught, they are really only learned **with-through** experience and practice. ~~Current courses offer few opportunities to practice other than role-play, and field experiences are necessarily limited.~~ **Traditional methods for** teaching classroom management, **personal interaction, and , and focused teaching** best-practice instructional ~~-strategies -do not provide enough~~ **time-practice opportunities for students** students outside of the simple role-playing activities within their coursework. ~~. In addition, because UW only has Albany County Schools on which to draw for local class-related practicum work, [CB1]it is extremely difficult to provide enough field experiences to practice these skills. -In addition, it is~~ While geographical constraints make it extremely difficult to provide enough field experience options for educators to consistently ~~s-to-practice~~ **e** these skills over time, limited numbers of ~~,and~~ field experiences **field experiences** also force teacher ~~the~~ candidates to react to ~~many~~ all circumstances while learning ~~experiences- at once,~~ rather than target one's ~~ed and focused~~ practice on a single skill.~~.~~

-In order to increase practice opportunities and improve these skills, the College of Education Research Work Group proposes to pilot the use of ~~the Mursion/TeachLive, a -mixed virtual~~ **classroom environment** ~~simulation-syste~~ equipped with professional technicians and a diverse

class of student avatar actors. The *TeachLive* laboratory will provide education majors with additional opportunities to hone their teaching methods and gain more confidence prior to student teaching experiences. Most importantly, *TeachLive Mursion* represents an innovative approach for preservice teachers to acquire new skills without placing real-time classes of students at risk during the learning process. ~~to providing targeted and focus practice opportunities by using a computer based mixed reality simulation system.~~ ~~Mursion represents an innovative approach to targeted and focus practice by using~~

Proposal: Use funding from the University of Wyoming Trustees Education Initiative to conduct a three-year pilot of the Mursion simulation system. This pilot is composed of the following elements:

1. ~~3-year~~3-year access to the Mursion simulation system
2. Access to a library of scenarios including classroom management situations, content instruction, and adult to adult interaction (e.g., parent teacher conferences, evaluation meetings, coaching, interactions with colleagues),
3. The development of 42 customized scenarios each year (104 total) developed in conjunction with UW faculty and partner school district input
4. 60 plus -hours of access time per year apportioned as follows: 30 hours to methods courses (EDST 3000, EDCI 4000), 15 hours to school leadership courses (e.g., EDAD 5030, EDAD 5150), and 15 hours available for partner school districts to use for teacher professional development
5. Technology equipment upgrades as needed
6. Training for faculty on how to use the system and facilitate feedback and reflection activities
7. On-site system manager
8. The development of a partnership with several school districts to gather input on new scenarios, to identify high needs areas aligned with evaluation models, and to explore ways that a school district could potentially use the simulation system for professional development and purposes

Outcomes:

1. Provide opportunities for educator prep candidates to practice, receive feedback on, and reflect on classroom practices (e.g., classroom management, content instruction)
2. Provide opportunities for educator prep and education leadership candidates to practice, receive feedback on, and reflect on adult to adult interaction (e.g., with colleagues, parents, community, and in evaluation and coaching situations)
3. Provide opportunities for school districts to experiment with a method for providing individual and targeted professional development.

Description of Intervention:

Mursion is a virtual training environment in which educator candidates practice complex instructional skills, including classroom management, content area instruction, interactions with adults, including other professionals and parents, and working with students with special needs in a safe, simulated environment. ~~Mursion was developed as part of the TeachLivE research project at the University of Central Florida with funding from the Gates Foundation. Currently, Mursion is in use in 65 universities and k-12 school systems as well as healthcare systems, hospitality businesses, and other business settings.~~ **Mursion was developed as part of the TeachLivE research project at the University of Central Florida with funding from the Gates Foundation. Currently, Mursion is in use in 65 universities and k-12 school systems as well as healthcare systems, hospitality businesses, and other business settings.**

Mursion uses a computer based mixed reality environment in which candidates interact with avatars representing small classes of students (up to five at a time), other professionals, parents, school leadership, or community members. The computer controls the physical movements and appearance of the avatar. A human actor, or simulation specialist, controls the interactions. The simulation specialists are selected and highly trained to provide as authentic a learning experience as is possible. The mixed reality approach enables each simulation to be hyper-responsive to the unique live performance of each individual learner, allowing learners to fully immerse themselves and thus produce significant and lasting changes in practice.

The blended model also enables Mursion to provide highly customized and cost-effective simulation experiences. ~~Each week~~ Mursion works with educator preparation faculties across the country to design, embed into coursework, and consistently deliver mixed-reality simulations for preservice teachers. Mursion currently has hundreds of scenarios specific to education settings in its library. New scenarios are added to the system on a regular basis. The system also allows for custom development of scenarios. Mursion can be used one on one with candidates or in a lab setting, with candidates taking turns to interact and other candidates viewing and reflecting on the experience. UW faculty would be ~~there~~ **present** in all cases to manage the experience as well as provide feedback and guide reflection.

The Mursion system is designed to focus on discrete skills and force common performance errors from which trainees can learn. It can also be personalized to the individual candidate's current level of skill by increasing or decreasing the difficulty of the interactions. The system also allows for multiple rounds of practice and feedback provided by UW faculty without having to arrange for field experiences.

The current proposal is to pilot the use of the Mursion simulation system in three areas: 1. An undergraduate methods course, 2. An education leadership course, and 3. District use for targeted professional development. The pilot will use the existing library of scenarios and the development of custom scenarios. The University would purchase access time from Mursion.

Access to the Mursion system is currently structured as a series of one year contracts, in which the University would purchase access to a predetermined number of hours to be used over the course of a full year. The university determines a scope of work for the year, which includes the number of access hours, required facilitator professional development, and the development of custom scenarios. Under this one-year contract, the university is obligated to use (or pay for) 80% of the contracted hours. The university would enter it a new contact with a new scope of work each year.

Usage of the system is determined by the University, Mursion has no limitations on who may use the hours. All usage would be coordinated and scheduled by the faculty coordinator, including any usage by outside partners. Usage is scheduled in advance in two-hours blocks. ~~Data on the use of the Mursion system will be collected from a variety of sources including school and faculty surveys, number of simulation hours used, evaluation of candidates using existing assessment tools, and the number of additional experiences and pieces of feedback that students have received, among others. In addition, the Research Work Group will reach out to other schools using the system for evaluation tools the school may have developed.~~

The Mursion library of scenarios contains scenarios developed by Mursion, and continues to grow as new scenarios are developed by Mursion users. Although these are considered “stock” scenarios, University faculty still have a large degree of control over how the scenario is implemented. The control includes pre-planning with the simulation specialist, selection of teaching and classroom management strategies, and the ability to set the degree of difficulty for the user. This degree of control, even in the “stock” simulations, allows University of Wyoming faculty and district personnel to address local and state specific needs. Also note that urban, rural, and suburban universities are currently using Mursion. Consequently, there are a host of scenarios that would be common in rural settings like Wyoming. [CB2]

In addition to the library of stock scenarios, the Mursion system allows for the development of custom scenarios designed to meet specific course content and local context requirements. Custom scenarios allow for the inclusion of new content or situations not already covered by the Mursion library and allow the University and district partners to address situations and needs unique to Wyoming. Mursion coordinates these activities utilizing an instructional design process. They start by facilitating a conversation with the local site about goals and outcomes, and ask that the local faculty be available for questions. A faculty stipend is proposed for participation in this process. Otherwise, the process is largely taken care of by Mursion, including basic scripting of specialist responses and avatar movement. Because the infrastructure is already in place, the development of a new scenario is relatively straightforward and quick. Scenarios can be created on an as-needed basis. It is proposed that the coordination of this process be the responsibility of the faculty coordinator.

In the future, should the pilot prove successful, the University of Wyoming College of Education could purchase a license to the system, train its own simulation specialists, and

provide access to the system to other schools in the University and to the school districts around the state. The College of Education could charge for access to the system, recouping the cost of licensing, and maintaining the system.

Evaluation Plan

A proposed evaluation plan includes the following components:

Year 1: During the first year of the pilot, the coordinator of the Mursion system and a graduate assistant hired to support the system will develop an evaluation plan and tools to be used to assess evaluation questions for each of the three audiences using the system, including a) preservice teachers; b) principal candidates; and c) in-service teachers. Many universities in the US use, and evaluate their use of Mursion; consequently, one important aspect of developing an evaluation plan will include seeking input pertaining to the evaluation and research plans used by other universities using Mursion. [CB3]

Year 2: During the second year of the Mursion pilot, the focus will be on data collection and analysis, using the evaluation tools developed in Year 1.

Year 3: During the third year of the Mursion pilot, the coordinator and graduate assistant will continue to collect data during the first semester (August-December) and will use the second semester (January-May) to analyze the full dataset and to develop a recommendation for next steps.

Research Questions

The following are proposed evaluation questions for each audience. The coordinator and the graduate assistant will work with program faculty to identify key objectives and revise these questions to fit desired objectives.

Evaluation Questions Related to Preservice Teachers

1. (behavior change) How are targeted skills among preservice teachers influenced over time within the Mursion system?
2. (transfer/district perceptions) What are mentor teacher perceptions of preservice teacher's classroom management prior to and after the introduction of Mursion?
3. (student perceptions) How do the expectations provided through Mursion compare to those in real-life experience?

Evaluation Questions Related to Principal Candidates

1. What are the targeted professional skills for principal candidates? [CB4]
2. How are targeted skills among principal candidates influenced over time within the Mursion system?

Evaluation Questions Related to In-service Teachers

1. How was the Mursion system used by the district (i.e., what targeted support did you seek)[CB5]?
2. Describe the nature of support the Mursion system provided to teachers in your district?[CB6]

Data Collection:

Data collection will be determined by the evaluation team during the first year of implementation. Many of the sources of usage data are already collected by Mursion, including hours of usage and recording of sessions. Additional usage data will be collected based on processes developed by the coordinator and graduate assistant.

Data collection on perceptions of the system may include surveys, interviews or focus groups with the three audiences, and/or student logs of usage, experiences and reflections with the system. Data collection on behavior change may use faculty and student surveys and interviews, video analysis and evaluation rubrics. Several of the schools currently using the Mursion system have evaluation rubrics already developed that could be modified for use in Wyoming.

Proposal's Alignment to Key Performance Indicator(s)¹

(Check all that apply.)

- Statewide perceptions** of the University of Wyoming College of Education
- Enrollment of Wyoming residents** in University of Wyoming College of Education
- Continuous improvement protocols** for field and clinical experiences, developed and implemented in partnership with school district partners
- Executed, active clinical partnership agreements** with Wyoming School Districts
- Employment of University of Wyoming graduates** in Wyoming schools
- National accreditation** from the Council for Accreditation of Educator Preparation (CAEP), with no Areas for Improvement or Stipulations related to CAEP Standard 4: Program Impact, Component 4.3: Satisfaction of Employers.
- State-of-the-art College of Education organizational structure, facilities, and technological capabilities** as measured by faculty and candidate collaboration and innovation, candidate perceptions of their experiences, and operational efficiencies as measured by resource monitoring and reporting.

¹ List complete as of February 2017. Research Work Groups will introduce additional Key Performance Indicators for Governing Board review and action.

Funding Request to Support Pilot Implementation (by Academic Year)

2017-2018 Total Request: \$ ~~34,430~~68,280

Subtotal Amount: \$10,000 Purpose: Access to simulation system hours

Subtotal Amount: \$54,000 Purpose: Custom scenario development

Subtotal Amount: \$32,000 Purpose: Equipment upgrades

Subtotal Amount: \$2,880 Purpose: Faculty professional development

Subtotal Amount: \$6550 Purpose: System Manager

Subtotal Amount: \$9000 Purpose: User Stipend

Subtotal Amount: \$ 31,850 Purpose: Program Evaluation

2018-2019 Total Request \$ ~~36,550~~70,400

Subtotal Amount: \$13,000 Purpose: Access to simulation system hours

Subtotal Amount: \$54,000 Purpose: Custom scenario development

Subtotal Amount: \$2,000 Purpose: Equipment upgrades

Subtotal Amount: \$32,000 Purpose: School District partner meetings

Subtotal Amount: \$6550 Purpose: System Manager

Subtotal Amount: \$9000 Purpose: User Stipend

Subtotal Amount: \$ 31,850 Purpose: Program Evaluation

2019-2020 Total Request \$ ~~36,550~~67,900

Subtotal Amount: \$15,000 Purpose: Access to simulation system hours

Subtotal Amount: \$4,000 Purpose: Custom scenario development

Subtotal Amount: \$32,000 Purpose: School District partner meetings

Subtotal Amount: \$6550 Purpose: System Manager

Subtotal Amount: \$9000 Purpose: User Stipend

Subtotal Amount: \$31,850 Purpose: Program Evaluation

Budget Narrative to Support Funding Request:

For each of the academic years presented in this proposal, we provide the following rationale to support our funding request.

Access to 60 hours of Mursion’s classroom and individual simulation system: \$10,000 during year 1; \$13,000 during year 2; \$15,000 during year 3.

Access to 60 hours of Mursion simulations will be divided across specified courses in both the undergraduate teacher education program and the graduate principal preparation program, as well as school districts who request access, with priority given to the CoE programs, during the first year. Students and instructors in those specified classes will plan and implement either individual or group simulation sessions, as described below.

Individual Simulation Sessions:

Learners individually experience unique scenarios focused on one or two discrete skills with live feedback. Each session is recorded for reflection and coaching. Designed for private practice, self-reflection, and spaced learning. There is a package of three simulation sessions with video of each interaction for feedback and coaching. The cost of scenario design is included. Price: \$100/learner.

Virtual Group Workshops:

Learners are grouped together in teams of 3-5, each experiencing at least one scenario directly with the avatar(s). Mursion (or our own facilitator) can facilitate workshops. Each session is recorded for reflection and coaching. Designed to promote peer-to-peer learning. Session is one, interactive virtual workshop lasting approximately one hour. The cost of scenario design is included. Price: \$200/workshop.

The increase in hours purchased during years 2 and 3 is based on the assumption that additional school districts and/or faculty members will wish to use the system and allows us to purchase additional hours of access as needed.

Custom scenario development: ~~\$540500~~ per year during years 1 and 2; ~~\$250500~~ during year 3

Mursion provides already-developed simulation scenarios that are available to use within the cost of the hourly or per-learner access described above. However, it is quite likely that instructors will want to design scenarios that are specific to course outcomes and/or program standards. Custom scenarios are built on an individual **as-needed** basis, with the support of Mursion staff. Mursion then trains its own staff to provide the custom scenario for specified audiences. Development of each custom scenario costs approximately \$1000, so this portion of the budget provides for 4 custom scenarios per year for the first two years of the pilot, which may be used by the specified course instructors or by the districts receiving approval to use the system. **In addition, the budget includes a \$300 stipend for approximately 2-3 hours of faculty time preparing for the scenario development.** We anticipate less demand for custom scenarios in the third year of the pilot **because it is likely that custom scenario development during the first two years will focus on the needs of methods courses.**

Equipment upgrades: \$2000 per year during years 1 and 2

Mursion is designed to work on any computer with internet access. Existing University equipment, including computers and projectors, can be used to create a lab space suitable for the use of the system. If needed, existing spaces with video conferencing equipment, similar to the University outreach classroom could also be utilized. This budget line item is intended to provide maintenance and supplement existing systems. No purchases of equipment are anticipated at this time. ~~Classrooms in which the Mursion simulation system is used will need some equipment~~

~~upgrades, to ensure the smooth working of the system. In addition, as districts request and are approved to use the system, some equipment may be needed at the school site. This budget category allows for purchase of the necessary equipment for classrooms in which the Mursion system is used.~~ We anticipate no demand for equipment upgrades in the third year of the pilot.

School district partner meetings: \$32000 per year during years 1 and 2

As both the College of Education and our school district partners will be engaged in using the Mursion simulation systems, it is crucial that individuals engaged in the pilot meet to share best practices, resolve problems, **develop custom scenarios for targeted professional development** and suggest ways in which the system might be used to best advantage. This budget category provides for travel ~~expenses and meals~~**expenses, meals and substitute pay (if necessary)** for CoE and school district participants to meet in a central location in the state for 2 days out of each academic year. During the third year of the pilot, the expectation is that the university and school district partners will evaluate the success of the system and develop a recommendation regarding the use of the system going forward.

Faculty/school personnel professional development: \$2880 per year

Training for using the system takes approximately two hours and costs \$160/hr. Any faculty or school personnel using the system would need to take part in the training. This budget category includes training for 3 personnel from each of our three pilot participants: undergraduate teacher education, graduate principal preparation, and partner school districts.

System manager: \$6550 per year

One faculty member from the College of Education will be provided with a one-course buyout per semester to serve as the manager of the Mursion simulation system, which will include working with faculty members or teachers using the system, scheduling, coordinating with Mursion, and other responsibilities as needed. **In addition, the graduate assistant hired to support the evaluation of the pilot will be used to support implementation of the system, especially during year 1. These duties may include working with faculty to set up the lab and scheduling sessions with Mursion.**

User stipend: \$9000 per year

College of Education faculty members will receive a \$1000 annual stipend as incentive to invest time and energy in use of the system. **This stipend would be awarded based on the percentage of students in the faculty member's courses that participate in sessions with the Mursion simulator.**

Program Evaluation: \$25,931 per year

This line item includes costs associated with the hiring of a graduate assistant to conduct the evaluation (\$25,431) and miscellaneous expenses (\$500). Graduate assistant duties will include:

Year1: Developing the evaluation plan in conjunction with the coordinator, developing measures as needed, contacting other organizations that are using Mursion to gain insight on their evaluation efforts, and coordination of the program as described above.

Year 2: Collecting and analyzing data, coordination of the program

Year3: Final data collection in the fall, report on findings in the spring.

Literature Review



Reviewed and analyzed relevant current literature on the best practices for preparing professional educators

Literature Citations:

1. Bell, R. L., Maeng, J. L., & Binns, I. C. (2013). Learning in Context: Technology Integration in a Teacher Preparation Program Informed by Situated Learning Theory. *Journal of Research in Science Teaching*, 50(3), 348-379. doi:10.1002/tea.21075
2. Capizzi, A. M., Wehby, J. H., & Sandmel, K. N. (2010). Enhancing Mentoring of Teacher Candidates Through Consultative Feedback and Self-Evaluation of Instructional Delivery. *Teacher Education 36 and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 33(3), 191-212. doi:10.1177/0888406409360012
3. Coogle, C. G., Rahn, N. L., & Ottley, J. R. (2015). Pre-Service Teacher Use of Communication Strategies upon Receiving Immediate Feedback. *Early Childhood Research Quarterly*, 32, 105-115. doi:10.1016/j.ecresq.2015.03.003
4. Gale, E., Trief, E., & Lengel, J. (2010). The Use of Video Analysis in a Personnel Preparation Program for Teachers of Students Who Are Visually Impaired. *Journal of Visual Impairment & Blindness*, 104(11), 700-704.
5. Kaufman, D., & Moss, D.M. (2010). A new look at preservice teachers' conceptions of classroom management and organization: Uncovering complexity and dissonance. *The Teacher Educator* 45(2), 118-136.
6. Kennedy, M. J., Hart, J. E., & Kellems, R. O. (2011). Using Enhanced Podcasts to Augment Limited Instructional Time in Teacher Preparation. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 34(2), 87-105. doi:10.1177/0888406410376203
7. Mahon, J., Bryant, B., Brown, B., & Kim, M. (2010). Using Second Life to Enhance Classroom Management Practice in Teacher Education. *Educational Media International*, 47(2), 121-134. doi:10.1080/09523987.2010.492677
8. McPherson, R., Tyler-Wood, T., McEnturff Ellison, A., & Peak, P. (2011). Using a Computerized Classroom Simulation to Prepare Pre-Service Teachers. *Journal of Technology & Teacher Education*, 19(1), 93-110.
9. Mueller, M., & Hindin, A. (2011). An Analysis of the Factors That Influence Preservice Elementary Teachers' Developing Dispositions about Teaching All Children. *Issues in Teacher Education*, 20(1), 17-34.
10. Scheeler, M. C., McKinnon, K., & Stout, J. (2012). Effects of Immediate Feedback Delivered via Webcam and Bug-in-Ear Technology on Preservice Teacher Performance. *Teacher Education and Special 44 Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 35(1), 77-90. doi:10.1177/0888406411401919

11. Stover, K., Yearta, L. S., & Sease, R. (2014). "Experience Is the Best Tool for Teachers": Blogging to Provide Preservice Educators with Authentic Teaching Opportunities. *Journal of Language and Literacy Education*, 10(2), 99-117.
12. Straub, C., Dieker, L., Hynes, M., & Hughes, C. (2014). Using virtual rehearsal in TLE TeachLivE™ mixed reality classroom simulator to determine the effects on the performance of mathematics teachers. 2014 TeachLivE National Research Project: Year 1 Findings. University of Central Florida: Orlando, FL.
13. Straub, C., Dieker, L., Hynes, M., & Hughes, C. (2015). Using virtual rehearsal in TLE TeachLivE™ mixed reality classroom simulator to determine the effects on the performance of science teachers: A Follow-up Study (Year 2). 2015 TeachLivE National Research Project: Year 2 Findings. University of Central Florida: Orlando, FL.
14. Sun, J., & van Es, E. A. (2015). An Exploratory Study of the Influence That Analyzing Teaching Has on Preservice Teachers' Classroom Practice. *Journal of Teacher Education*, 66(3), 201-214. doi:10.1177/0022487115574103
15. Tal, C. (2010). Case Studies to Deepen Understanding and Enhance Classroom Management Skills in Preschool Teacher Training. *Early Childhood Education Journal*, 38(2), 143-152. doi:10.1007/s10643-010-0395-z
16. Yılmaz, H. & Cavas, P. H. (2007). Reliability and validity study of the students' motivation toward science learning questionnaire (in Turkish). *Elementary Education Online*, 6(3), 430-440.

Summary of Literature Review:

The research reviewed below illustrates the central role that experience, practice, and effective feedback must play for pre-service teachers to effectively learn complex skills such as classroom management, collaboration, and collegial interaction. Moreover, technology can serve as a powerful tool for learning these complex skills. Finally, preliminary research findings indicate that users of the system not only improve targeted skills with multiple short practice sessions, but also transfer these skills to the classroom setting.

Learning to manage the many complex demands of teaching (e.g., planning and implementing lessons, assessing student learning, reflecting on lesson effectiveness, etc.) is a complex undertaking for pre-service teachers. And, of all the complex demands placed on pre-service teachers as they learn to teach, managing student behavior can be one of the most daunting. In fact, classroom management is a longstanding concern, and oftentimes a serious pre-occupation, for pre-service teachers (Kaufman & Moss, 2010). Scholars (e.g., Yılmaz & Çavaş, 2010) have shown that effective practice can help pre-service teachers learn to thoughtfully manage student behavior during instruction. For example, in a study designed to enhance pre-service

teachers' development of classroom management skills, Tal (2010) found that the thoughtful use of in-depth case studies helped to improve pre-service teachers' classroom management skills. As well, meaningful practice working with students and then thoughtfully reflecting on that practice also improves pre-service teachers' classroom management skills (Yilmaz & Cavas, 2007).

Whether helping pre-service teachers learn to manage student behavior or engage in the other myriad aspects of teaching, a host of scholars argue that immediate, effective feedback plays a central role in fostering deeper and more meaningful student learning (Capizzi, Wehby, & Sandmel, 2010; Mueller & Hindin (2011). For example, using videotape analysis with structured expert coaching and self-evaluation, Capizzi, Wehby, and Sandmel (2010) noted significant improvement in pre-service teachers' instruction and classroom management. Using a variety of other means to provide immediate and effective feedback (e.g., bug-in-ear eCoaching; webcams and Bluetooth™ technology), other scholars noted similar improvement in pre-service teachers' quality of instruction and management (Coogle, Rahn, & Ottley, 2015; Scheeler, McKinnon, & Stout, 2012).

In addition to the use of meaningful practice and effective and immediate feedback, a number of scholars have explored how technology can be used as a tool to help pre-service teachers learn to teach. Studies of the use of online simulation systems in teacher preparation have found that candidates perceive them to be of great value, and that students that used these systems to practice scored higher on assessments of teaching practice (Mahon, Bryant, Brown, & Kim, 2010; McPherson, Tyler-Wood, McEnturff Ellison, & Peak, 2011). Other studies have used blogs, enhanced podcasts and video-based case examples to help pre-service teachers learn to manage the complex demands of instruction and classroom behavior (Stover, Yearata & Sease, 2014; Kennedy, Hart, & Kellems, 2011; Sun & van Es, 2015; Gale, Trief & Lengel; 2010). Other scholars (e.g., Bell, Maeng, & Binns, 2013) have studied ways to meaningfully integrate technology into student teaching experiences. Bell et al. (2013) found that the following practices improved pre-service teachers' abilities to meaningfully integrate technology into instructional practices: participating in lessons in which technology integration was modeled, collaborating with peers, and myriad opportunities for feedback and thoughtful reflection.

Ongoing evaluation studies of the TeachLivE system (the grant funded precursor to the Mursion system) have consistently revealed that repeated short practice sessions using the simulations improved targeted teaching behaviors, and more importantly, that the improvement in practice was transferred to the classroom settings (Straub, Dieker, Hynes, & Hughes, 2014; Straub, Dieker, Hynes, & Hughes, 2015).

Analysis of Current UW Teacher Program and Practice



Collected and analyzed relevant evidence from current educational practice and current educator preparation practice

Evidence Collected and Analyzed

1. 2015 UW College of Education Principal Survey
2. 2016 UW College of Education Principal Survey
3. TEI Town Hall Meeting Response Analysis 2017

Summary of Analysis of Current UW Teacher Program and Practice

When asked how well teacher education graduates from UW manage their classrooms, 22 of 55 principals in 2016 (41.5%) stated either extremely well or very well. Another 25 (47.2%) stated moderately well, 5 (9.43%) indicated slightly well, and 1 (1.89%) stated not well at all. When asked how UW teacher education graduates compared with others of similar teaching experience 18 of 53 (34%) principals said they were more able or significantly more able. Twenty-eight principals (52.8%) said there was no difference, and 7 (13.21%) said they were less able.

These are similar to results in 2015 where 22 of 39 principals (56.4%) stated graduates from UW were well or very well at managing the classroom effectively, 12 (30.8%) were average, and 5 (12.8%) were poor or very poor. When asked how UW teacher education graduates compared with others of similar teaching experience 12 of 39 (30.8%) principals said they were more able or significantly more able. Twenty principals (51.3%) said there was no difference, and 7 (17.9%) said they were less able or significantly less able.

An analysis of responses made during the series of town hall meetings between February and March 2017 indicated that several attendants negatively viewed the classroom management philosophies and skills of University of Wyoming-prepared novice educators. However, individuals stated there was also a need for greater funding sources and structure regarding the use of social workers to mitigate student issues beyond the scope of classroom management skills. Comments on page 14 of the town hall summary report focus exclusively on student teaching experiences (as opposed to recent graduates). However, they indicated limited preparation in effective classroom management prior to these experiences, particularly to defuse “emotional situations” and work with students that have special needs. Recommendation three from the report on these town hall meetings (p. 3) suggests that UW evaluate pre-service teachers regarding their knowledge and application of classroom management practices. Furthermore, they recommend that UW develop strong partnerships with school districts to provide field experiences that establish and maintain “a strong classroom environment with clear expectations for students.”

Although not directly related to classroom management, several town hall participants desired more online and outreach offerings to increase access to teacher education programs (pp. 19-21).

To a lesser extent, town hall meetings also focused on educational leadership experiences. Based on feedback provided in these meetings, UW was encouraged to strengthen educational leadership preparation regarding collaboration models, collaboration and support strategies with veteran teachers, and the development of a collaboration culture (p. 3). Quotations on pages 17 and 18 of the report provide additional details. Individuals claimed administrator interns needed more experience dealing with difficult employees, working with plans of assistance, and supervising/ evaluating employees.

Current practice for classroom experiences prior to the student teaching semester requires undergraduate teacher education students to have phased practicum experiences, beginning the freshman or sophomore year. For the bulk of the approximately 650 undergraduate students, this means that their practicum experiences occur in Albany County School District #1 and (to a lesser extent) Laramie County School District #1. Because the majority of the undergraduate teacher

education students live in Laramie, this puts a burden on local schools and teachers; it also limits the number of classroom teaching experiences that we can provide for students. Our hope is that the opportunity to experience simulations through Mursion's system will provide additional, high-quality opportunities to work on specific kinds of strategies, with substantial feedback, without putting additional load on local schools.

Evaluation of Regional and Leading Teacher Prep Programs

(Check all that apply.)

Programs Reviewed:

Traditional educator preparation programs in public and private universities across the United States

Names and Locations of Traditional Programs studied:

- University of Mississippi
- Auburn University
- University of Maine, Orono

Data Analysis

Qualitative Data Analyzed

- Interviews with educator preparation programs currently using the system

Summary of Data Findings

The Mursion simulation system is currently in use in 65 university educator preparation programs for teacher candidate preparation and K-12 school systems for targeted teacher professional development. In order to obtain information from educator preparation programs that have used Mursion's simulation system, we first requested information from Mursion on contact information from universities that are rural in nature. We received contact information for Auburn University (Alabama), University of Mississippi (Mississippi), and University of Maine (Maine). In this section, we provide information obtained from those administrators, using common questions. Note: The TeachLivE system referred to in the below comments is the first-generation system. Mursion was developed out of TeachLivE.

1. How long have you been using the TeachLivE/Mursion simulation system?

Mississippi: Four years.

Alabama: August 2017 will be a year. They are in the pilot phase.

Wrote a grant for \$47,000. (License for a year + training of two specialists) All of the universities that she spoke with are in the process of going from pay by the hour to a full license.

She is glad that she wrote the grant for a full year. Their College of Business wants to use it, so she will charge the folks from the College of Business, if there are any free simulation times, etc. She has three different tiers (CoEd. 1st tier); Second tier, university gets priority. 3rd tier, outside businesses (e.g., Law enforcement, Best Western, etc. She is exploring how to deal with difficult customers, etc.)

Kate's goal: To make this self-sustaining. Most universities have been charging student fees. She is trying to avoid this. Businesses have more money than education, so that is why she has the third tier she mentioned.

They hired 2 simulation specialists. (Licensing contract and another contract that deals with the training of your specialists. Mursion will advertise, recruit, and train the simulation specialists; Kate didn't have to do this.) Mursion sends a Google document showing their hires. Mursion strives to hire people in the A and B range. (Grade range is A through D.) The training takes 2 weeks, and trainers need to pass a Mursion test. (This is where the grades come from.)

Mursion is very flexible in figuring out what is needed and not needed. Your simulation is only as good as your actor and simulation specialist.

Maine: Year 2 of a 4-Year Project Commitment (*Maryellen Mahoney O'Neil, Assoc. Dean for Academic Services*). Mary found out about TeachLivE/Mursion at AACTE after talking with Dianne Hoff from University of West Georgia who was using it successfully within its COE.

4-Year Commitment: The Univ of Maine COE made a 4-Year commitment to building a TeachLivE Simulation Lab for use with its pre-service teachers and administrators. Maine also committed to covering all TeachLivE Lab use costs for the first 3 years. At the start of Year 4, Maine's COE will charge a \$15 service fee that students pay for each course in which they're enrolled that utilizes the TeachLivE Lab. After less than 2 years of implementation, Maine's COE staff is confident that it will have no problem with this fee requirement due to the excitement and successful learning for them that the TeachLivE Lab has already provided.

Success by Year 2: Maine's COE is almost to the end of its 2nd Year and is extremely pleased with the ease of use, responsiveness of the company, and the importance of providing such a learning opportunity to practice in front of a classroom prior to field experiences and student teaching. Maine's COE course instructors as well as its participating students feel that the opportunity to hone their communication skills and receive feedback from instructors and peers before appearing in front of a real classroom is invaluable. In fact, Mary reported that Maine's COE's recruitment numbers for their teacher training programs have increased by 29% since the implementation of this technology-rich simulation learning tool. There are other teacher training college programs in Maine, however, when pre-service teachers were surveyed about what helped in making their choice for attending the University of Maine (Orono) for their training, the presence of the Mursion/TeachLivE Lab as part of their training was highly valued. Students valued how the simulation allowed them to be the leader of the classroom with no mentor teaching guiding them through

situations yet provided the opportunity to practice, make mistakes, and correct. Being able to observe their peers in practice was also important. No other universities in Maine offer this learning tool.

Staffing: Maryellen Mahoney-O'Neil, UMaine Associate Dean of Academic Services, spearheaded the implementation of building the TeachLivE Training Lab. After looking back on Year 1, Mary was surprised that in terms of staffing for this additional service, she only needed to secure one COE graduate assistant for scheduling use of the Lab and 2 faculty members who embedded the use of this simulation into their teacher training course outlines. She remarked several times that what her faculty needed to know in order to use the TeachLivE Lab was very minimal. After the initial introduction to the TeachLivE Lab concept and the running the simulation software connection in the lab, the faculty said they could take over both the troubleshooting of technology and use of the lab by themselves as long as there was still a point person to schedule the lab visits. The University's IT Department was involved with the initial TeachLivE Lab conversations, but wasn't needed after the correct computer and TV screen had been purchased and installed on the network. A plus is that the TeachLivE Lab doesn't need technology purchased directly from the company. Only needs a large TV screen along with minimum computer specs for successful simulation of a teacher – classroom environment.

2. In what ways is the TeachLivE/Mursion simulation system utilized at your university? If used within the College of Education for field experience and/or during course work, please provide specifics.

Mississippi: Went all in. Through NCATE, supposed to have a variety of experiences. Did everything to provide candidates with different types of experience. Typical first experience -- send the student out to a placement, they would observe for 25 hours. In such a rural area, had trouble finding 800-100 placements within 60-70 miles. Students saying they were learning what not to do. So they did a pilot with TeachLivE, and it went very well. They have now put TeachLivE into first required course, before they get into teacher education (in their junior year). Students love to teach with TeachLivE. The experience was very popular. In this required course prior to teacher ed -- students teach a 10-15 minute lesson, 4 students at a time with a retired principal as a coach. It is a type of micro-teach. Even with four students at a time in the room, the experience changes every single time. The next step was to put it in place so that every student has to teach with TeachLivE. So in the second semester, TeachLivE is implemented in a second required course. They have implemented an option to have an ESL student in the class as well. This guarantees that every student has this experience. Candidates love it. The first time they are terrified. Afterwards, they talk about the students as if they are real. Sometimes they get more shots at it.

Alabama: Many of their classes have moved to online. It is hard, if not impossible, to teach behavior management online. She couldn't figure out a way to do this. She is using simulations for the gradual release of responsibility model with respect to behavior management. The simulation helps with this. She wants to see her students go through five steps of a verbal reprimand and other behavior management techniques/issues.

Methods courses: A big focus here for them right now is lesson planning. They focus on the intro, middle and ending of a lesson. The next scenario design might be a lesson with 2 to 3 pushbacks in terms of behavior problems during a lesson. Their SpEd folks have used Mursion for running an IEP meeting with two co-teachers. The College of Business wants to do interviews, deliver a high-stakes sales pitch, If you can dream of it, you can make a simulation. Counseling program using it for high-risk suicide prevention, etc. Kate and colleagues went to visit Ole Miss. They have a retired principal who runs the lab 24/7. She has it designed so that the professor is the one who gives the feedback. Kate prefers her approach because she and her colleagues don't think that one person has the appropriate content or disciplinary background for all subjects. Kate and her colleagues are drawing on Teach Live Proceedings as their research base. Five to 8 minutes in the typical length for most of their sessions, but they have found that students need immediate feedback. Counseling sessions will last longer, etc.

Maine: *Teacher Training* – Currently uses the TeachLivE Lab simulation during the first two years of their elementary/secondary/early childhood teacher training programs which involve field experiences and student teaching internships in actual classrooms. It supports the coursework that contains components of classroom management and the art of teaching in real time. It doesn't replace the pre-service teacher's time in a school or take away from valuable instruction time. Instructors embed practice in the Lab within their courses as a prompt for discussion and performance feedback. Another application is to gain experience in conducting meaningful parent/teacher conferences. It's a great tool for preparing pre-service teachers for on-the-floor situations they'll experience while participating in field experiences and student teaching. U of Maine sees strong applications for TeachLivE in Educational Leadership programming where pre-service administrators can practice mentoring new teachers as well as terminating contracts. TeachLivE is also embedded within other education programs such as RtI, Special Education, and Counseling.

3. What is working best with the TeachLivE/Mursion simulation system at your university? How do you ascertain this?

Mississippi: Goal -- to make sure that the first two experiences are great (both in the junior year. Highly recommend that you send multiple students into the room with TeachLivE. At UM, they always send in at least 3 students into the room, to get the most out of the coaching experience. They have hired a retired principal who is a great coach. He goes out into the hall. He talks them like it's a pep rally, then brings them into the room. First person up and turn it on. As the system has grown, have hired a teacher in the schools, to do her doctorate. Paid her a stipend to do it -- principal and teacher. Highly recommends having some kind of coach in there. Uses the same rubric for student teaching. Addresses those same rubrics.

Collect data on that. Scored for that and for everything. Looking at growth. First time they teach, they're not seasoned teachers, so it's important that someone can give them proper feedback. Doesn't hurt them. Evaluated using the same instrument over time.

Alabama: You want to do a slow rollout and you want to do it right. This is CRUCIAL! They have decided to give one free simulation hour for partner schools. These schools will bring their weak teachers in to try the simulations. Some schools want to do SpEd training with teachers. Kate got a classroom for their Mursion lab. She recommends this. This way the faculty can do a lecture and then run a simulation in the same room. Kate recommends thinking about what you want to do and how you want to do it and then working backwards from there.

Maine: Most important in the success of the TeachLivE Simulation tool has been the building of a high quality interactive lab environment in which to conduct the simulations. U of Maine COE designated a special room for the TeachLivE Lab so that it represented the feel of a classroom in their K-12 schools as much as it could. As a result, a great amount of excitement grew around it. It's definitely been a draw to the University of Maine's teaching program – a great recruitment tool. When potential students come on campus and inquire about UMaine's teaching program, the TeachLivE Lab short video (linked above) is shown during each recruitment open house to promote the innovative work that is being done in places like the TeachLivE mixed-reality laboratory. It demonstrates how U of Maine is breaking new ground in educator preparation.

Starting small (2 faculty embedding TeachLivE laboratory experiences in their courses) has worked best. Use the first year of implementation to learn and figure out best way in which to incorporate into key coursework. Be sure use of TeachLivE isn't just technology "hype" for teacher preparation. Incorporate it as a valuable learning tool within the courses that focus on classroom management and/or on teacher practice. Bringing 5-6 students at a time into the TeachLivE Lab works best. More is too intimidating when pre-service teachers are practicing. This gives students the opportunity to make mistakes in a non-threatening environment as well as interact, pause, reflect, and try again. The current faculty at U of Maine using TeachLivE, feel that although you can record the classroom response portion of the simulation, there is really no need to. The best learning takes place during the time pre-service teachers are in the simulation lab as a small group interacting.

Because of starting small and strategically implementing the simulation lab concept into key courses for the teacher training program only, U of Maine is expecting to triple the number of courses using it next fall! Expansion to Ed Leadership and other COE program areas will occur plus reaching out to school district superintendents and inviting them to the Lab so they can get a feel for how it might enhance their district's new teacher mentor programs or the interview process for new hires.

Mursion's Pre-Designed Packages: Even in Year 4, the U of Maine envisions continuing to use Mursion's interactive avatar simulation packages. They don't expect to venture into the customization world of simulations; this would mean a lot more work and possibly more staffing due to having to locate and train your own actors. Very pleased with the current middle school simulation packages that are applicable to 9-12 and upper elementary when focusing on classroom management or introducing a class or lesson. Maryellen just recently saw that the aspects of autism and very low IQ have been added to the simulations. She thought an elementary simulation was coming soon, but hasn't heard of its release date.

4. What is problematic with the TeachLivE/Mursion simulation system at your university? How do you ascertain this?

Mississippi: Have purchased the site license. The issue becomes, as you grow, you are scheduling so much with Mursion, with the site-license, you have to hire your own simulation people. Have station set up in office. They have had trouble finding people that Mursion approves of to hire. About to do another round of interviews, because they will only let someone they approve be the simulation person. They want a theater person. Now trying to get some of the best graduate assistants and people in the theater department involved. They suggest two people in a rotation. UM wants to send four people.

Dean Rock is a huge, huge supporter. Have placed a lab at every satellite classroom. Simulation person can be in Laramie or in Casper. Charging a student fee, even that, doesn't come close to covering. Covers the site license through the Dean's office. Department of Teacher Education covers the cost of personnel. Also looking at hiring a clinical person to cover TeachLivE.

Alabama: Kate hasn't had any bad experiences with any of the Mursion folks. Mursion has been amazing to work with. She has worked with lots of different Mursion people, and all of them have been great. Carrie, Robin and their IT people have been outstanding. Ole Miss, West Georgia, etc. Have had huge problems with their own universities in terms of getting the paperwork completed in their own universities. Since Kate's university hired their simulation specialists as part-time people, they didn't have lots of problems working within their university. (That is, it isn't typically as difficult to hire part-time folks at a university. Kate recommends this approach.)

Maine: Maryellen couldn't say enough about the ease of implementation and success of use within their teacher preparation programs. However, they have stuck with Mursion's – pre-designed simulations and are not hiring their own actors which could definitely present problems, especially in a rural setting. Scheduling of the TeachLivE Lab was the only aspect that was considered possibly problematic due to its need of continuous support by a person other than faculty using the program. Like I mentioned before, Maine utilized a graduate assistant to schedule the TeachLivE Lab in conjunction with the availability of Mursion's avatar actors and requested use during the college's designated courses. Because a high-quality simulation lab was created, Mary had virtually no complaints about the whole experience from technology setup to implementation of lab use. In fact, she pointed out that one time the software program needed to update for a classroom visit and the faculty member had forgotten to request it. Even though Mursion TeachLivE is on PST, their company had the update completed before the class started at 9:00 AM EST with only 15 minutes notice. Jokingly, Mary says that the hardest part of using this simulation program is making sure the TV's set to the correct channel for viewing!

Contextual Constraints to Implementation Identified

Identified Potential Risk to Research Subjects

Release of proprietary information

Loss of faculty or candidate confidentiality

One use of the Mursion system is its use in a workshop with other candidates. In these circumstances, candidate performance will be public, with feedback provided in public.

Loss of national accreditation or program recognition

Loss of state approval or recognition

Other (Please describe.)

Identified Potential Risk to Trustees Education Initiative

Insufficient Data for College and Program Continuous Improvement Purposes

The RWG acknowledges that the collection of data in this pilot is critical. The short time frame for developing this proposal did not allow the group time to develop a comprehensive evaluation plan.

Insufficient Access to Student Success Data of P-12 Students Taught by College of Education

Insufficient Commitment to Collaboration from Wyoming P-12 School Districts

We are proposing to work with districts to develop scenarios that districts could use for targeted professional development. It is possible that districts may not be interested in using the system. Although this would not be a threat to the pilot, it could affect long term sustainability of the use of the Mursion system

Other (Please describe.)

To: UW TEI Coordinating Council
 From: College of Education Research Work Group
 Date: 6.13.2017

Committee responses to questions/concerns raised by the TEI Coordinating Council:

Item Number:	Page in revised document where item is addressed:	Brief comments:
1.	Page 5	Wyoming educators can choose from a dedicated bank of simulation scenarios for teacher preparation and professional learning in four areas: <i>Classroom Management, Family Engagement (parent/teacher conf.), Eliciting Student Thinking and Leading Classroom Discussion</i> . Simulation scenarios also exist for educational leadership. Faculty using the simulation have a large degree of control over how the simulation is set up and proceeds, allowing for adaptation to local contexts and needs. Some of the scenarios were personally developed by--and currently used within--universities that serve rural states similar to University of Wyoming. Also, we will work with <i>Mursion</i> to develop a total of 10 customized scenarios for our teacher preparation program across three years.
2.	Page 1	Please see page 1. This proposal is to conduct a three year pilot of the Mursion system.
3.	Page 1	The Mursion system is a content delivery mechanism, and as a result cannot lead to innovative teaching by itself. The goal of implementing the system is to create teachers that are better prepared in basic aspects of the job of teaching, allowing them the freedom to work on and implement deeper and more innovative learning strategies to better meet the needs of Wyoming students.
4.	Pages 5 & 6	Please see pages 5 & 6. Part of this pilot project will include developing an in-depth evaluation plan.
5.	Pages 5 & 6 + Pages 8-10	Please see pages 5 & 6. Part of this pilot project will include developing an in-depth evaluation plan. Please see pages 8-10 for the budget for this evaluation plan.
6.	Pages 5 & 9	Please see page 5 for an explanation of this concern. Please see pages 7 & 8 for the budget. The creation of a custom scenario is a straight forward process, with most of the work produced by Mursion. Although the RWG does not know a specific timeline, when this question was asked, we were informed that it can be done fairly quickly.

7.	Page 5	Please see page 5. We will sign a yearly contract with Mursion that specifies the number of access hours, required professional development, and the development of custom scenarios. This contract is renegotiated each year.
8.	Page 5	Please see page 5. We will sign a yearly contract with Mursion. The purchase of a license for Mursion is not proposed at this time. Although owning a license to the system may be of benefit in the future (allowing the University to charge for access), the requirements for setting up the system under a purchased license, including hiring simulation specialists, is beyond the scope of the project at this time.
9.	Page 10	We included language that the user stipend would be based on a percentage of students who use the system. The actual percentage can be determined by the faculty coordinator.
10.	Page 9	Please see page 9. We anticipate that the equipment we have will be sufficient for this pilot. This budget line item is intended to provide maintenance and supplement existing systems.
11.	Page 5	Please see page 5. We will sign a yearly contract with Mursion.
12.	Page 9	You will find this information and justification on page 9. We anticipate that this will take 2 to 3 hours of faculty time for input to Mursion per each customized scenario. Consequently, we propose paying faculty members \$300 for input on each customized scenario.
13.	Page 9	See previous comment.