Learning Assessment Model Project:  
State-of-the-Art Evidence-Based Teaching

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Meeting the Challenge of P-12 Pupil Learning, Assessment, and State of the Art Teaching

One of the biggest challenges confronting American education is how to respond to increasing demands for accountability. Testing programs have been developed to reflect standards, and schools are aligning curricula to the standards. The goal of accountability and the need to assess and demonstrate the learning of students has created a paradigm shift for education in general, and colleges of education in particular. In order for new teachers to help lead the way into the new generation of teaching and learning, they must be prepared and practiced with new tools for assessment. This assessment must be standards based to be valid and well designed to be reliable. Teacher candidates must know how to develop tests and rubrics that provide clear measures of performance. More importantly, they must know how to use the assessment information to shape their instruction and provide meaningful feedback. This requires a shift in emphasis in teacher education programs from simply training teaching methods to developing skills to produce and document student learning of standards.

One example of a program helping to prepare novice teachers to use assessments is the Learning Assessment Model Project (LAMP) at Ball State University in Indiana. LAMP was funded in part by a Title II Teacher Quality Enhancement Grant to the Teachers College at Ball State University. LAMP is a rubrics-driven method designed to facilitate and evaluate a teacher candidate’s ability to align instruction and assessment with standards and best practices, to demonstrate their students’ learning and to provide evidence of their own understanding of how the assessment of their students’ learning informs their instruction. Teacher candidates use this method during their student teaching experience.

LAMP requires the development of a student project that reflects the academic standards of the instructional unit in which the teacher candidate is involved. The teacher candidate must design a rubric to assess the classroom students’ projects. Although it is important to address the process of how the project was completed and quality of the work, the rubric must assign the most weight to indicators associated with the academic standards. The ultimate goal of LAMP is the teacher candidates’ demonstration of their understanding of their students’ learning and how that relates to their own teaching. A key tool in this understanding is the display of students’ performance through graphs reflecting the assessments in the pretest, project and posttest. The teacher candidates interpret the graphs in terms of whole-class and individual student performance.

(The U.S. Department of Education recognized LAMP as promoting teacher quality by highlighting information about the project in the Secretary’s Fourth Annual Report on Teacher Quality (2005). The description above is from the report that is provided to Congress and the public.)

LAMP not only serves as a capstone student teaching experience, it provides direction for teacher education at Ball State University. LAMP takes advantage of web technology to facilitate an evidence-based teaching experience dedicated to the learning of the P-12 pupils.)
LAMP: Mission, Goals, and Structure

The LAMP Mission is to provide teacher candidates with the structure and support to expand their conceptualization of teaching, from merely presenting content to facilitating and evaluating student learning through better assessments, graphic representations and interpreting achievement, and reflection on the process.

Ball State University has established a reputation as a leader in education, both within the state of Indiana and nationally. Ball State is one of the largest producers of teachers and school professionals in the Midwest. Of the more than 18,000 students who attend Ball State, approximately 4,900 students are enrolled in professional education programs. All of the over 800 student teachers each year complete at least one Learning Assessment Model Project. The concepts underlying LAMP are presented throughout teacher education.

The project's stated purpose was, "to enhance the quality of pre-service teachers by equipping them with processes and procedures for assessing the performance of the K-12 students they teach." Four goals provided the framework for the development process for the project: 1. Develop a protocol, 2. Field-test the protocol with a sample of PDS teacher candidates, 3. Recommend procedures for incorporating the elements throughout the pre-service preparation program, and 4. Revise the protocol for full implementation. Additionally, the project has developed technology to assist the process and availability.

LAMP is designed to facilitate and evaluate the teacher candidate’s ability to align instruction and assessment with standards and best practice. The teacher candidates’ ability to demonstrate their students’ learning and to provide evidence of their own understanding of how the assessment of their students’ learning informs their instruction gives them a level of sophistication and professionalism necessary for today’s teachers. The LAMP provides a protocol of rubric driven evaluation criteria for: (1) the pre-and post-assessment of academic standards, (2) the development of an instructional unit including an authentic-based project and scoring rubric, and (3) the evaluation of group and specific student performance based on assessment information with interpretations and implications for instruction. The interactive rubrics are available at http://www.bsu.edu/tcapps/uas/lamp/rubrics/rubricindex.html.

The LAMP rubrics are the driving force behind the project. The rubrics outline the expectations, they identify needed artifacts, pose questions that a supervisor might ask, and they provide video responses from teacher candidates that completed the process.

LAMP Process (semi-linear with interaction within decision-making contexts):

Standards → Content → Pre-Assessment → Instruction → Project → Post-Assessment → Evaluation

The LAMP includes direction for areas with evaluation and specific scoring rubrics for: The Instructional Unit, Assessments, Unit Project and Rubric, and Evaluation of Student Learning.

The Unit. It is not unusual for teacher candidates to be expected to complete a unit of instruction as part of their student teaching experience. This unit is typically about two weeks long, although it could be longer depending on the structure of the course (for example, a unit in a high school block schedule that meets every other day could need to go well beyond two weeks). The LAMP simply identifies some important components required to keep the instruction consistent with standards, assessments, and best practice. It is critical that the instruction, project, and assessments are all aligned with the appropriate standards.

This is just good teaching.
Cooperating teacher observing the LAMP process.
The Assessments. Assessment is the driving force behind the LAMP. Without good assessment tools, the data the teacher candidates reflect on will be meaningless, interpretations will be misguided, and decision-making will be flawed. The most important issue in any assessment instrument is validity. The instrument needs to actually measure what it is supposed to be measuring. The standards chosen for the instructional unit need to be the focus of the assessment instruments. Although teacher candidates are used to creating a test to be given at the completion of their instructional unit, what seems to be one of the biggest changes for teacher candidates to get used to is the addition of a pretest (or pre-assessment) to determine their students’ baseline knowledge or skill, and inform them of necessary changes in planned instruction.
The Project and Rubric. LAMP requires the development of a substantial project completed by the classroom students that reflects the academic standards of the unit. The project should be authentic and have some real-life connection. The teacher candidate must design a rubric to assess the classroom students’ projects.

Evaluation of Student Learning. All of the previously described tasks set the stage for the ultimate goal of the LAMP, the teacher candidates’ demonstration of their understanding of the learning of their students and how that relates to their own teaching. A key tool in this understanding is the display of students’ performance through graphs. In addition to interpreting each of these graphs separately, a comparison of performance on the standards from pretest and project, to posttest can provide great insight into a wide array of dimensions. This reflection can identify students or groups of students that performed above or below expectations, it can point out instructional and assessment flaws, and give direction for modifications for future instruction. This process of interpretation, reflection, and decision-making is the crux of the LAMP.

This changes everything. It makes the teacher preparation program valid.
University teacher education faculty member

Cooperative Efforts: College of Education, Arts and Sciences, and P-12 Schools

The Learning Assessment Model Project was developed over a number of years with input across the university and from an outside consultant. Dr. Greg Marchant from the Department of Educational Psychology assembled a faculty team of Dr. James Powell from the Department of Educational Studies (secondary education) and Dr. Melinda Schoenfeldt from the Department of Elementary Education. In addition, Dr. Walter Smith of the Department of Biology, worked with the team. At Ball State University the content area methods courses are all housed in the appropriate departments outside of Teachers College, such that mathematics methods courses for the elementary and secondary levels are taught from faculty in the Math Department. Therefore, by design, any initiative impacting student teaching is a cooperative effort across departments in Arts and Sciences and the Teachers College. In addition to Ball State University faculty, Dr. Sam Evans from the University of Northern Kentucky, a nationally recognized leader in the Teacher Work Sample process, served as an outside consultant for the project.

In 2003 the Associate Dean of Arts and Sciences, Susan Johnson, in collaboration with the Associate Dean of Teachers College, Tom Schroeder, obtained a small grant to support 20 practicing elementary teachers in the Good Science/Good Writing program implement LAMP in their classrooms. Greg Marchant worked with the group and in addition to the teachers going through the project, selected work from the teachers now serve as prototypes for teacher candidates to review.

Technology Support

Early in the development of LAMP, it was obvious that for successful implementation of the project on campus and across the state at hundreds of student teaching sites, technology would be critical. Although its first introduction was made with PowerPoint, it became clear that a self-contained self-explanatory home for LAMP would be needed. Efforts to develop a LAMP CD-ROM gave way to a LAMP website (see http://www.bsu.edu/tcapps/uas/lamp/LAMPIndex.asp). By this fall not only will the website be the home for LAMP information, it will also be a secure...
repository for the data on teacher candidates and the students they teach. A specialized program to produce reports will be available to replace the cumbersome Excel program previously used. The program provides an interface for teacher candidates to input student data, and it will automatically generate graphs and report data for the teacher candidates’ reflections. Another program displays the teacher candidates’ artifacts for the supervisor to discuss and evaluate. This will make it possible for a supervisor to review the ongoing progress of a student teacher from across the state. With a click the supervisor’s assessments generate a report for the teacher candidate’s electronic portfolio. After the programs are successfully used at Ball State, they may be made available on a limited basis to other colleges. A key to the success of LAMP has been the interactive rubrics, the project’s continued success and growth will depend on continuing development using technology.

The teachers who have worked with the LAMP student teachers are now using the process (themselves) because they see the benefits.

- University student teaching supervisor

The project was initially piloted in one elementary school and one high school. Forest Dale Elementary School in Carmel, Indiana and Muncie Southside High School are both in the Ball State PDS system. Support from the principals was invaluable in working with the teachers, who were involved with helping the teacher candidates with their projects. During this pilot semester another elementary PDS that was identified as a “control” for comparison, teachers at that school felt the project was so valuable that they attempted implementation on their own. That school was officially made part of the project the next semester. The project was implemented in additional PDS schools the following semester, and all PDS schools the year after that. The project has been fully implemented with teacher candidates in placements across the state completing the project.

Summer workshops trained PDS liaisons (university supervisors) and teams from the professional development schools, and LAMP information is now disseminated at the cooperating teacher training workshops that occur several times each year.

I certainly recognize LAMP’s value. In fact, this week I referred to LAMP when I was observing one of my student teachers.

- University supervisor in a non-LAMP school before full implementation

**Program Impact on Teacher Candidates**

Studies involving the impact of LAMP on teacher candidates have been presented at peer-reviewed research conferences (American Educational Research Association, 2003 and 2005, and Mid-Western Educational Research Association, 2003). The process and research findings of LAMP were also presented at the 2005 European Teacher Education Network conference in Macedonia.

**Perceptions of Quality of Program Preparation**

Prior to full implementation of the program, teacher candidates from schools participating in the LAMP and control group schools completed questionnaires regarding their preparation in a number of areas at the beginning and at the end of student teaching. The responses were to “how well did Ball State course work, field experiences, and projects prepared you to do the
following” activities. The questionnaire was the same for all of the teacher candidates, and LAMP was not specifically mentioned. The items represented areas specifically focused on by LAMP, some areas generally related to assessment, areas related to teaching instructional units, and other areas not specifically addressed by LAMP. Analyses of Covariance (ANCOVA) were conducted for the four areas on the post-student teaching survey with LAMP Project (and non-LAM Project) and grade level (elementary and secondary) serving as the two main effects and the pre-student teaching survey results as the covariant. The results suggested very positive effects of LAMP.

The difference between the post-student teaching responses and the pre-student teaching responses indicated changes in perceptions as a result of the student teaching experience. In other words, did teacher candidates feel better or worse about their preparation in key areas, especially assessment, after their student teaching experience? Of the four areas, only the area not associated with LAMP had no significant differences in main effects or interactions. Examining specific items related to LAMP demonstrated some of the differences (see Figure 1). The control teacher candidates felt less positive about their preparation after student teaching on over half the items. The LAMP teacher candidates’ increased positive view of their preparation seemed to be directly attributed to LAMP. The fact that LAMP teacher candidates were not significantly more positive about the program on non-LAMP related items suggested the increased growth was related to the project and not selection bias in the groups.

**Differences in Student Teaching Evaluations**

Teacher candidates at Ball State University do not receive a letter grade for their student teaching experience. Instead, they follow reflection exercises throughout student teaching, culminating with a final assignment of a proficiency level of unsatisfactory, basic, proficient, or distinguished for each of the ten INTASC Principles. At the conclusion of the student teaching experience the proficiency levels of the LAMP and control groups were compared. The post-

![Figure 1. Pre-/Post Differences for Control and LAMP Student Teaching](image-url)
student teaching INTASC levels were higher for the LAMP group for all of the principles except one (see Figure 2). This further suggested that group differences were more attributable to LAMP than any inherent differences among the groups. The rating differences were most pronounced for INTASC Principle 5 concerning management and motivation in the classroom ($p < .05$). When grade level was included in a 2 x 2 ANOVA, the elementary LAMP teacher candidates were assessed higher than the other groups on INTASC 2 regarding development ($p < .05$).

**Teacher Candidates Appreciation of LAMP**

In a qualitative review of comments the teacher candidates made while going through a debriefing portfolio process for student teaching, results demonstrated that the teacher candidates found benefits from LAMP for both themselves and their students. Teacher candidates described increased awareness of student abilities and interests, improved recognition of strengths and weakness in planning and instruction, and the power of a student project to hold their students’ interest. The shift from preparing teacher candidates to “teach,” to preparing them to generate learning, and to document, analyze, reflect, and make instructional modifications based on student performance is a paradigm shift. The performance data of their students displayed through graphs provided clear evidence of the students’ performance relative to standards and each other. This provided teacher candidates with insights into the actual learning of their students, and helped confirm their sense of efficacy.

**Teacher Candidate Comments**

The following comments demonstrate some of the insights gained by the teacher candidates and some of their opinions about LAMP:

![Figure 2. Student Teaching Evaluations Based on INTASC Standards](image)
I found from the pretest that the students did not have much knowledge about geometry. I knew that standard 4.4.1 was a very large standard that covered a lot of information that the students did not know.

I was able to satisfy their needs and spend three days breaking down that one standard into manageable lessons they would understand. I was able to have two small groups going on at the same time to teach mini-lessons, and I was able to save time and satisfy the students’ educational needs without being too repetitive.

In the future I would make a rubric for each of the project choices. That would insure that every aspect of the project was graded and given a certain amount of points deemed necessary. I would also adapt the tests better to fit the needs of my students.

I have a second student teaching placement after my LAMP experience. I plan to use the (LAMP) process even though it’s not required.

I will definitely use this (LAMP) process in my own classroom next year.

**Program Impact on Graduates’ Ability to Improve P-12 Pupil Learning**

The most important outcome of LAMP is teacher candidates demonstrating improvements in P-12 pupil learning. The required pre-test of students’ abilities provides a baseline that gives direction for instruction. The post-test allows for an analysis of student learning and success of instruction. By generating pre- and post-test graphs for each standard covered in a unit, teacher candidates can visually identify strengths, weaknesses, successes, and what needs more work. The graphs provide visual feedback for the teacher candidates, cooperating teachers, university supervisors, and even pupils, parents, and principals. What follows is a typical post- graph demonstrating class totals for the pre-test and post-test scores for three standards, along with the project rubric and post-test criterion:

**Figure 3. Teacher Candidate Pre- Post- Class Graph**
There was a huge difference between the pre and posttests. The pretest showed very little knowledge of geometry and the posttest showed that they have mastered the skill. I think that the project allowed them to make geometry real to themselves.

I like seeing the progress on the graph, that’s interesting. I think that helps explain a lot of things, especially if it’s positive in direction. It helped me personally, as I analyzed that to realize what had been learned and not learned. Apparently I didn’t stress the idea of symbols well enough, symbols and artwork. They didn’t seem to understand that everything is a symbol. I think that needed to be stressed a little better.

Looking at the two graphs for the pre-test and post-test, there was an overall improvement in all students. Standard 1 moved up 14%, standard 2 stayed the same, standard 3 moved up 27%, and the overall total for the test improved by 14%. Standard 3 was the lowest on the pre-test and this standard improved the most on the post-test. Every student improved his or her score.

**P-12 Student Learning**

LAMP has two functions specific to the demonstration of P-12 student learning. The first function is as a tool for the development of assessment skills to inform and shape the instruction of teacher candidates. The second function is as an accountability measure for use by teacher candidates and teachers. This approach is in contrast to an externally developed and administered standardized test. LAMP provides teachers with a means to demonstrate both the performance and progress of their students on specific academic standards.

Not only does the collection of pre- and post-test data provide teacher candidates insight into the learning of their pupils, it also allows for an examination of the cumulative effect of teacher candidates on pupil achievement during student teaching. A review of the most current set of pre- and post-test scores (N = 753) demonstrated the typical achievement that teacher candidates are able to facilitate, assess, graphically depict, interpret, and use as evidence of successful teaching (through a unit of instruction generally lasting about two weeks). Pre-test scores ranged from 6 to 99 percent correct, with a mean of 40.93 percent correct and a standard deviation of 22.16. The post-test scores ranged from 26 to 100 percent correct, with a mean of 80.56 percent correct and a standard deviation of 15.26. A t-test on the means indicated a significant difference (p < .0001). **The average improvement from the pretest to the post-test was almost 40 percent** (see Figure 4).

This type of information is very important for teacher candidates seeking a position. The ability of teacher candidates to demonstrate the effect their teaching had on specific standards suggests an understanding of their accountability for student learning, not just teaching. Probably the most impressive evaluation of LAMP came from two principals that observed teacher candidates doing the project in their building:

*These student teachers who have completed the LAMP process will have a definite advantage in job interviews.*

*I wish I had openings for all the student teachers in my building who have completed the LAMP process. I would hire them.*
In Closing

It is not unusual for the implementation of any curricular innovation or new requirement to be met with suspicion or opposition. The success of any new idea is dependent on its acceptability, accessibility, and ease of use. LAMP it seems was the right program at the right time. LAMP challenges teacher candidates’ conceptualization of teaching. It forces their focus back to their students’ learning after their initial concentration on standards and instruction. LAMP provides them a structure and process for demonstrating their students’ learning in a meaningful way. Because it is good teaching, teacher candidates not only accept, but value LAMP.

However, good programs can languish, their good ideas and goals never fully realized. Ball State University’s teacher education program is very big, requiring a great deal of dedication and effort at every level: from teacher education faculty, teacher candidates, and classroom and university supervisors. LAMP would never have reached full implementation without technology. The infusion of technology has greatly improved LAMP’s accessibility and ease of use. The web-based nature of LAMP has provided equal access to all Ball State University student teachers and their classroom and university supervisors whether the teacher candidates are placed across the state of Indiana or in more far off locations such as Baumholder, Germany, Ball State University’s newest student teaching venue.

Having one website for all rubrics, artifacts, videos, and the new user-friendly graphing and supervisor evaluation programs has broken down the barriers to full implementation. One URL provides all stakeholders with everything they need to complete LAMP. In the near future, that URL may well be used to provide LAMP access for other university teacher education programs across North America and Europe. LAMP’s good ideas are realizing their full potential; P-12 student learning at the forefront of teacher preparation.