Implementing a Project-Based Learning Model in A Pre-Service Leadership Program

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This paper describes two instructors’ efforts to more authentically engage students in a pre-service leadership program’s course called Program Planning and Evaluation by using a project-based learning approach. Markham, Larmer, and Ravitz (2003) describe project-based learning (PjBL) as “a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed projects and tasks” (p. 4). The instructors revised the course where students were required to conduct a formal, standards-based evaluation of a critical issue in their school settings that immersed students in integrating and applying knowledge using the PjBL approach. The instructors used the Buck Institute for Education’s seven PjBL design principles for instructors (Larmer, 2015) to develop and analyze the course revisions. The process, challenges, and the results are discussed in this paper.
Introduction

This paper examines two instructors’ efforts to use project-based learning methods in a pre-service leadership program. Markham, Larmer, and Ravitz (2003) describe project-based learning as “a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed projects and tasks” (p. 4). A review of the literature on progressive pedagogies finds problem-based learning (PBL) and project-based learning (PjBL) are often discussed simultaneously. While quite similar, there are distinct differences, and for the purposes of this paper, it is necessary to note this difference. “The distinction between PBL and PjBL…according to the definition of Prince and Felder (2006) […] the emphasis in PjBL is on applying or integrating knowledge while PBL is on acquiring it” (as cited in Stefanou, Stolk, Prince, Chen, & Lord, 2013). The instructors revised a course where students were required to conduct a formal, standards-based evaluation of a critical issue in their school settings which immersed students in integrating and applying knowledge. Therefore, the PjBL method is a more logical approach.

With the adoption of Common Core State Standards in many states, more teachers in PK-12 settings are adopting a PjBL model to deliver instruction. However, instructors in higher education are somewhat slower to embrace PjBL methods (Lee, Blackwell, Drake, & Moran, 2014). Pre-service leadership students are constantly grappling with countless, complex problems in PK-12 settings and want to gain knowledge and experience in how best to resolve them. Leadership programs must develop authentic, real-world learning experiences for its emerging leaders to allow them opportunities for developing critical-thinking and problem-solving skills relevant to the work they are preparing to do in PK-12 schools.

This paper discusses how two instructors planned and facilitated a PjBL process in a graduate-level course delivered in an online learning environment. The Buck Institute for Education’s seven PjBL design principles for instructors (Larmer, 2015) provided the frame for transforming a traditionally delivered course to one grounded in project methodology; they are (a) Design and Plan; (b) Align to Standards; (c) Build the Culture; (d) Manage Activities; (e) Scaffold Student Learning; (f) Assess Student Learning; and (g) Engage and Coach. The Buck Institutes’ following eight Gold Standards were then used to assess the implementation of the revised course:

- Key Knowledge, Understandings, and Success Skills;
- Challenging Problem or Question;
- Sustained Inquiry;
- Authenticity;
- Student Voice and Choice;
- Reflection;
- Critique and Revision; and
- Public Product (Larmer, Mergendoller, & Boss, 2015).

The instructors include a reflection of the creative processes to plan and implement PjBL methods, the challenges that emerged with practice, and the improvements needed.
Review of the Literature

There is evidence project-based learning (PjBL) methods were being practiced in higher education in 16th century Europe (Hugg & Wurdinger, 2007). Four centuries later, PjBL was a cornerstone of Dewey’s (1900) progressive education theory in early 20th century America. Adderley’s (1975) description of project-based methodology is appropriate to meeting learning needs in our 21st century educational settings. PjBL processes involve (a) identifying a problem and finding a solution; (b) taking initiative in a variety of educational activities either working individually or in a group; (c) producing an end product; (d) engaging in the work over an extended period of time; and (e) teaching shifts from lecturing to facilitating the learning process.

Engaging students in their learning process is challenging at all levels of education. Higher education is no exception and is often criticized for being out of touch with the “real” world (Hugg & Wurdinger, 2007). Many professors in college classrooms are familiar with a common complaint concerning the relevancy of a course’s content. Further compounding this notion is “students and educators in the 21st century are challenged by evolving employer needs, needs that require diverse, real experience” (Hugg & Wurdinger, 2007, p. 192). Implementing Dewey’s (1900) progressive pedagogies lead to a student-centered learning approach (Helle, Tynjala, & Olkinuora, 2006) supporting authenticity and relevancy of the learning processes.

Stolk and Harari’s (2014) study of projects-based environments in higher education settings found motivation is a significant predictor of students’ engagement in high-level cognitions. When students are able to connect theory to practice, they are better able to understand the relationship between theory and their actual ‘lived’ experiences and are more prone to sustain motivation throughout the learning process (Brown & Freeman, 2000; Hugg & Wurdinger, 2007; Pintrich, 2004; Pithers, 2000; ). Cognitive benefits generated from engaged pedagogies (Edgerton, 2001), such as PjBL, includes deeper levels of student engagement, critical thinking, problem solving, reasoning, elaboration strategies, metacognition strategies, and skill transfer (Chick, Karis, & Kernahan, 2009; Donnelly & Fitzmaurice, 2005; Richmond & Hagan, 2011).

Redesigning a Course Using Project-based Learning Methodology

The fundamental goal of redesigning a course is to provide pre-service leadership students with a robust and rigorous learning experience, particularly considering the class that was chosen for the PjBL experiment is an online course. The course, Program Planning and Evaluation, is a requirement for earning the Educational Specialist degree. The instructors present the problem then discuss the creative process to resolve the problem using the Buck Institute for Education PjBL principles (Larmer, 2015) to frame the work.

The Problem

When the course was previously delivered, students were instructed to evaluate a program in their school. Oftentimes, the programs students were choosing to investigate were not ones to significantly contribute to the overall performance of the school. For example, some students would choose to evaluate a computer program their school had purchased. The evaluation results often lacked depth and breadth for their investigation to have meaningful effect on overall school
improvement. The newly revised Professional Standards for Educational Leadership (PSEL), formerly known as Interstate School Leadership Licensure Consortium (ISLLC) standards, places a strong focus on developing today’s leaders with the capacity “to innovate and inspire staff to pursue new, creative approaches for improving schools and promoting student learning” (National Policy Board for Education Administration, p.1) The overall, low-level performance on the major assignment was an indication students lacked the kind of experiences with this important work to inspire and innovate. They often did not view the course relevant to their leadership growth. The major assignment was most often treated as simply a course requirement to earn a grade. The lack of depth in students’ work necessitated the shift from a traditional method of teaching this course to a project-based approach.

**The PjBL Method**

One of the first things the instructors addressed was to broaden the scope of the evaluation target. The instructors changed the focus from evaluating a program to investigating a critical issue. The major project of this class involved students identifying a critical issue to be addressed in their schools. Once students identified the critical issue they wished to explore, they conducted a formal, standards-based evaluation, in which, the results informed decisions that led to better schooling experiences for student, families, educators, and/or communities.

Presented below are the Buck Institute for Education’s seven principles for instructors to consider when designing a PjBL classroom (Larmer, 2015). The principles provided a frame for the creative processes in building and facilitating learning processes using PjBL methods. Each principle and its description is presented followed with how the instructors planned to apply the principle in a PjBL environment.

**Design and Plan**

**Brief description.** Create or adapt a project, plan it from start to finish while attending to the need for students to have their voice and choices throughout the project.

**Planning to apply the principle.** The instructors chose to adapt the delivery of the course, Program Planning and Evaluation, from traditional, teacher-centered methodologies (i.e., lecture, textbook, exams, essays, etc.) to student-centered, project-based methodologies. This shifted the focus from what the instructors would be preparing and doing for each class session to what students would be engaging in during and in between class meetings. In the planning phase, the instructors focused on providing students with as much voice and choices as possible with the project while balancing this with keeping students moving forward in a timely manner.

**Principle 1—Align to Standards**

**Brief description:** Draw from and include concepts contained in subject-, disposition-, and skills-based standards when planning the project.

**Planning to apply the principle.** Being a pre-service leadership preparation program, the course objectives are aligned with the ISLLC and Educational Leadership Constituent Council (ELCC) standards for disposition- and skills-based standards. Additionally, the focus of the course is on
evaluating the educational programming. The subject standards of program evaluation established by the Joint Committee Standards for Program Evaluation (Yarbrough, Shulha, Hopson, & Caruthers, 2011) is essential to evaluating the critical issue.

**Principle 2—Build the Culture**

**Brief description.** Facilitators of PjBL develop an environment of high expectations for students to practice autonomy, focus on developing their own learning, seek answers/solutions to question/problems, practice collegiality, and produce quality work.

**Planning to apply the principle.** Building a culture of high expectations is a challenge, particularly so in an online learning environment. The instructors used Blackboard (Bb) online learning systems to deliver instruction. Blackboard tools used were discussion forums, the virtual classroom, and group tools for planned activities which helped to create a learning community. Building community was a priority, therefore, the instructors set the stage with a welcome page containing the purpose of the course and directions to move to the Getting Started learning module. This module included expectations for learning, resources to begin the studies, and, most importantly, a link to a discussion forum called, Our Cyber Space to Get to Know One Another. In efforts to begin building the learning community, this forum was used for students to introduce themselves and to respond to and engage in conversation about themselves and what knowledge and skills they hoped to develop. Students engaged in a collective brainstorming session to compile a list of critical issues/needs in today’s schools identified as barriers to effective teaching and learning. The purpose of this brainstorming activity was to assist students in (a) generating ideas around issues to investigate in their respective schools and (b) developing collaborative partnerships to complete the course requirements. Next, the instructors used Bb Collaborate, a virtual classroom (used throughout the course for all synchronous class meetings) for an orientation and group discussion of the coursework, expectations, and the identified critical issues. These preliminary efforts helped to set a tone of high expectations, established collegiality among students and instructors, and fostered a shared purpose and common language.

**Principle 3—Manage Activities**

**Brief description.** Instructors in PjBL environments provide structure where students are able to organize and manage their work, schedules, time, and other resources, creative processes, and publishing/sharing their products.

**Planning to apply the principle.** In addition to the typical class schedule, the instructors created a companion outline, the Written Report Checklist (see Appendix A). The outline was divided into two major tasks: Part 1: Planning Your Evaluation Design and Part 2: Conducting the Formal Evaluation and Producing the Report. The class schedule was developed to organize specific segments of the outline and the timeframes for when items were to be submitted for formative feedback (checkpoints). Multiple resources (university library services, government reports, professional web sites, etc.) were made available in Bb Learning Modules. Students were expected to create a formal evaluation report to share with a targeted audience who could include administrators, teachers, parents, or students in their schools.
Principle 4—Scaffold Student Learning

**Brief description.** Facilitators of PjBL classrooms use an assortment of instructional lessons, strategies, and tools to support students in meeting the goals.

**Planning to apply the principle.** Scaffolding student learning has to take into consideration the density of course content and the various adult learning styles and needs. The instructors used selected Bb tools to support and maximize students’ interaction with (a) the content, (b) with each other, and (c) with us, the facilitators. For students to interact with content, learning modules were used to organize written instructions, post reading materials and resources, and provide links to discussion forums, and assignment tools. To support students interacting with each other, guided, reflective discussion forums, group tools, and the virtual classroom were used throughout the semester. Tools used to facilitate interaction between students and the instructors were the assignment tool, discussion forums, the virtual classroom, email, and phone calls. The instructors created an open discussion forum for students to freely communicate and post links to sources they found. The Written Report Checklist was used, not only as a planning guide for a student’s/teams’ work as they progressed through the project, but was also used to continually inform lesson development for the synchronous class sessions. For example, when the instructors moved into dense content, they acknowledged the need to use lecture-based teaching methods for class sessions. However, these strategies were planned to capitalize on ‘teachable moments’ at a time it would have the most meaning for students. As the instructors planned, they developed steps and timelines along the way to help students move forward with their projects, as well as keeping the focus on the end product.

Principle 5—Assess Student Learning

**Brief description.** Facilitators of PjBL use formative and summative assessment in addition to integrating self- and/or peer-assessment of the work.

**Planning to apply the principle.** Ongoing formative assessment of the students’/teams’ product in progress was provided in ‘chunks;’ that is, on the class schedule, individuals or teams would submit a draft of a section on the course outline for our feedback. The instructors developed a student survey based on the Joint Committee’s Standards for Program Evaluation (Yarbrough, Shulha, Hopson, & Caruthers, 2011). Students were asked to choose one of the following responses in regard to how they addressed the standards in their evaluation process: 1) was addressed, 2) partially addressed, 3) not addressed, or 4) not applicable. A rubric, based on the ELCC/ISLLC standards, was used for the summative assessment to provide feedback for disposition and skill development. Rubrics for discussion forums and for class participation, in addition to Bb student activity reports were used to keep students informed of their progress (See Appendix A). Steering papers were also provided as samples. These papers demonstrated higher- to lower-levels of performance. Students were encouraged to use the steering papers to self-assess their work and make improvements as needed.
Principle 6—Engage and Coach

**Brief description.** Facilitators of PjBL learn and create with students in addition to building skills, encouraging progress, praising, redirecting, and celebrating with students as needed.

**Planning to apply the principle.** Because students and teams were addressing a variety of issues in multiple school settings, time was devoted during the virtual classroom sessions for engaging students and coaching purposes. Each live session started with students sharing what they accomplished, what they were learning, and questions that emerged. The sessions would end with a preview of what students would need to engage in before the next live session. Students served as coaches for each other in discussion forums as they shared their progress, problems, and findings. These experiences provided instructors and students opportunities to learn from one another as the evaluation of the critical issue developed over the semester.

Using the Buck Institute for Education’s seven principles as a frame for designing a PjBL learning environment (Larmer, 2015) was the first step. Each instructor facilitated a section of the newly redesigned Program Planning and Evaluation course during the spring 2015 semester. The next section discusses how the PjBL model was implemented and the challenges encountered.

**Implementing the PjBL Method and the Emerging Challenges**

To frame our analysis and reflection of how we implemented the project-based learning experience, we drew from the Gold Standard PBL: Essential Project Design Elements (Larmer, Mergendoller, & Boss, 2015) for this discussion. There are eight design elements; each are presented with a brief explanation, followed with a reflection and the challenges that were encountered.

**Student Learning Goals**

A well-designed project requires well-designed goals. At the center of the Gold Standard PBL model are student learning goals organized into two parts.

**Key knowledge and understandings and key success skills.** The goals for knowledge and understandings are developed from the subject matter’s fundamental concepts and content standards. The goals for success skills, also referred to as ‘21st Century Skills,’ (Larmer, Mergendoller, & Boss, 2015, Student Success Skills, 1) are goals to develop critical-thinking, problem-solving, collaboration, and self-efficacy skills, as well as discipline-specific professional skills.

**How the instructors addressed the design element.** The purpose statement on the syllabus for the course served as the overarching goal for the class:

The purpose of the course is for candidates to acquire the knowledge, skills, and dispositions to conceptualize, design, and implement a formal evaluation of a critical issue that could be impeding teaching and learning in an educational setting. Candidates will use appropriate qualitative and quantitative tools to gather
data to assess the effects of the critical issue on teaching and learning and to inform decisions for improving practices. Although not perfect, the instructors consider the syllabus’ purpose statement a reflection of what they aspire for their students to accomplish.

**The challenge.** The course objectives should be revised to address more directly key knowledge and understanding and key success skills. While the instructors can make an argument that the objectives in the syllabus contained the underlying concepts, the objectives should be more direct in guiding the work, feedback, and assessment processes. For example, most of the students’ responses to their survey results in addressing the Joint Committee’s Standards were not discussed in-depth in the final product. Revising the objectives to bring more focus to the standards will lead to better connections in the instructors’ planning, implementation, and assessment practices.

### Essential Project Design Elements

In addition to the first design element above, Setting the Learning Goals, there are seven remaining PjBL essential design elements. They include a challenging problem or question; sustained inquiry; authenticity; student voice and choice; reflection; critique and revision; and a public product (Larmer, Mergendoller, & Boss, 2015). Following is a brief description of each element and how the instructors addressed it.

**Challenging problem or question.** In essence, the challenging problem is what the project is all about. It is open-ended enough to challenge and engage students to investigate, explore, and search for solutions.

**How the instructors addressed the design element.** Adapting the delivery to use a PjBL method to deliver content in the Program Planning and Evaluation course required students to identify a critical issue in their schools that may be having a negative impact on student achievement. To begin the focus on identifying a critical issue to study, students were asked to engage in a brainstorming activity to identify critical issues present in their schools. Focusing on a critical issue leads to a broader view of schooling (as opposed to focusing on a single, and most often a purchased, program). Students began to shift their view of school and develop more of a systems-theory approach during the project. This in turn helped students gain a broader sense that their investigation was meaningful work and could make a difference in their schools. Once there was agreement between the student and his/her school leader on the critical issue to be studied, students were asked to articulate two overarching questions that would guide and focus the rest of their investigation.

**The challenges.** Part 1: Planning the Evaluation Design required students to design their evaluation. This would then serve as the blueprint for conducting the study (see Appendix A). The first step in the planning process was to develop the research questions, which is a complex exercise in and of itself. Several students found it difficult to create the overarching questions and continued to struggle as they progressed through the planning stage.

**Sustained inquiry.** A sustained inquiry implies not only a deeper look, it also implies the issue will be explored over an extended period of time. When presented with a challenging problem or question, engaging in sustained inquiry lends itself to continual, ever deepening questioning and subsequently a search for potential answers from a variety of traditional and
non-traditional sources of information. These sources are most likely field-based, action-research oriented, and specific to the focus of inquiry.

**How the instructors addressed the design element.** As previously stated, students developed their overarching questions (typically two). To continue ‘drilling down’ to bring a narrower focus for their investigation, students also developed two sub-questions for each of their overarching questions. The sub-questions were then used to plan details for the investigation by completing information in the Evaluation Design table (see Appendices A). The design of the evaluation included activities for obtaining the data, the data sources, data collection methods, who would be responsible for gathering data, how the data would be analyzed, and who would use the results of the investigation.

**The challenges.** Not only did students struggle with developing their research questions, they continued to have difficulties keeping focused on their questions as they thought their way through each step of the Evaluation Design table (see Appendices A). For some students, there was a tendency for randomness across all the columns. For example, one student’s sub-question was seeking teachers’ perceptions of the issue being investigated, but plans for how to gather perceptions were not detailed in the remaining columns, clearly demonstrating a disconnect with what the student wanted to know and how they would get information.

**Authenticity.** Students are more motivated to be fully present in the learning process when experiences are perceived to be relevant to their needs and to the world in which they live and work. Authentic projects can be conducted in real-world contexts, use actual processes, tools, or performance standards present in a real-world setting, have an impact on others, result in something or service benefiting others, and/or contribute to a student’s sense of personal relevancy when it addresses an aspect of their own identity in meaningful ways.

**How the instructors addressed the design element.** Students were asked to consult with their colleagues and leaders in their respective schools as they contemplated the critical issue they wished to study. This approach not only provided students with opportunities to have a strong voice and meaningful choices within the project, the critical issue they collaboratively chose to focus on brought a much deeper sense of relevancy to the process. As students’ knowledge and skills grew, it only reinforced the authenticity and relevancy to their emerging leadership.

**The challenges.** Knowing they would be sharing their final product with their targeted audience, students gained a much stronger sense of purpose and accountability. The instructors considered this a good problem to have. However, this sense of purpose and accountability contributed to high anxiety for some students especially as the end of the semester neared. Students felt they would not have the time to complete the investigation. They were right to be anxious about finishing a formal evaluation in a single semester, and adjustments had to be made to the expectations for the final product. For example, students were asked to focus their efforts on exploring just one of the four sub-questions rather than trying to complete all four. This would allow them to have the learning experience of taking one of the sub-questions through the entire evaluation process. Students would then have the skills needed to complete the rest of their evaluation plan beyond the semester.

**Student voice and choice.** Providing students with opportunities to have a say and choices in the learning process leads to an increased sense of ownership for their personal learning and growth. They acquire a sense that their thoughts are valued and this can lead to students seeking higher
levels of learning; they want to learn more. When students are fully engaged in the learning process, they work harder and engage in higher levels of cognition. Additionally, students will tend to be more fully invested to persevere and complete the final product.

How the instructors addressed the design element. Not only were students provided a voice and choice in selecting their critical issue, they also were given a choice to work individually or in teams. They could decide what activities were needed to obtain data, who would be involved in collecting the data, how they would analyze and present their results, and decide on and suggest improvements to practices in their schools. Also, they had a voice in how they wanted their final product to be presented and with whom they would share the final report. Students were strongly encouraged to make a proposal to a state conference to share their investigation.

The challenges. The instructors made a conscious decision to not use textbooks as the main resource in the class (two textbooks were used as references only). Because of this decision, the Written Report Checklist (see Appendix A) was developed. One concern during both the PjBL planning and implementing phases was in creating a balance between students’ freedom of choices and adhering to a structure for focusing the work and to make steady progress toward the end product. The instructors tried to leave the process open-ended enough where students could exercise their freedom to express their voice and choices and at the same time produce a final product that adhered to the Joint Committee’s Standards (Yarbrough, Shulha, Hopson, & Caruthers, 2011) and the components that must be present in a professional, formal evaluation report.

Reflection. When one reflects, one is learning. Students and teachers should reflect continually on what, how, and why they are learning. Reflection can be informal and spontaneous or can be formalized through such processes as presenting at a conference. There are multiple ways to reflect: providing formative feedback, keeping learning journals, checkups and dialog in class, and engaging in dialog with colleagues. Reflection is a critical skill for self-efficacy (Dewey, 1933).

How the instructors addressed the design element. Opportunities for formal and informal reflection were built into the delivery of the course. The instructors began each live class session with a look back at what instructors and students had had done and learned since the previous time the class had met. In between live class meetings the discussion forums were used to respond to reading materials and reflect on how the information informed the practices with learning and conducting a formal evaluation. When students posted their final product in their electronic portfolio, they provided a reflection of the overall process, what they learned, and how the experience informed their growth as a school leader.

The challenges. This is one area the instructors believe to be a strength in the delivery of this course. The challenge, however, was to keep a record of reflections over time in order to identify trends that can be used to inform their practices and to make improvements with the project-based processes.

Critique and Revision. Critical to the PjBL model is high-quality student work. To accomplish this goal, ongoing, constructive feedback given by both instructors and peers is necessary to realize high levels of work. Rubrics can be used for guiding and assessing performance, in addition to being used to assess overall knowledge and skill development. Formative feedback is
critical for learning along the journey. Seeking outside sources to review and provide feedback brings real-world relevancy to the work.

**How the instructors addressed the design element.** The instructors devoted scheduled time for students to talk about their evaluations in the live class sessions and collectively gave feedback. Students posted their work in both Bb assignment tool for instructor feedback and in the discussion forums for peer feedback. Instructors and students asked questions, encouraged each other, offered suggestions, and praised one another. Altogether, both students and the instructors collectively engaged, coached, and learned from and with one another. Steering papers were provided representing a highest-level score, a high-level score, a mid-level score, and a low-level score for students to use to gauge their level of work. Rubrics, Bb student activity reports, formative feedback, and summative assessments were used to support high-quality work. Also, the instructors encouraged students to submit proposals to state conferences for outside peer review of their work.

**The challenges:** The tyranny of time was often a barrier for the instructors and students in providing the kind of detailed feedback needed for continuous development and growth. Students are supportive and encouraging to their peers, but they are not inclined to offer a critique. They left that to the instructors (understandably).

**Public product.** A product can be an artifact, a decision, or a solution. A public product is a powerful motivating factor for producing high-quality work. The product engages key shareholders in meaningful discussions that help create a learning community (as opposed to a dialog just between an instructor and student). A public product is an effective way to communicate to a broader audience throughout the community.

**How the instructors addressed the design element.** From the beginning of the instructors’ planning process with PjBL methods, the non-negotiable expectation was that the facilitator of the course would not be the intended audience for the final evaluation report. This was one of the primary purposes for why students were to identify their target audience at the beginning of their journey to investigate their critical issue. The facilitators’ role was to serve as editors and critics along the way.

**The challenges.** The instructors need to create a system for follow-up checks after the class ends. They need to know the impact the investigation has on the practices and outcomes in the school. If the process continues, it is important to know how the results informed leadership decision-making and problem-solving skills in school settings.

In the next section, a discussion is provided to note improvements to the process that emerged after implementing the redesigned course after one semester. The needs are presented and the actions taken to improve the processes are given.

**Improvements Needed in the PjBL Design and Delivery**

After one semester of facilitating the learning in the revised course, the instructors identified the following initial improvements needed with each design element:

1. The first need was to revise the student learning objectives in the syllabus to reflect key knowledge and understandings and key success skills. The course syllabus objectives were reorganized to reflect these two key areas. This gave the instructors and students a better base for guiding and assessing students’ performance and work.
Additionally, a crosswalk analysis and alignment between the objectives and the 2015 PSEL will need to be conducted.

2. Students needed more support with developing their overarching questions. The instructors provided additional resources, samples, and guidance for students before they submitted their overarching and sub-questions for feedback.

3. The instructors needed to increase discussions and support to improve students’ work with Part 1 planning processes. Knowing that the first three design elements (aligning content to goals, developing challenging problems or questions, and sustained inquiry) needed to be well supported in order for the evaluation to maintain its cohesiveness throughout the process.

4. Because the instructors had developed processes to maximize authenticity, students experienced added pressure to create a product that would be read by their peers and their identified key users. The instructors developed ongoing feedback check points before student submit sections for grading and before they share their work with school officials.

5. The instructors made the decision not to use a traditional textbook. In its place, they created a prescriptive outline, the Written Report Checklist (see Appendix A). This prescriptive outline caused the instructors concern about the balance between students’ freedom of choice and adhering to a prescriptive structure. As the projects unfolded, the instructors gained feedback from students about the outline and the process. Students reported positively the Written Report Checklist kept them focused, helped to understand the process, and guided them in creating the final report.

6. Reflection was crucial to the evaluation of students’ learning processes and also informed the changes needed in the course. The instructors collected and organized reflective conversations (mainly through discussion, online text chat and dialog during live class meetings). Collectively, these reflections helped them make data-informed decisions to revise the Written Report Checklist and to improve planning and implementation of the class.

7. Students tended to avoid critique when giving feedback to each other. They were very comfortable with cheerleading, but avoided comments that would have a negative message. The instructors plan to coach, model, and encourage students to develop their skills to give professional critique for their peers in ways that support and foster collegiality and community.

8. An area needing improvement is follow-up after the course to learn how the students’ schools used the evaluation results. Many students were not able to complete the evaluation as planned within the semester. Knowing this would be an ongoing evaluation beyond the semester, the students were encouraged to continue implementing their evaluation plan in other classes that require a field-based component. Students are asked to update instructors on their progress and how the schools are using the results.

Conclusion

The instructors have much to learn about the effects of a PjBL design on the students’ acquisition of knowledge and skills and the impact students’ investigations may have on their schools. Future leaders come to leadership programs wanting to make a difference in PK-12 settings.
Higher education programs owe it to our emerging leadership students to develop and equip knowledge and skills to make a real difference in their schools. It is through PjBL methodologies we may better prepare emerging leaders to do well the work they aspire to accomplish. While the instructors engaged in this study have just started focusing on the PjBL delivery method, they believe they are moving in a direction to support better knowledge and skill development for preservice leaders.

This paper ends with two student’s final words. They were not in the same section; Student A. was in one facilitator’s section and Student B. was in the other section. They shared the following reflections:

This has been a great experience working with B. Student. I am very thankful that you allowed us to do this project as a team. So far this has been my favorite assignment during this educational process.~ Student A.

This assignment was relevant and the benchmarks assigned were great for keeping me on task. I appreciate [the instructor’s] willingness to continually look over my draft. This is the first class I have ever had where the instructor went that far above and beyond. This took the guess work out of the project and the worries of "Am I heading in the right direction." With that stress gone, I could focus more on the critical issue I was researching.~ Student B.
References


Appendix A
Written Report Checklist

Your Program Planning and Evaluation work may be completed as either an individual project or as a team project. There is a great need and respect for those of you who wish to individually tackle/grapple with a program evaluation of a critical issue within your school setting for the purpose of meeting the teaching and learning needs unique to your school/district. Equally important is the need and respect for those of you who wish to engage in a collective effort to tackle, grapple, and evaluate the effects of a critical issue affecting your schools. In efforts to be equitable in assessing individual performances and when assessing team performance, we should acknowledge the expectation that a team’s performance in evaluating a program should include more breadth (based on the principle that “many hands make light work”) and more depth (from the perspective that “two heads are better than one”).

For your consideration only (not a requirement): If some of you wish to engage in a collective evaluation of a common educational program or area of focus that is present in all of your schools (such as educator supervision and trust; implementation of common core; the process of developing living, breathing school improvement planning processes, etc.), we could engage in a collective study. At its conclusion (which could go beyond this semester) we could consider submitting a proposal to one (or more) of our state educational association meetings to present the findings. If interested, go to the Discussion board forum called Collective Evaluation, and let us know and share a specific program/area of focus of interest if you have one.

Written Report Checklist: Parts 1 & 2

Part 1. Planning Your Evaluation Design

First, go to Appendix A (see below), Planning for Evaluation Design Sample, replicate those tables, or replicate others you like better from the various samples we have explored thus far, and use them as your brainstorming tools to think through your evaluation design (see numbered list below). After you complete your tables, address the following items. You will submit your narrative and tables for feedback. Your design tables will be placed in your final report’s appendices section. You must first have your evaluation plan approved by your instructor before you can begin implementing your plan.

A. Introduction
   1. Give a brief overview (2-3 paragraphs-narrative) of the critical issue you will be exploring, its historical impact in your school setting, and the purpose for evaluating the issue.

B. Big-Picture Questions (See Appendix A, Table 1)
   1. Determine two overarching questions that you wish to “answer” with the results of the evaluation.
2. Develop objectives for each question.

C. Design of the Evaluation (See Appendix A, Table 2 headings in the top row)
   1. Evaluation Questions: Develop two questions for each of the two Big Picture questions (total of four questions).
   2. Activities to Observe: List the things you intend to do to get information that can lead to an answer for each question.
   3. Data Source: What data sources will be useful in getting the information on the things you want to do.
   4. Population/Sample: Report the total population size (N) and the sample size (n) of participants in the study for each question.
   5. Data Collection: Provide an overview of how data will be gathered and when.
   6. Responsibility: Determine who will be instrumental in helping to gather data needed for each question.
   7. Data Analysis: Once you have data, tell how you will be analyzing the results.
   8. Audience-Key Users: Provide the list of key stakeholders who will be interested in using the results of the evaluation. (Gay, Mills, & Airasian, 2012, p. 17; pp. 507-21)

**Part 2: Conducting the Formal Evaluation Process and Producing the Report**

Typical Evaluation Report Content

I. Executive summary (it will be the last thing you complete)
II. Introduction
   A. Purpose of the evaluation
   B. Key users (internal and/or external stakeholders) of the evaluation report (include a table similar to Appendix B, Table 1.)
   C. Limitations of the evaluation and explanation of disclaimers (Based on Joint Commission Standards, connected to VII.A. meta-evaluation results below)
   D. Brief overview of report contents
III. Focus of the evaluation
   A. Description of the critical issue
   B. Big Picture questions (two)
IV. Reporting the evaluation design
   A. The leading evaluation approach (outcome-based, process-based, goals-based)
   B. Method for gathering data for each question (Quantitative, Qualitative, or Mixed-methods)
   C. Data elements, sources, and instruments for each question
   D. Criteria and standards used to judge the program for each question
   E. Description of data analysis strategies to determine findings (Descriptive data: percentages, normal distribution of means/standard deviations, correlational statistics to examine relationships, etc.)
V. Analysis of results and presentation of evaluation findings
   A. Summary of evaluation findings (use charts/figures/tables to supplement narrative as appropriate/needed)
   B. Interpretation of evaluation findings

VI. Conclusions and recommendations
   A. Judgments about the program (based on each question’s criteria and standards to judge strengths and weaknesses)
   B. Recommendations

VII. Appendices (requirements and examples)
   A. Required-
      1. Appendix A: Planning for Evaluation Design
      2. Appendix B: Audience-Key Users: Needs and Uses
      3. Appendix C: Standards Checklist self-evaluation instrument-completed
   B. Description (tables) of evaluation plan/design, instruments, and data analysis and interpretation
   C. Detailed tabulations or analyses of quantitative data and transcripts or summaries of qualitative data
   D. Other information as necessary (ex. a glossary/definitions/acronyms, etc.)
     (Worthen, et al., 2010, p. 383)

References


### Planning for Evaluation Design-Sample

**Table 1. Big Picture Questions**

<table>
<thead>
<tr>
<th>Question</th>
<th>Objectives</th>
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<tbody>
<tr>
<td>Will the Math Intervention Program improve eighth grade students’ attitudes toward math?</td>
<td>Students’ attitudes toward math will increase and be more favorable as measured by a pre and post survey. Students will attempt to participate in daily classroom math activities and assignment and to answer all open response questions on the math benchmark. Scores of 0 on open response will decrease.</td>
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<tr>
<td>How will the Math Intervention Program for eighth grade students improve performance in eighth grade math?</td>
<td>Seventy-two percent of math students will score proficient or above on Benchmark and End of Course Math tests in order for the school to meet Annual Measurable Outcome (AMO) for performance and growth as required by the state of Arkansas. Students will be successful in scoring a passing score in Algebra I, Algebra II, and Geometry as they prepare for graduation from high school.</td>
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</tbody>
</table>

#### Table 2. Evaluation Design: Eighth Grade Math Intervention Project Focus (includes formative & summative evaluation):

<table>
<thead>
<tr>
<th>Evaluation Question</th>
<th>Activities to Obtain Data</th>
<th>Data Source</th>
<th>Population Sample Design</th>
<th>Data Collection Methods</th>
<th>Responsibility</th>
<th>Data Analysis</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>In what ways will the Math Intervention Program improve students’ attitudes about math?</td>
<td>Administer pre and post survey to students in eighth grade; Monitor student absences and attendance per nine weeks;</td>
<td>Qualitative Pre and Post Survey; Attendance Record; Classroom Observation</td>
<td>N= 212(7-12) n=36 (8th)</td>
<td>Students will be surveyed in September before the MIP program starts and then again in May after taking the Benchmark tests. Students will prepare surveys; Eighth Grade Math Teacher will administer the surveys and collect the data; APSCN clerk and high school</td>
<td>Students will respond on pre and posttest; Compare absences for the first nine weeks, the second nine weeks, third</td>
<td>Compare student responses on pre and posttest; Compare absences for the first nine weeks, the second nine weeks, third</td>
<td>Superintendent; School Board; High School Principal; Curriculum Supervisor; Teachers/Staff; Parents; Students</td>
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<tr>
<td>Did the percentage of 8th grade students scoring proficient on the eighth grade math benchmark increase because of the Math Intervention Program in comparison with math scores of students not in the sample</td>
<td>Analyze student scores on 7th grade augmented math benchmark test and compare those scores to student scores on 8th grade augmented math benchmark test. Compare the percentage of seventh grade,</td>
<td>Seventh Grade Math Augmented Benchmark Test-2011; Eighth Grade Math Augmented Benchmark Test-2012; Alg. I test—2012 and 2013; Geometry test—2012 and 2013</td>
<td>N=212 n=36</td>
<td>Students completed the 7th Augmented Benchmark Test in April 2011 and will complete the 8th grade Augmented Test in April, 2012. Results will not be here until May 31, 2012. Compare each students score to see if they showed growth</td>
<td>District Test Coordinator will analyze test scores and compare the number of students and the percentage of students scoring proficient or above on the 2012 seventh grade benchmark with the 2013 eighth grade benchmark to see if students showed growth</td>
<td>Students proficient divided by total tested and individual students’ percentage of growth for each year</td>
<td>Superintendent; School Board; High School Principal; Curriculum Supervisor; Teachers/Staff; Parents; Students</td>
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<tr>
<td>Group (seventh grade, Algebra I, Geometry?)</td>
<td>Did the students show growth in individual test scores from seventh grade math to eighth grade math?</td>
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<td>Algebra I, and geometry students scoring proficient or advanced in 2012 and those scoring proficient and advanced in 2013.</td>
<td>showed growth from Basic to Proficient to Advanced. Compare group percentage scores for 2012 and 2013 on seventh grade math, algebra I and geometry from seventh to eighth grade. The DTC will compare the percentage of students scoring proficient or above in seventh grade math, algebra I, and geometry in 2012 and 2013.</td>
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<tr>
<td>Did student mastery of 8th grade common core standards increase on TARGET tests from Pretest to Interim I to Interim II to Interim III and finally to the Posttest?</td>
<td>Compare Students’ percentage score on each TARGET tests as well as mastery of common core standards. (The new TARGET PARRC assessment tests all common core standards for eighth grade math on each TARGET test Pretest, Interim I, II, and III, Posttest) Students have completed the TARGET Pretest in September. They will complete the Interim Tests in October, December, March, and the posttest in May. Compare the students’ percentage score on each test and also Math Teachers will administer the test, score the open response question, and record the score on the computer; District Test Coordinator and Curriculum Supervisor will run reports and compare the percentage scores on each of the target. Students percentage score on TARGET tests, Students’ mastery of Common Core Standards as tested by TARGET tests.</td>
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| N=212 n=36 | Students have completed the TARGET Pretest in September. They will complete the Interim Tests in October, December, March, and the posttest in May. Compare the students’ percentage score on each test and also Math Teachers will administer the test, score the open response question, and record the score on the computer; District Test Coordinator and Curriculum Supervisor will run reports and compare the percentage scores on each of the target. Students percentage score on TARGET tests, Students’ mastery of Common Core Standards as tested by TARGET tests. | Superintendent; School Board; High School Principal; Curriculum Supervisor; Teachers/Staff; Parents; Students |
| Did Classroom performance and grade point average increase because of the Math Intervention Program? | Compare Students average grades in Math at the end of each nine weeks grading period and at the end of each semester | Students’ Quarterly Report Card Grades and semester grades in Math Attendance records Classroom observations N=212 n=36 | Students grades for classroom tests and assignment will be figured at the end of each nine weeks grading period (Oct., Jan., March., and May). The APSCN Coordinator will run report grades and list of grades for the principal and curriculum supervisor; the principal and the curriculum supervisor will compare grades from one nine weeks to the next to see if individual students improved their grade for math | The number of students whose grades in math showed gains from first nine weeks to second weeks to third nine weeks as well as number of students whose grades decline | Superintendent; School Board; High School Principal; Curriculum Supervisor; Teachers/Staff; Parents; Students |
The APSCN clerk will run the attendance reports for each nine weeks; the principal and the curriculum supervisor will analyze data between each nine weeks. The principal and curriculum director will observe classrooms for increases or decreases in student participation.
Appendix B
Assessment Instruments

Class Participation during Bb Collaborate Sessions

Performance Levels:

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>Excellent 2 points</td>
<td>All or almost all requirements were met in excellence and with consistency.</td>
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<tr>
<td>Proficient 1.5 points</td>
<td>Most all elements were demonstrated with proficiency and consistency.</td>
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<tr>
<td>Basic 1 point</td>
<td>Some of the elements were exhibited.</td>
</tr>
<tr>
<td>Unsatisfactory 0 point</td>
<td>Most elements were not evident.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elements</th>
<th>The extent to which the candidate demonstrates the following elements:</th>
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</thead>
<tbody>
<tr>
<td>Attendance &amp; Preparation</td>
<td>Candidate attended and was prepared for the session.</td>
</tr>
<tr>
<td>Dialogue &amp; Participation</td>
<td>Initiated standards-based dialogue. Asked questions. Responded to questions posed by others. Participated in whole- and small-group discussions and activities.</td>
</tr>
<tr>
<td>Standards &amp; Exemplary Leadership</td>
<td>Candidate maintained a focus on the respective standards and their role in exemplary leadership preparation.</td>
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<tr>
<td>Forward Thinking</td>
<td>Candidate was thoughtful; stretched and/or challenged the status quo of leadership conventions.</td>
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<tr>
<td>Personalization &amp; Reflection</td>
<td>Candidate put forth unique and focused interpretations for his/her personal journey of 21st century leadership.</td>
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</table>

| Total Possible Points = 2 |

Blackboard Discussion Posts

<table>
<thead>
<tr>
<th>Criteria</th>
<th>The extent to which the candidate demonstrates the following elements:</th>
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<tbody>
<tr>
<td>Analysis</td>
<td>Candidate analyzed the readings, not just reported. Candidate applied theory to practice.</td>
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</tbody>
</table>
Program Planning and Evaluation Rubric
ELCC 1.2, 1.3, 1.4, 2.2, 2.4, 3.1, 3.2, 4.1, 4.2, 5.1, 5.3, 5.4, 5.5, 6.2

<table>
<thead>
<tr>
<th>Performance Levels</th>
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<tbody>
<tr>
<td><strong>Distinguished</strong> 4</td>
</tr>
<tr>
<td><strong>Proficient</strong> 3</td>
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<tr>
<td><strong>Basic</strong> 2</td>
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<tr>
<td><strong>Unsatisfactory</strong> 1</td>
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Standard Elements
The candidate demonstrates the ability to ...

| Based on the descriptors below for each Standard Element, the candidate demonstrates his/her ability at the following level: |
| U | B | P | D |

*ELCC Standard Element 1.2: ... collect and use data to identify district goals, assess organizational effectiveness, and create and implement plans to achieve district

- develop and use evidence-centered research strategies and strategic planning processes;
- develop a district improvement plan to achieve identified goals.
<table>
<thead>
<tr>
<th>ELCC Standard Element 1.3:</th>
<th>identify strategies or practices to build organizational capacity that promote continuous and sustainable district improvement;</th>
<th>design a transformational change plan at the district-district-level;</th>
<th>design a comprehensive, district-level professional development program.</th>
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<tbody>
<tr>
<td>ELCC Standard Element 1.4:</td>
<td>construct an evaluation process to assess the effectiveness of district plans and programs; interpret information and communicate progress toward achievement of district vision and goals for educators in the community and other stakeholders.</td>
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<td>ELCC Standard Element 2.2:</td>
<td>collaborate with faculty to plan, implement, and evaluate a coordinated, aligned, and articulated curriculum; use evidence-centered research in making curricular and instructional decisions; interpret information and communicate progress toward achievement; design evaluation systems and make district plans based on multiple measures of teacher performance and student outcomes, and provide feedback based on evidence.</td>
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<tr>
<td>ELCC Standard Element 2.4:</td>
<td>use technologies for continuous district improvement; monitor instructional practices within the district and provide assistance to teachers; use technology and performance management systems to monitor, analyze, and evaluate district assessment data results for accountability reporting.</td>
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<td>ELCC Standard Element 3.1:</td>
<td>analyze district processes and operations to identify and prioritize strategic and tactical challenges for the district; develop plans to implement and manage long-range plans for the district.</td>
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<tr>
<td>ELCC Standard Element 3.2:</td>
<td>project long-term resource needs of a district; use technology to manage district operational systems.</td>
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<td>ELCC Standard Element 4.1:</td>
<td>use collaboration strategies to collect, analyze, and interpret district, student, faculty, and community information; communicate information about the district within the community.</td>
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<tr>
<td>ELCC Standard Element 4.2:</td>
<td>identify and use diverse community resources to improve district programs.</td>
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<td>ELCC Standard Element 5.1:</td>
<td>act with integrity and fairness in supporting district policies and staff practices that ensure every student’s academic and social success; create an infrastructure that helps to monitor and ensure equitable practices.</td>
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<td>ELCC Standard Element 5.3:</td>
<td>develop, implement, and evaluate district policies and procedures that support democratic values, equity, and diversity issues; develop appropriate communication skills to advocate for democracy, equity, and diversity.</td>
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<tr>
<td>ELCC Standard Element 5.4:</td>
<td>formulate sound district strategies to educational dilemmas; evaluate district strategies to prevent difficulties related to moral and legal issues.</td>
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</table>
| ELCC Standard Element 5.5: | review and critique district policies, programs, and practices to ensure that student needs inform all aspects of districting, including social justice, equity, confidentiality, acceptance, and respect between and among students and faculty within the district; develop the resiliency to uphold core values and persist in the face of
<table>
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<tr>
<th>The Standard:</th>
<th>was addressed</th>
<th>was partially addressed</th>
<th>was not addressed</th>
<th>was not applicable</th>
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<tr>
<td>U1 Stakeholder Identification</td>
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<td>U2 Evaluator Credibility</td>
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<td>U3 Information Scope and Selection</td>
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<td>U4 Values Identification</td>
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<td>U5 Report Clarity</td>
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<td>U6 Report Timeliness &amp; Dissemination</td>
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<td>U7 Evaluation Impact</td>
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<td>F1 Practical Procedures</td>
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<td>F2 Political Viability</td>
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<td>F3 Cost Effectiveness</td>
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<td>P1 Service Orientation</td>
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<td>P2 Formal Agreements</td>
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<td>P3 Rights of Human Subjects</td>
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<td>P4 Human Interactions</td>
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<td>P5</td>
<td>Complete and Fair Assessment</td>
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<td>P6</td>
<td>Disclosure of Findings</td>
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<td>P7</td>
<td>Conflict of Interest</td>
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<td>P8</td>
<td>Fiscal Responsibility</td>
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<td>A1</td>
<td>Program Documentation</td>
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<td>A2</td>
<td>Context Analysis</td>
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<td>A3</td>
<td>Described Purposes and Procedures</td>
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<td>A4</td>
<td>Defensible Information Sources</td>
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<td>A5</td>
<td>Valid Information</td>
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<td>Reliable Information</td>
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<td>Analysis of Qualitative Information</td>
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<td>A10</td>
<td>Justified Conclusions</td>
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<td>A11</td>
<td>Impartial Reporting</td>
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<td>A12</td>
<td>Meta-evaluation</td>
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*(Yarbrough, Shulha, Hopson, & Caruthers, 2011)*