Project-Based Learning and Pedagogy in Teacher Preparation: Staking Out the Theoretical Mid-Ground

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In this article, we advance a model of project-based learning (PJBL) offering eight guiding principles to support a pragmatic and principled approach to teacher preparation at the undergraduate and graduate levels. We provide a template for structuring PJBL, and we include illustrative exemplars that demonstrate that the ideological mid-ground can offer a balance of content knowledge and facilitate the dispositions we value in the new generation of teacher practitioners.

The face of university and college instruction is changing from approaches traditionally associated with objectivism, behaviorism, and transmittal models of teaching (Gage, 1977) to approaches that place emphasis on active learning and the needs of students (Palmer, 1998, 1999; Stage, Muller, Kinzie & Simmons, 1998). In short, there is a distinct shift from a lecture-based approach to an open-ended process-oriented model associated with critical theory that values inquiry, reflection, negotiation of meaning, case and problem-based learning (PBL), discussion and collaboration, and self-directed learning (Barrett, 2005). This shift is visible across all faculties and programs, not only across North America but globally. In Canada, for example, McMaster University's Health Sciences programs is recognized as the forerunner of PBL as a curricular model (Haslett, 2001). McMaster began its curricular transformation to PBL as far back as 1969, and this approach has been adopted by many other post secondary institutions including our own, the University of Calgary. There is increasing momentum to adopt inquiry as an over-arching approach to learning as universities and colleges seek to prepare a generation of students who need to acquire good communication skills, creative and critical thinking skills, and a mindset for problem solving and innovation in a world that is increasingly complex and unpredictable.

This paper describes an instructional approach, project-based learning (PJBL), that we situate in the epistemological paradigm of social constructivism. This has been our major instructional approach over the last seven years in our experiences at the undergraduate and graduate levels of working in the Faculty of Education, University of Calgary, in both face-to-face and online delivery modes. Our goal is to create a space in the ideological continuum that invites our students 'in' and involves their active participation in constructing meaning, yet is structured enough to provide for guided discovery.

We begin our paper with background information about our teaching context at the University of Calgary, and especially in the Faculty of Education. Next, we provide an overview of curriculum ideologies seeking the theoretical mid-ground that informs project-based learning and pedagogy. Following, we propose eight emergent guidelines for instructional design that guide a project-based learning approach. We outline five design elements required for projects, including examples from projects we have incorporated into our courses. Finally, we provide feedback from our learners yielded via anonymous course evaluations. These comments suggest the shift to PJBL has resulted in learning outcomes beyond simply understanding of the content base of a teacher preparation program: our students have acquired the dispositions we value and promote in the next generation of teachers for the classrooms of the future.

Our Teaching and Learning Context

We work in the Division of Teacher Preparation (DTP) and the Graduate Division of Educational Research (GDER) in the Faculty of Education, University of Calgary. The former is a two-year licensing program for prospective teachers that requires a completed baccalaureate degree for admission. Students may also participate in a limited number of joint degree programs (3 + 2 years). Students arrive from all backgrounds: engineering, management, kinesiology, sciences, and humanities, to name a few. Each year, some 450 students are admitted to the program, though three times as many are denied entrance due to seat space considerations. Clearly, teaching is a popular profession today, even with its many challenges and complexities.

About a decade ago, the BEd program shifted from a four year direct entry program to a two year after-degree program, and concomitantly, the Faculty dedicated its efforts to creating an innovative program premised on three pillars: Inquiry, Learner Centeredness and Field experiences (University of Calgary, 2006). It is assumed that students who have completed a degree already and who are now somewhat older (the average age of admission is 29 years), self-disciplined, and highly motivated will also arrive with the skills for independent, self directed inquiry,

research, and critical reflection. In sum, our teacher preparation students bring discipline area knowledge, maturity, life experience, and a profound desire to touch the life of a child. They are highly motivated to participate in our program.
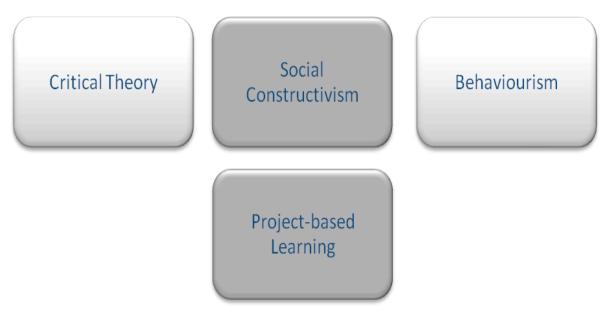
At the graduate level, the course-based Master of Education (M.Ed.) degree is by far the most heavily subscribed program in our faculty as a consequence of the demands for the professionalization of the teaching workforce. Over the last half decade, our faculty has made a major commitment to develop and offer this program online as well as in face-to-face contexts. Convenience, ease of access, and the potential to attract a global market share in the cyberspace classroom have triggered this shift. In our area of specialization, Teaching English as a Second Language (TESL), the number of teachers required to fulfill the demands of a global economy that chooses English as its shared language of communication is sobering: China alone seeks to prepare 2,000,000 teachers of English as a foreign language (EFL) for its k – 12 aged students, and clearly, the majority of these teachers will themselves be non-native speakers of English (NNS) (Center for Applied Linguistics, 2003). Locally, in an ESL context, school boards are facing rapidly increasing numbers of immigrant children in need of English language learning support, and there is urgent need for in-service professional development geared to the needs of mainstream practitioners.

As we shall see, the shift from students' typical undergraduate experiences that involved large class sizes, lecture formats, multiple choice exams, and enormous amounts of textbook reading to PJBL (including small group work, seminars, presentations) cannot be left too open-ended. Pedagogical intent and the notion of instructional design remain as the hallmarks of the more balanced approach we advocate and demonstrate in our work. In the section that follows we summarize the relevant curriculum theory to inform our PJBL framework.

Curriculum Ideology: Moving to the Mid-ground

We recruit our ideas for instructional design from the research field of curriculum theory. In this section we highlight the salient characteristics of behaviorism – an expedited theory of teaching and learning that draws on Skinnerian (Skinner, 1968) principles on the one hand and critical theory that draws on principles of humanistic clinical psychology articulated by writers and thinkers such as Rogers (1969), Fromm (1976), and Freire (1985) on the other. We find ourselves drawn to the ideological mid-ground, aligning our work along constructivist principles which we then highlight. Figure 1 below provides an overview of the curriculum terrain: from behaviorism on the right of the continuum to critical theory on the opposite left. The shaded area identifies the mid-ground and the ideological space where we locate our work.

Figure 1
Mapping Out the Ideological Continuum from Critical Theory to Behaviorism

Behaviorism is associated with the more traditional approaches to learning, with a focus on teacher input. Following Skinnerian (1968) principles of controlled and planned input, reinforcement, practice, feedback, motivation, and reward, learners' behavior is shaped toward a predetermined objective. It can be described as a highly systematic, technical, rational approach to working with students. Behaviorism enjoyed prominence in curriculum theory until the mid 1980's and is reflected in many textbooks written for teacher preparation programs up to that time (Pratt, 1980; Tyler, 1949). By the mid 1980's the forces of social change, especially in the United States, were well underway, and curriculum was about to undergo a major transformation. The Civil Rights Movement, advent of various computer technologies, the rapidly shifting demographics in the school going population as a consequence of immigration, and the change in the economy to focus less on manufacturing and more on communication and knowledge exchange in an evolving global marketplace foreshadowed the need to rethink curriculum to prepare a generation for participation in a complex society. The emphasis shifted from teacher-fronted to learner-centered approaches.

Critical theory is a post-structuralist theoretical orientation which places the learner (and learning) at the center. Critical theorists such as Giroux (1988) and Greene (1988) ground the study of curriculum in the lived experiences of those who daily encounter it. In this curriculum model, social context, process, and the quest for meaning take precedence. The fluidity of diologic, the relational, voice and identity, lived experience, and the interpreted together direct real-life problem posing that emerges from the needs of the learners. One of the most important points about problems in problem-based learning is students are not first presented with inputs of knowledge such as lectures or handouts and then apply this knowledge to a problem they are presented with later in the learning process. Collaboration, trust in the group, and creating a climate for risk-taking and interaction are valued. This model is characterized as "messy," unpredictable, and open-ended. The nature of the dialogue in PBL is a process by which people together create and recreate knowledge as "true dialogue unites subjects together in the cognition of the object that mediates between them" (Freire, 1985, p. 49).

In contrast to a behaviorist framework that seeks empirical knowledge about the world by applying scientific theory and method (Skinner, 1968) and a critical theory framework that is learner-centered and emergent, a constructivist paradigm focuses on the development of knowledge from the perspective of the active learner (Fosnot, 1996) with the guidance of a teacher or a more competent peer (Vygotsky, 1978). For social constructivists, knowledge is thought to be primarily subjective in nature and is consciously constructed and negotiated through individuals' perceptions and experiences in the social world (Dewey, 1916; von Glasersfeld, 1996; Vygotsky, 1978) where learning is considered a culturally-embedded socially supported process (Shepard, 2005). Within a social constructivist instructional framework, learners are provided opportunities to interact with their peers for the purpose of discussing, generating, and sharing knowledge. Differences of worldviews, cultural and linguistic background, knowledge, and experience will contribute to the transformation of others as they engage in social and academic dialogue (Marchenkova, 2005). Through discussion with others, it is suggested learners will begin to question and (re)organize their subjective meanings, intentions, and interpretations of the world; resolve challenges (or contradictions) to their knowledge; and reflect on connections across their individual and collective experiences (Al-Weher, 2004; Anderson & Garrison, 1998; Bates, 2005; Fosnot, 1996). Social interaction is regarded as the "driving force and prerequisite to individuals' cognitive development through internalization of ideas encountered in the sociocultural realm" (Nyikos & Hashmoto, 1997, p. 507). The view of constructivism as "an interpretive, recursive, building process by active learners interacting with the physical and social world" (Fosnot, 1996, p. 30) succinctly summarizes and frames our understandings of social constructivism and its application to teacher education.

Curriculum theorists, most notably Kilpatrick (1921) – considered the founder of project-based learning – and those who have adopted, applied, and elaborated on this approach also take a social constructivist orientation to PJBL (Barron et al., 1998; Blumenfeld, Soloway, Marx, Krajcik, Guzdial, & Palincsar, 1991). Kilpatrick refers to a project as "any unit of experience dominated by such a purpose as sets an aim for the experience, guides its process, and furnishes the drive for its vigorous prosecution" (p.287-288). Blumenfeld et al. (1991) build on Kilpatrick's definition and argue PJBL is a comprehensive teaching approach that holds potential to motivate and engage learners in tasks that support deep learning. To achieve this, carefully organized project design, inherently motivating tasks and questions, and the allowance of learners "to exercise choice and control regarding what to work on, how to work, and what products to generate" (Blumenfeld et al., 1991, p. 376) are considered critical to the learning effectiveness of projects.

Barron et al (1998) offer a set of four design principles to support project-based learning: defining learning-appropriate goals, incorporating scaffolding strategies to support learning, providing opportunities for formative self-assessment and revision, and promoting a participative classroom culture and a sense of learner agency. Learner agency is thought to be enriched through self-reflection (Bereiter & Scardamalia, 1999). In sum, a well-defined project design offers a comprehensive, flexible, and learner-centered approach that involves the development of new understandings and new skills. Barron et al. (1999) in their research of project-based learning note the importance of "doing with understanding" and the importance of learners understanding "why they are learning" (p. 306), a central tenet of a constructivist learning environment.

This represents the mid-ground we advocate for our work in teacher preparation which we elaborate in this paper through project-based learning (PJBL). We favor a pragmatic balanced approach. We identify the principles and articulate them as a set of guidelines for the instructional design of PJBL. In the section that follows, we explain the guiding principles of PJBL in greater detail.

Guiding Principles for Project-based Instructional Design

Below we identify and describe the eight guiding principles that guide and inform instructional design for project-based learning and pedagogy within our context of pre- and in-service teacher education.

The Instructor Requires Content Area Expertise and Pedagogical Competence

At the level of higher education, the instructor is responsible for determining, to a greater or lesser degree, the learning objectives, core content, enabling tasks (see below), and assessment strategies as well as setting the initial tone of the course(s). Within the context of project-based learning environments, instructors must fulfill multiple roles, among them both content area and pedagogical expert **(**Garrison & Anderson, 2003; Kaufman, 2004**).** Windschitl (1999) notes:

> Constructivist instruction, especially that which is based on design tasks or problem-solving, places high demands on the teacher's subject-matter understanding. The teacher must not only be familiar with the principles underlying a topic of study but must also be prepared for the variety of ways these principles can be explored (p. 751).

Instructional Design is Learner Centered and Flexible

Project-based learning affords "students the possibility and the motive to *work their way to the solution in their own idiosyncratic way*" (Helle et al., 2006, p. 292). In this way, the learners' prior knowledge and experience may be activated through engaging tasks and opportunities for collaboration designed to shape and direct new understandings. This is balanced, however, with a flexible instructional design; learners are granted considerable freedom to decide *what* and *how* to learn (Bates & Poole, 2003).

A Central Question(s) or Problem Focuses and Provides the Catalyst for Learning

Project-based instructional design is commonly organized around a central or essential question, a set of questions, or a problem (Barron et al., 1998; Blumenfeld et al., 1991) that directs the inquiry (Wiggins & McTighe, 1998). Kilpatrick (1921) states one kind of project is "one in which the dominating purpose is to solve a problem, to unravel and so compose some intellectual entanglement or difficulty" (p. 285). It is our view the central question(s) or problem be clearly articulated as it will act as a guide for the ensuing learning tasks and assessment strategies incorporated into the project.

Teaching and Learning Objectives are Explicit

Following from the central question or problem are the teaching and learning objectives of the project. Learning objectives are a set of statements explicitly defining the instructional aims and contextualizing key concepts within the framework of the project's goals and the supporting learning tasks. The overarching goal is to empower learners through guided engagement with the course content while also encouraging discoveries, experiences, and interpretations as they interact within the learning community. Barron et al. (1998) succinctly state the need to provide *learning-appropriate goals* is to "create a need for students to understand the how and why of a project" (p. 276). While boundaries are provided for learners in our view of PJBL in the form of learning objectives, this restraint is balanced with freedom to explore emerging learning possibilities or *liberating constraints*, a concept described by Davis, Sumara and Luce-Kapler (2000) as "the balance between freedom and restraint that creates conditions for learning and creativity" (p. 87). PJBL suggests learning objectives serve as guidelines to facilitate understanding of content-

related knowledge, but also grants considerable freedom to learners to achieve these objectives; further, through individual and collaborative study, students' learning may differ from the stated course objectives. Helle et al. (2006) suggests learners would benefit "if curriculum developers and teachers were to *invest more in the definition of goals and the congruence between stated goals and the activity students are engaged in*" (p. 307). Following from the identification and articulation of learning objectives within the course curriculum, learning tasks are developed to support learners in achieving the course goals.

Learning Tasks are Authentic and Engaging

We suggest learning tasks focus on a specific set of objectives and key concepts as well as articulate a set of outcomes for learners. Davis, Sumara and Luce-Kapler (2000) explain learning tasks must be sufficiently open to accommodate learners' interests, experiences, and knowledge while also providing organized direction to the learning process.

Learning tasks promote elements of interaction and interactivity. In both face-to-face and online courses, learners work collaboratively with their peers and the instructor to explore questions, critically analyze issues, synthesize their understandings, actively construct meaning, and apply their learnings to a practical context (Garrison & Anderson, 2003; Palloff & Pratt, 1999). Engagement with authentic learning tasks through collaborative interactivity lies at the heart of the PJBL ecology. Both pre- and in-service teachers are offered opportunity to construct meaning from personal perspective and to refine and confirm this understanding collaboratively within a community comprised of their peers and their instructor.

Instruction is Mediated and Integrated

Vygotsky (1978) introduced the idea of two developmental levels, actual and proximal. Operating in the zone of proximal development (i.e., ZPD) requires mediated instruction or scaffolding to advance learning. The proximal threshold becomes the new actual or independent level and the cycle begins anew. Barron et al. (1998) argue, in the case of public school classrooms, greater learning gains, i.e., knowledge breadth and depth, may be made by preceding project work with scaffolds that include a problem-based experience or study of contrasting cases. These authors point out that providing learners with opportunities to solve a simulated problem or identify similarities and differences between contrasting cases establishes a "level of shared

knowledge" (p. 278) among the learners and prepares them for the more open-ended nature of project work.

In the context of project-based learning, we suggest tasks within each project are sequenced in a way that requires the joint efforts of the learning community, learners and the instructor included, to arrive at a solution to the proposed question or problem (Helle et al., 2006). The collaborative learning community is thought to be "composed of teachers and students transacting with the specific purposes of facilitating, constructing, and validating understanding, and of developing capabilities that will lead to future learning" (Garrison & Anderson, 2003, p. 23), where both cognitive independence and social interdependence are encouraged simultaneously (Ibid.). Collaborative learning involves "joint work on tasks, creation of shared definitions, pooling and sharing of knowledge, and creation of emergent outcomes" (Haythornthwaite, 2006, p. 12) with the purpose of creating common understandings. In the case of teacher training, this requires the advancement of professional knowledge and skills.

For pre- and in-service teachers, who often differ widely in their experiences and knowledge about teaching and learning, a project-based approach provides opportunities to develop professional expertise within a collaborative setting where gaps in learner knowledge are addressed (Helle et al., 2006). This requires that communication between and among learners and their instructor be reciprocal, consensual, and collaborative.

Promotes Critical Reflection and Higher-Order Thinking Skills

Within a constructivist paradigm, learning may be understood "as the process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action" (Mezirow, 1996, p. 162). Blumenfeld et al. (1991) argue, "the prevalence of low-level tasks contributes to students' lack of understanding of content and process and poor attitudes toward learning and schooling" (p. 371). While the challenge of engaging and supporting learners' cognitive advancement through projects has been questioned, we suggest learning tasks be intentionally designed, sequenced, and spiraled in logical progression. This requires learners to engage with increasingly more cognitively demanding tasks. Initial tasks are designed to determine learners' current levels of understanding and then build on their background knowledge and experiences. This facilitates the learning process as learners situate

their prior knowledge within the context of the task. Increasingly more complex cognitively demanding tasks are introduced requiring learners to apply their new skills and knowledge. Further, to facilitate understanding of content-related knowledge, key concepts may be recycled, i.e., revisited. Providing opportunities to build content area knowledge through engagements with spiraled learning tasks within the project, in our estimation, facilitates increasingly higher cognitive demands moving from knowledge and comprehension through to analysis, synthesis, and evaluation (Bloom et al., 1956).

Continuous Assessment and Monitoring of Learning

Projects are an ideal vehicle for inviting students to demonstrate their understandings through a broad-based assessment approach. Assessment *for* (process of learning), *as* (learner-critical reflection) and *of* (summative) learning are integral to project-based learning. Throughout the project(s) assessment strategies, either instructor or learner initiated, connect the central question(s), learning objectives, key concepts, and knowledge gained through both individual and collaborative efforts. Barron et al. (1998) suggest "the provision of frequent opportunities for formative assessment by both students and teachers" (p. 284). While traditional forms of assessment such as quizzes may be incorporated into a project, we have found alternative forms, including self-reflection, effectively enabled learners to showcase *what they can do*. Learners within a project-based approach take an active role in their own learning and are evaluated on the production of learning artifacts that reflect the ability to apply theory to practice, for example, creating informal assessment tools for a specific teaching objective or manipulating authentic materials such as newspaper clippings following a principled approach which renders them useable for language learning purposes. Formative assessment also serves as a scaffolding strategy that promotes learning (Barron et al., 1998; Shepard, 2005), and we have found peer sharing of learning artifacts an effective tool to promote deep learning. One learner of an online graduate course e-mailed her instructor:

> I don't know if it is too late, but after re-reading some of the articles of my classmates, I realized that I had forgotten to bold my key vocabulary within the written text. I guess there were just too many things to think about as I was

wrapping it up. I bolded them just now and am going to send it back to you again (Personal communication, March 27, 2005).

Learners also benefit from elaborated annotated instructor feedback (Shepard, 2005). One distance graduate-level learner commented on the effectiveness of feedback on her learning artifact in an e-mail to her instructor:

> Thank you for your feedback on my project 3 work. It seems like I made more errors than I would like to. I really want to do my best on the work of this course and I am learning a lot throughout every reading, task and project (Personal communication, February 24, 2005).

Our learners also reported they had a deeper understanding of content area knowledge when offered opportunities to revise their learning artifacts. Barron et al. (1998) created a classroom culture supportive of frequent assessment and revision and found "revision was not seen as a chore but rather as a natural component of learning and growing" (p. 284).

Assessment strategies, including rubrics, must be clearly stated and made available to the learners prior to the start of the project. While both formative and summative are vital components to project-based learning, we also integrate opportunities for learner self-reflection to support and monitor ongoing learning.

Project-Based Learning: An Example

> A quality educational experience is the dynamic integration of content and context created and facilitated by a discipline expert and pedagogically competent teacher. (Garrison & Anderson, 2003, p. 4)

Courses we teach in the MT and online MEd TESL programs at the University of Calgary are built on the guiding principles of PJBL. Our projects are learner-centered, collaborative, task-based activities that extend over a period of time, e.g. a week, month, or a semester, resulting in a final learning artifact (Donnelly & Fitzmaurice, 2005; Helle et al., 2006). The essential design elements of a project include: a project overview and rationale; a set of clearly defined learning objectives and key concepts; a list of materials and resources; a set of enabling tasks; and assessment criteria and rubrics. [See Figure 2 below].

Figure 2
Essential Design Elements of Project-Based Learning

Project Overview and Rationale

Learning Objectives and Key Concepts

Materials and Resources

Enabling Tasks

Assessment Strategies

Figure 3
Sample Project Overview from an Online Graduate-Level TESL Course

Welcome to Project 6 of your studies. This project builds on Project 5. Together these two projects will produce learning resources for a thematic unit for a group of ESL learners at an intermediate language proficiency.

The key concepts encountered in Project 5 included:

- Authentic materials are *not* designed or written for TESL purposes. They are written for native speakers of English.
- We need materials that allow our learners to access, learn, and practice the grammar and vocabulary of the target language. The materials, ideally, should also allow our learners to acquire and practice key reading strategies, namely contextual guessing and morphological analysis. (…)

In Project 6, you will be extending Project 5 with a series of newspaper and magazine articles (i.e., authentic text). You will analyze these articles for their overall appropriateness to support the development of English language proficiency and provide cultural information.

Project Overview and Rationale

The project overview provides learners with an introduction to the topic(s) of the project, situates the project within the framework of the course goals and objectives, and provides a clear explanation of the purpose of the project, i.e., rationale. Figure 3 is an excerpt from the introductory statements of one project included in the online version of the course, Designing ESL Materials, a core component of the M.Ed. TESL program:

Learning Objectives and Key Concepts

Once the project has been introduced and situated within the context of the course content, the learning

objectives and key concepts must be explicitly stated. The objectives for the sample project introduced in Figure 3 are stated in the following way:

- To use authentic materials as a basis for preparing learning resources that permit the development of English language proficiency.
- To draw on understandings developed in previous project work: the need to mediate cultural information embedded in materials, the need to make the language system salient and to permit for meaningful recycling, and the need to teach learning strategies.

The key concepts of the sample project are stated below:

Thematic organization allows for intentional thought directed at sequencing, spiraling and integrating macro skills, i.e., reading, writing, listening, and speaking. Text often contains information that can be accessed through the use of visual representations.

Materials and Resources

Initially the instructor makes available the primary learning materials and resources. These may include relevant literature and research; multi-media resources such as websites, learning repositories, and online tools, e.g. Lextutor; and access to teachers and students in school settings. In response to learner needs and interests, the instructor will add and/or modify course content as necessary (Sims, Dobbs & Hand, 2002). Within a project-based model, however, learners are not limited to the materials instructors provide. The learners themselves will make contributions to the learning environment by sharing their experiences, knowledge, and discoveries made through their own research and study.

Enabling Tasks

Embedded within the design of projects are mediated learning tasks that provide clear directions, clarify purpose and expectations, direct learners to appropriate resources, and create learning momentum (McKenzie, 1999). Tasks also provide opportunities for collaborative learning and promote interactivity and interaction focused on authentic situations and issues pertinent to the learning objectives and key concepts guiding the project. For example, pre-service teachers in a face-to-face course were instructed to create a visual representation (a poster) of the physical layout of their classroom in the Field component of the program. [See Appendix A]. The illustration was accompanied by

a written component providing analysis of the class dynamic and the culture of the classroom as a learning community that might be inferred from the physical arrangement of the room. In addition, students submitted a self-reflective piece detailing the knowledge and understanding the learner gained through the experience. As a project proceeds, learners have the opportunity to collaborate on real-world learning tasks which encourage contributions that reflect and respect their needs, interests, learning styles, and background knowledge and experiences.

Assessment Strategies

Culminating from learner engagement in the project's learning tasks is the construction of an end product or a concrete learning artifact (Blumenfeld et al., 1991). To address concerns and suggestions voiced by learners through course evaluations and through our interactions with learners, we added to the online courses, in particular, a project rubric. This rubric simply includes a checklist of the required components to be submitted, usually including learning artifacts that are already completed with instructor feedback provided, in addition to a brief set of questions and/or a description of the content-based knowledge the instructor expects will be evident in the learners' work. These questions support the learning objectives of the project. Figure 4 provides a sample rubric supporting the Project described in Figure 3.

What Our Students Have to Say: Coming Full Circle

In our interactions with learners, they consistently cite a need for scaffolded support, plentiful opportunities for practical application of their expanding professional knowledge, and a desire for directed teaching presence in the teacher education program, including evaluation rubrics. It is our position that teacher education courses adhering to a constructivist approach while promoting discussion and collaboration must provide adequate opportunities for learners to engage with course content, examine key literature and research, and access the subject expertise of the instructor. Our experience with inquiry (Cochran-Smith & Lytle, 2001), aligned with critical theory, has revealed this end of the epistemological spectrum lacks the content that pre- and in-service teacher trainees expect and require for entry into the profession and professionalization throughout their working lives. At the opposite end of the spectrum, the transmission approach provides structure, but it is unable to adapt to the needs or interests of our trainees or the local contexts in which they teach.

Learners involved with PJBL at the baccalaureate level in winter 2009 provided the following comments at semester's end by way of the formal instructor evaluation, Student Evaluation of Instructor Performance:

- "It was great [instructor name] was able to show that within an inquiry-based environment, you can still utilize traditional methods."
- "The Dual Language Project was the best way to achieve inquiry-based learning. It was tangible, hands-on, real and extremely valuable."
- "She offered a tonne of resources and websites to look into. I appreciated how she encouraged us to delve into information that we found most useful to our practice. I really enjoyed looking at websites. Learning by Design and the Lexical profiler – GREAT CLASS!"
- "The [instructor name] posed complex questions about ESL Learning, gave us tools/research, and her guidance to answer the questions. I was able to make my own conclusion about teaching ESL, because I was supported."

The comments provided here are representative of the responses commonly provided by learners completing courses taking a project-based approach to learning.

Conclusion

In sum, we have learned that our students learn best when the leap from Skinner's objectivism to Freire's conscientization allows for the safety net that good project work can provide. A constructivist-oriented educational context recognizes the prior knowledge and experiences both pre-service and in-service teachers bring to training programs (Cochran-Smith & Lytle, 2001). A more balanced epistemology, characteristic of a project-based approach, at the pre- and in-service stages of our learners' professional development, facilitates the acquisition of the knowledge, skills, competencies, and dispositions required to make the successful transition from practice to situated praxis over time.

Figure 4
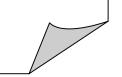Sample Project Rubric for an Online Graduate-Level TESL Course

Project 6: Mini Thematic Unit

Grade: Value: 20%

The mini thematic unit must include the following components:
1. A brief statement of the intended audience for your materials addressing age, proficiency level, learning needs and interests.
2. The teaching context in which these materials will be used. Are you constrained in any way by limited access to computers, video equipment or copying facilities?
3. Re-written text and accompanying learning tasks (Task 1).
4. Readability statistics (Task 2).
5. Analysis of the materials (Task 3)
6. Key visuals (Task 4)
7. A brief reflection on the work of creating the thematic unit.
   a. What are the most salient ideas you gained from this project?
   b. How has your understanding of materials development changed as a result of completing this project?
   c. In what ways has your understanding of language learning and teaching changed as a result of completing this project?

Comments:

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Appendix A

Enabling task 3 of an introductory project on school culture

Sample Baccalaureate-level PJBL Artifact:
Visual representation of classroom layout **Enabling Task 3:**

On a large piece of newsprint or poster paper, sketch out the layout of the class you are in. As you consider the way the desks are arranged, the position of the teacher's desk, the reading materials, storage area, display of student work, bulletin board materials, etc. etc. think about these questions:

- How does the physical lay out of the class facilitate or hinder student interaction?
- How is the class set up to help students manage, organize and take ownership for their 'stuff'?
- Is the class an inviting place for learners to come to? Explain:
- How is the class set up for free reading (A library area? A comfortable reading area?)
- Can the teacher circulate easily? Can she see everyone at once?
- Adequate black/white board space and bulletin board space? How are these used?
- Natural daylight? Good air quality?
- As you look at the layout of the class, what principles of good teaching and learning come to mind?

NOTE: This project promotes the link from theory to practice and back. Professional Seminar (ProSem) discussion that began on campus was linked to the field experiences with this structured assignment that supports making connections. This visual representation then served as a scaffold for a mini presentation and small group interactions in the following ProSem as students compared notes on the culture of the classroom to which they are assigned for the term. The enthusiasm is palpable: 'More than anything I feel EXCITED! I have had such positive experiences already. I have already learned so much. And I am looking forward to learning so much more.