**College of Education**

### TLED 432

 **PROBLEM-BASED LEARNING**

**Submitted by:**

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# Course Description

 Participants will gain expertise in design and implementation of problem-based learning (PBL) curriculum units at the elementary, middle, or high school levels that employ an authentic problem as the impetus for student learning. They will learn about the promotion of engaged learning through immersion of students in “ill-structured,” open-ended problems or controversial issues. The course will focus on brain-compatible learning that engages participants in self-evaluation of their instructional practices.

**Course Objectives**

**Students will have the opportunity to:**

1. Transfer understanding of constructivist theory and principles to instructional practice (IPTS #4 Learning
2. Environment; 5 Planning for instruction; 6 Instructional delivery).
3. Recognize the power of Problem-based learning (PBL) as an approach to teaching and learning (IPTS #4 Learning Environment; 5 Planning for instruction; 6 Instructional delivery)
4. Develop common vocabulary for discussion of PBL (IPTS #5 Planning for instruction; 6 Instructional delivery).
5. Acquire the instructional technique, dialogue, guided practice strategies, and mentoring involved in implementing PBL curriculum (IPTS #4 Learning Environment; 5 Planning for instruction; 6 Instructional delivery).
6. Learn how an ill-structured problem in any academic field is developed with relevance to culturally diverse world problems (IPTS #3 Diversity; 4 Learning Environment; 5 Planning for instruction; 6 Instructional delivery; Communication; and 8 Assessment).
7. Develop appropriate assessment techniques and tools for a specific problem (ITPS 8 Assessment).
8. Investigate research demands
9. Analyze the critical thinking and problem-solving capabilities of students engaged in problem based learning.
10. Develop implementation strategies for classroom and school-wide use (ITPS #5 Planning for instruction; 6 Instructional delivery; Communication; and 8 Assessment).
11. Identify other curricular frameworks for PBL developed in conjunction n with Gardner’s theory of multiple intelligences: case studies, thematic learning, project learning, service learning, and performance learning (ITPS #5 Planning for instruction; 6 Instructional delivery; Communication; and 8 Assessment).
12. Examine and critique the current literature on problem based learning (ITPS #5 Planning for instruction; 6, Instructional delivery; Communication; and 8 Assessment).
13. Participate in problem-based activities designed by class teams (ITPS #5 Planning for instruction; 6 Instructional delivery; Communication; and 8 Assessment and 9 Collaborative relationships).
14. Reflect on how problem based learning can enhance current classroom activities and curricular plans and 9 Collaborative relationships; and 10 Reflective Practice).

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**Methodology**

 This course will be taught using a combination of instructional strategies including lecture, small group work, and whole class interaction. Much of the time spent will be in the library, accessing information and resources.

**Assignments**

 This course is an intensive, practical graduate course for professional development. All students entering the course are assumed to have the ability to earn an A or B grade; however, this does not mean that all students will automatically receive an A or B.

The following four assignments will show outstanding effort to integrate theory and skills into teaching and classroom experience:

 A. ASSIGNMENT #1 - DUE DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* Research on constructivism and problem-based learning -

read and analyze one (1) current article related to these topics.

 \* Write a response journal entry for articles, using the “Learning Log” form.

 \* Share individual selections within small groups.

 B. ASSIGNMENT #2 - DUE DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* Keep a “Thinking Log” that demonstrates a high level of integration of the processes and ideas examined in the

 course.

\* Daily journal entries, Instructor will provide specific prompts related to session content.

\* typed statement of future instructional goals and discussion of “next steps” in the PBL journey.

 C. ASSIGNMENT #3 - DUE DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* Address human diversity in curricular and instructional choices.

 \* Compose a parent letter or survey, describing the PBL unit

 that you plan on using with your students.

 (Include this in your packet)

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 D. ASSIGNMENT #4 - DUE DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* Develop a PBL lesson for an approximate two (2) week unit.

 Structure the problem to meet the needs of your curriculum (connect with state learning standards), anticipate/develop

necessary classroom management skills, adequate resources, and appropriate assessment techniques for a problem in an individual classroom.

(See Fogarty, page 62 for checklist. NUMBER PAGES PLEASE!!)

 \* Prepare the PBL unit to be shared with the class.

**Textbooks**

 Fogarty, Robin. (1997). Problem-based learning and other curriculum models for the multiple intelligencesClassroom*.* Arlington Heights, IL: Skylight Publishing.

 Torp, Linda and Sage, Sara. (1998). Problems as possibilities: problem-based learning for K-12 education. Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

 Teacher-selected articles from professional journals. (See Suggested Journal List attachment)

**Evaluation Standards**

 **GUIDELINES FOR AN "A" - EXCEPTIONAL WORK - WELL ABOVE AVERAGE**

Student demonstrates a high level of energy and involvement in:

 Active and pertinent participation in class discussion and group tasks.

Understand the knowledge base/research findings as reflected in class discussions, classroom applications, and projects.

 Written assignments provide evidence of scholarly work.

 Self-assessment of participation and learning outcomes for assigned activities.

 **GUIDELINES FOR A "B" - BASIC GRADUATE WORK - AVERAGE**

 All assignments provide evidence that an effort has been made to integrate theory and skills into

 teaching and classroom experience.

 Written or verbal presentation of assignments is of high quality.

 Student actively participates in all class discussions and group tasks.

 All completed course work show evidence of application of content.

**GUIDELINES FOR A "C" - BELOW AVERAGE**

 Assignments are delayed and/or meet minimal requirements.

 Student participates minimally in class discussions and group tasks.

 Course work completed reflects minimal level of acceptability.

 Perfect attendance requirement is not met.

 Student demonstrates a good level of energy and involvement in:

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**Course Agenda**

 A. Review of Literature

1. Student learning in a PBL classroom (Stepien and Gallagher,etc.)

 2. Problem selection (Brooks and Brooks)

 3. Medical school model (Barrows)

 B. Sources of Problems

 1. Using content as “post holes”

 2. Student-selected situations

 3. Current events issues

 4. Historical sources

 C. Development of Problems

 1. Complexity

 2. Realism

 D. Teacher Role

 1. Facilitator issues

 2. Metacognition coach

 3. Modeling of complex thinking

 4. Questioning techniques

 E. Student Expectations

 1. Responsibility for learning

 2. Sources for solutions

 a. Library research

 b. Community sources

 3. Group cooperation

 F. Assessment and Evaluation

 1. Teacher options

 2. Student self-assessment

 G. Classroom Management

 1. Time/ block scheduling

 2. Quality(depth) versus quantity (coverage) issues

 3. Performance possibilities

 H. Teacher Reflection

 1. Self-evaluation of development and use of problem

 2. Statement of future goals

 3. Instructor input

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**STUDENTS ENROLLED IN INTENSIVE COURSES ARE ASKED:**

 1. To bring ideas and materials to create a PBL unit of study to

 use in their classrooms.

2. To read the Foreword, Introduction, and Chapter 1 of the Fogarty text.

 3. To read all chapters in the ASCD text.

 4. To bring to class: a highlighter, Post-its, and a 3 ring binder.

**Bibliography**

Barrows, H. S. (1985). How to Design a Problem-Based Learning Curriculum in the Pre-Clinical Years. New York.

Barrows, H. S. (1988). The Tutorial Process. Southern Illinois University School of Medicine. Springfield, IL.

Brooks, G. B. and Brooks, M. G. (1993). In Search of Understanding: The Case for Constructivist Classrooms. Association for Supervision and Curriculum Development. Alexander, VA.

Fogarty, R. and Stoeher, J. (1995). Integrating Curricula with Multiple Intelligences: Teams, Themes, and Threads. Arlington Heights, IL.

Gallagher, S. A., Stepien, W. J., and Rosenthal, H. (1992). Changes in Talented Students’ Spontaneously Elicited Problem-Solving Steps as a Result of Problem-Based Instruction. Gifted Child Quarterly. 195-201.

Margetson, D. (1991). Why is Problem Based Learning a Challenge? In D.Boud and G. Feletti (Eds) The Challenge of Problem-Based Learning.

 Marzano,R. J. (1992). A Different Kind of Classroom. Association for Supervision and Curriculum Development. Alexander, VA.

Savery, J. R. and Duffy. T. M. (1995). Problem-Based Learning: An Instructional Model and its Constructivist Framework. EducationaTechnology, 35 (5), 31-38.

Savoie, J. M. and Hughes, A. S. (1994). Problem-Based Learning as Classroom Solution. Educational Leadership, 52 (3), 54-57.

Seifert, E. H. and Simmons, D. (1997). Learning Centered Schools Using a Problem-Based Approach. National Association of Secondary School Principals Bulletin, 81, 90-97.

Skowron, J. (1998). A Tool For Engaging Teachers in Change. Journal of Staff Development, 19, (1), 40-44.

Stepien, W. J. and Gallagher, S. A. (1993). Problem-Based Learning: As Authentic as it Gets. Educational Leadership, 50 (7), 25-29.

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Stepien, W. J. and Gallagher, S. A. and Workman, D. (1993). Problem-Based Learning for Traditional and Interdisciplinary Classrooms. Journal for the Education of the Gifted, 16 (4).

Vernon, D. T. and Blake, R. L. (1993). Does Problem-Based Learning Work? A Meta-Analysis of Evaluative Research. Academic Medicine, 68, 550-563.

 **Web Sites**

 CENTER FOR PROBLEM-BASED LEARNING AT ILLINOIS MATHEMATICS AND SCIENCE ACADEMY (IMSA) http://www.imsa.edu/team/pbl/pbl.html

BERNARD HOLLISTER PROFESSOR AT ILLINOIS MATHEMATICS AND SCIENCE ACADEMY IMSA- http://www.imsa.edu/team/pbl/working/bernie.html

 PBLIST HOME PAGE (links to other PBL sites, primarily medical) -

 http://ddsdx.ythsca.edu/pblist/pblisthome.html

 PROBLEM-BASED LEARNING AT THE\_\_\_ä UNIVERSITY OF DELAWARE-

 http://www.physics.udel.edu/~pbl/

 PBL CURRICULUM AT SOUTHERN ILLINOIS UNIVERSITY SCHOOL OF MEDICINE - http://www.siumed.edu/plbc/pblapp.html

 HIGH SCHOOL PBL AT ARKANSAS ADVENTURES IN NETWORKING -

 http://www.sedl.org/aan/pbl.html

 CURRENT EDUCATIONAL REFORM AND THE SIGNIFICANCE OF PBL-

 (Don Margetson Paper-http://www.gu.edu.au/guis/gihe/gihe op/op1margetson. Html