The Interdisciplinary Journal of Problem-based Learning

The Interdisciplinary Journal of Problem-based Learning (IJPBL) is published bi-annually by Purdue University Press. IJPBL publishes relevant, interesting, and challenging articles of research, analysis, or promising practice related to all aspects of implementing problem-based learning (PBL) in K–12 and post-secondary classrooms.

Editor
Peggy A. Ertmer
Purdue University

Editorial Board
George Bodner, Purdue University
Nada Dabbagh, George Mason University
Cindy E. Hmelo-Silver, Rutgers University
Woei Hung, University of North Dakota
David Jonassen, University of Missouri
Johannes Strobel, Purdue University

Advisory Board
Thomas Duffy, Indiana University
Alexus Macklin, John Heinz History Center
John Savery, University of Akron
George Watson, University of Delaware
Donald Woods, McMaster University

Editorial Assistant
Christopher Mong

Consulting Editors
Earle Abrahamson, Middlesex University
Peter Albion, University of Southern Queensland
Ayfer Alper, Ankara University
Brian R. Belland, Utah State University
Laurie Bentley-Dias, Georgia State University
Mark Best, LECOM-Bradenton
Jonathan D. Brinkerhoff, University of New Mexico
Scott A. Chamberlin, University of Wyoming
Dennis Charsky, Ithaca College
Christina De Simone, University of Ottawa
Heidi Diefes-Dux, Purdue University
Aaron Doering, University of Minnesota
Joanna C. Dunlap, University of Colorado Denver
Xun Ge, University of Oklahoma
Krista D. Glazewski, New Mexico State University
Karen Goodnough, Memorial University of Newfoundland
Michael M. Grant, University of Memphis
Nathaniel Grove, Clemson University
Brian Horvitz, Western Michigan University
Carole Hruskocy, Regis University
Elizabeth Jordan, University of British Columbia
Hameedullah Kazi, Isra University
Sabri Kemahlki, Ankara University
Molly M. Lane, Capella University
John Larmer, Buck Institute for Education
James D. Lehman, Purdue University
Stacey Lowery Bretz, Miami University
Ellen Lynch, University of Cincinnati
Olive McKeown, St Georges Medical School
John R. Mergendoller, Buck Institute for Education
Mary Kay Orgill, University of Nevada
Chandra Hawley Orrill, University of Georgia
Sanghoon Park, Northwestern State University
Sung Hee Park, Ewha Womans University
Drew Polly, UNC Charlotte
Heather R. Purichia, Penn State College of Medicine
Mary Lynn Quartaroli, Northern Arizona University
James Quinn, Oakland University
Jason Ravitz, Buck Institute for Education
Petrea Redmond, University of Southern Queensland
Donna Russell, University of Missouri-Kansas City
Regina Schoenfeld-Tacher, Colorado State University
Mary B. Shoffner, Georgia State University
Phillip J. VanFossen, Purdue University
Andrew Walker, Utah State University
George Watson, University of Delaware
William R. Watson, Purdue University
Harold B. White, University of Delaware
Sandra Williamson, Wilmington University
Brent G. Wilson, University of Colorado Denver
Alyssa Wise, Simon Fraser University
Aman Yadav, Purdue University
Stephen Pui-ming Yeung

Cover Designer
Jennifer A. Neese

http://dx.doi.org/10.7771/1541-5015.1094

ISSN 1541-5015
Submission Guidelines

Submission of articles that report on original research, classroom or project descriptions and evaluations, syntheses of the literature, assessments of the state of the art, and theoretical or conceptual positions that relate to the use of PBL, including the planning, management, operation, and evaluation of PBL are highly desired. Please note that for original research, we expect to see an explanation of the research question(s), description of the methods employed, analyses used, and recommendations for implementation and further research.

**Length:** Manuscripts should be between 10 and 25 double-spaced U.S. standard letter size (8½" × 11") pages in length. In addition, an abstract of approximately 125 words is required.

**Style:** Manuscripts should be prepared according to the APA format as described in the *Publication Manual of the American Psychological Association* (5th ed.). Manuscripts not conforming to these specifications will be returned to the author for proper formatting.

**Format:** Manuscripts should be submitted electronically through the journal website, [http://docs.lib.purdue.edu/ijpbl/](http://docs.lib.purdue.edu/ijpbl/). Articles may be uploaded in either of the following formats.

- MS Word for Windows using only the truetype versions of standard PostScript fonts (Times, Arial, Symbol)
- Rich Text Format (RTF) with the same constraints for fonts

Manuscripts submitted to *IJPBL* need to be free of identifying characteristics, including author names, acknowledgments, and references to the author(s)’s previous or forthcoming work. All references to the authors should be replaced with the word Author throughout the manuscript.

**Review Process:** Manuscripts are reviewed first by the editorial board. Those that are appropriate for the journal are sent to at least two experts in PBL scholarship, particularly in the primary author’s discipline or content area. All reviews are blind, that is, without identifying the authors to the reviewers. On the basis of the reviewers’ recommendations, the *IJPBL* editors will decide to publish the manuscript as submitted, to request a significant revision and resubmission, or to reject the manuscript for publication. In all cases, the author will be notified of the decision, and a copy of the reviewers’ comments will be provided. The review process is expected to take between 2–4 months.

If you have any questions, please contact Peggy A. Ertmer at pertmer@purdue.edu.
## Contents

Introduction: Summarizing Findings and Looking Ahead to a New Generation of PBL Research
*Jason Ravitz*  
4

A Problem-based Learning Meta Analysis: Differences across Problem Types, Implementation Types, Disciplines, and Assessment Levels
*Andrew Walker and Heather Leary*  
12

When is PBL More Effective? A Meta-synthesis of Meta-analyses Comparing PBL to Conventional Classrooms
*Johannes Strobel and Angela van Barneveld*  
44

Validity and Problem-based Learning Research: A Review of Instruments Used to Assess Intended Learning Outcomes
*Brian R. Belland, Brian F. French, and Peggy A. Ertmer*  
59

Book Review: *A Practical Guide to Problem-based Learning Online*  
by Maggie Savin-Baden  
Reviewed by Jennifer C. Richardson  
90

---

**The Interdisciplinary Journal of Problem-based Learning**  
Volume 3, Number 1  
Spring 2009