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Interactional Research Into Problem-Based Learning

Susan M. Bridges

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Interactional Research

Into Problem-Based Learning

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Edited by

Susan M. Bridges *and* Rintaro Imafuku

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Foreword

Judith Green

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This collection, assembled by Susan Bridges and Rintaro Imafuku, addresses critical questions central to uncovering insider (emic) understandings of *how, in what ways, under what conditions, and with what consequences* students (and by extension, facilitators/instructors or teachers) develop opportunities for learning collectively and individually, in and over time, and across configurations of actors and intertextually tied events. By bringing together empirical qualitative research guided by different theoretical and epistemological perspectives, Bridges and Imafuku lay a foundation for addressing an overarching question: Why are qualitative approaches critical to researching problem-based learning (PBL) interactions? This collection of empirical research in different educational contexts (K–12 and higher education), viewed through differing theoretical and methodological lenses, lays a foundation for examining what each individual lens makes visible about emic understandings constructed by participants and what can be learned by going beyond any individual perspective or context. By exploring what each theoretical lens makes visible across the chapters and how the research was undertaken, readers have an opportunity to develop a transdisciplinary understanding of the complex factors that influence and support student learning, not from the focus of outcome measures but from the emic perspectives and understandings of the participants.

What is unique about this volume is that rather than focusing on describing different methodological perspectives at an abstract level, the editors have included articles that have a *common* goal of gaining insights

into “emic perspectives.” This common goal creates the potential for constructing a deeper understanding of what each empirically grounded, theoretical, and methodological perspective contributes to developing a more holistic transdisciplinary understanding of *how inquiry-based lived experiences* support student learning in particular educational contexts within and across disciplines. This collection therefore makes visible what can be learned when different, *uncommon*, empirical-epistemological lenses address a common goal of exploring emic understandings developed by students as they participate in particular inquiry-based educational programs: problem-based learning, project-based learning, cooperative learning, and interdisciplinary professional education.

Each chapter presents an empirical research grounding for exploring the emic perspectives constructed interactionally in a particular educational setting. Each author/team of authors also makes transparent the logic of inquiry guiding the decisions of the problem of interest, the selection of a point of view (students, facilitators, teachers, and/or groups), the contexts of the study, the relationships among participants, the subject area, and the theoretical approach that guided the exploration of the problem-based/inquiry-based learning processes from emic perspective(s).

This collection makes visible *how* and *in what ways* the researchers in particular settings, seeking particular understandings of the emic perspectives of particular participants, developed theoretically and empirically grounded iterative, recursive, and nonlinear processes that supported them in studying complex and developing social, academic, interpersonal, and discursive ways of knowing, being, and engaging in inquiry-based processes collectively and individually within a collective. In bringing together these empirical studies, Bridges and Imafuku lay a foundation for exploring issues involved in examining *what constitutes emic understandings or perspectives* within and across times, settings, disciplines, and international as well as interdisciplinary contexts. The depth and transparency that the authors provide to make visible the theoretical basis of the study, the research logic, and the ways of constructing warranted accounts of particular emic phenomenon/a lay a foundation for developing a more holistic, transdisciplinary understanding of factors that influence student learning in problem-based/inquiry-based programs of study.

This volume therefore affords readers a unique opportunity not only to gain deep insights into particular forms of empirical qualitative research for studying emic or contextually bounded opportunities for learning, but also

to develop deeper, cross-disciplinary insights into challenges facing students in constructing understandings of the learning processes from particular lived experiences. When taken as a whole, this collection provides a basis for engaging in transdisciplinary dialogues about the potential sources, processes, and practices influencing *how* and *in what ways* students develop understandings of complex subjects in inquiry- or problem-based collective contexts. Individually and collectively, the chapters of this volume also direct researchers' attention to accounting for particular configurations of actors, intertextually tied cycles of activity, and disciplinary requirements that are all part of developing and engaging in learning opportunities within particular curricular designs and educational settings.

In the following discussion I propose a way of *reading across the chapters* ethnographically to support readers in identifying and constructing a more holistic understanding of the situated nature and epistemological processes guiding each study in this volume. This proposed approach is grounded in anthropological perspectives on ethnographic research (Green & Bridges, 2018) that have guided research on PBL undertaken by Bridges and colleagues. This approach is an adaptation of Heath and Street's (2008) principles for ethnographic inquiry, adapted here for exploring the inscribed arguments and processes within and across texts. As you read across the chapters, engage in

- suspending known categories from your own research in order to construct understandings of local and situated categories and referential meanings of actions being developed by participants and inscribed by the author(s);
- acknowledging differences between what you know and what the actor(s) (authors) in the context know based on what they inscribed and made transparent;
- identifying and constructing new ways of understanding (knowing) that are grounded in local and situated ways of knowing, being and doing the processes and practices of everyday life as articulated by particular participants within the study as inscribed by the author(s);
- developing ways of (re)presenting what is inscribed (i.e., known) by local actors (authors) and what you (as ethnographer/reader) learned from the contrastive analyses across chapters to explore how, and what, different forms of empirical qualitative analysis

made visible students' developing emic understandings of what constitutes learning in inquiry-based programs.

These principles are provided to support ongoing conversations about how emic perspectives are empirically constructed by researchers within and across differing epistemological perspectives as represented in this volume. By engaging in contrastive analyses within and across such perspectives, a more holistic and transdisciplinary understanding of the situated nature of learning and its consequences for particular students can be developed. These dialogues across perspectives have the potential to deepen understandings of the situated nature of learning-teaching relationships and knowledge constructed within particular times, events, and configurations of actors/participants. Thus, as Bridges and Imafuku have shown, the results of qualitative studies have the potential for informing facilitators' (instructors' or teachers') actions and the decisions of curriculum designers as they develop inquiry-based programs.

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EDITORS' INTRODUCTION

Why Focus on Interactions in Problem-Based Learning?

Susan M. Bridges

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This volume arose from an invitation by the editorial board of Purdue University Press to extend the work presented in the 2016 special issue (volume 10) of the *Interdisciplinary Journal of Problem-based Learning* (IJPBL). Our goal for both collections has been to contribute to the growing evidence base that is affording new insights into student experiences in problem-based learning (PBL) as an inquiry-led approach as it is coconstructed through dialogic, interactional processes. In curating and shaping this volume, we recognised important points of departure from the 2016 special issue and, indeed, since the genesis of PBL in medical education half a century ago. We note that the field of interactional studies in PBL is not only growing but, significantly, is addressing the key philosophical, curriculum design, and pedagogical issues facing many learning approaches in an era of complexity, change, and ubiquitous access to information.

Given its focus on dialogic approaches and collaborative inquiry, PBL is a logical field to explore from a situated perspective. Indeed, as Dolmans and Gijbels (2013) noted, it is important to investigate “how the different elements of a PBL environment can be optimized for what kind of student, under which conditions and why” (p. 217). Evensen and Hmelo-Silver’s (2000) edited volume was one of the earliest attempts to create a compendium focussed on investigating the group meeting and self-directed learning in PBL in medical education and reported empirical studies drawing on self-reports, interviews, observations, and verbal protocols.

In this volume, contributors have further responded to our question: Why focus on interactions in PBL? In doing so, they have explored the key

themes of students' learning processes in PBL over time and across contexts, the nature of quality interactions in PBL tutorials (and how "quality" is achieved through talk and other modalities), facilitation processes, and the developing nature of PBL learner identity. In chapter 11, Savin-Baden's article (reproduced from Savin-Baden, 2016) provides a framework of four transdisciplinary threshold concepts in PBL that support transformations in understanding: liminality, scaffolding, pedagogical content knowledge, and pedagogical stance. If we adopt this as a metaframing for the studies in this volume, we can see how each study's focus on interactions in PBL contexts illustrates *liminality* by highlighting the moments of dissonance, conflict, or confusion that can generate transitions and transformations as conceptual epiphanies, new group norms and practices, and identity formulations. In terms of *scaffolding*, the studies on educational technologies and new digital information flows trace how new affordances are taken up by the facilitator and/or the PBL group, with analysis indicating the inherent PBL dilemmas related to the degrees of scaffolding necessary for learners across a variety of contexts. Shulman's notion of *pedagogic content knowledge* remains, in his own words (Shulman, 2018), a fuzzy term, but as Savin-Baden argues, it underlies the importance of PBL to identity formation. In the studies in this volume, this can be seen in relation to professional education but also in terms of identities grounded in disciplines, for example, gender and mathematics education. Perhaps central to the nuances of the interactional studies in this volume is the notion of *pedagogical stance*, as, by taking an emic perspective, we are able to gain textured insights into the actions of students and their facilitators within and across the PBL cycle of inquiry.

The invited commentaries in the preface and the closing provide unique, "outsider" perspectives from an expert educational researcher (Green), on the one hand, and novice educational researchers (Verbeek and Maximo Chian) on the other. As editors, we trust that the etic and emic insights presented in this volume provide a platform for expanding and integrating interactional scholarship to extend the potential of PBL into its next 50 years.

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SECTION I

EMIC PERSPECTIVES OF PROBLEM-BASED LEARNING DYNAMICS THROUGH INTERACTIONAL RESEARCH

The studies presented in this section have adopted a variety of methodologies drawn from the larger traditions of educational ethnography, interactional sociolinguistics, and discourse analysis, which share an interest in examining the lived experiences of learning processes in situ. A shared theme across these chapters is an exploration of the sociocultural and sociocognitive dimensions of PBL, with researchers aiming to make visible the impact of the “social” on student and group learning. This is achieved through close examination of a range of PBL interactional processes across contexts and years of study. Foci range from exploring human interactions (peer, facilitator, group) to understanding how technologies are reshaping new formulations of PBL in its 50th decade.

To provide a broad framing for the field of interaction research in PBL, we open with Jin and Bridges’s review of qualitative research in PBL, which, while restricted to studies in medical and health sciences education, indicates future directions relevant to a range of disciplines and educational contexts. The remaining studies can be viewed as building from these authors’ closing call for further interactional studies to contribute textured understandings of PBL facilitation, assessment, and the new impact of educational technologies. The remainder of the chapters in this section contribute new perspectives through studies embracing ethnographic approaches to video analysis, introspective protocols such as stimulated recall interviews, and longitudinal qualitative studies using

discourse-based analytic approaches. Skinner and colleagues' exploration of students' views of social practices with respect to quietness and dominance in groups is illuminating in terms of how group roles and functions are negotiated and developed, while their ethnographic investigation of PBL group practices notes the dual nature of silence as either generative or negatively impacting learning and social interactions in PBL tutorials. Schettino's narrative analysis examines interactional aspects of adolescent female students' mathematics learning in "relational problem-based learning (RPBL)" and constructs I-Poems to identify developing empowerment and agency in problem-based mathematics learning. Svihla and Reeve's emic analysis of student–teacher interactions, field notes obtained from participant observation, and students' learning artifacts explores the agentic process of students' learning in a problem-framing activity within project-based instruction at a U.S. charter school. They demonstrate the power of codesign in PBL, which enables students to take ownership. Almajed and colleagues adopt a constructionist interpretive approach to examining collaborative learning, specifically in case-based discussions in dental education. Their study reinforces prior assertions about the generative and productive nature of sociocognitive "knowledge conflicts" in inquiry-based group discussions. Wiggins and colleagues draw upon discursive psychology to analyze interactions in the first tutorial of a new PBL group. Their study illustrates how students present themselves in a new interprofessional group learning setting and indicates implications for group and academic identity development through interactions. In their discourse-based study of PBL in Japan, Imafuku and colleagues examine student participation patterns in an interprofessional education (IPE) seminar. Their analysis of classroom interactions and stimulated recall interviews sheds light on what and how learners gain in terms of both their collaborative processes of knowledge coconstruction and managing conflict in IPE. In another discursive psychology study, Hendry, Wiggins, and Anderson's fine-grained microanalysis of students in situ provides a nuanced accounting of personal mobile phone use during PBL to examine the management of psychological issues in talk and text. McQuade and colleagues' conversation analysis (CA) study addresses the problematic issue of how students manage instances of social loafing in PBL groups and makes visible the social dimension of teaching and learning within the PBL process, including the resilience of PBL learner identity and interactional strategies in mitigating the issues raised as a result of social loafing.

Finally, Lai, Wong, and Bridges' interactional ethnography (IE) explores how students and their facilitator incorporate a screen-sharing presentation system in face-to-face PBL tutorials to reshape knowledge coconstruction processes in a blended learning environment. Their findings suggest that the use of educational technologies in PBL can expand not only the facilitators' repertoire of effective strategies for scaffolding learning but also student's active engagement.

As a whole, this section moves us into new and nuanced understandings of the role of interactional processes for collaboration and inquiry, which are central to the tenets of problem-based learning.