PRF RESEARCH GRANT INFORMATION FORM

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Project Director - first, mi, last  Professorial Rank

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Department & Building  Telephone / email

Title of Project

A Case Study of Classroom Discourse about Literacy and Mathematics for English Language Learners in Kindergarten

Will the research study involve the use of vertebrate animals, human subjects, or rDNA/biohazards?

X Yes  No

(If yes, indicate reference numbers below. This is a required field – if no approval has been obtained, indicate 'pending' in approval number line)

PACUC [Animals] approval number  IRB [Humans] approval number  pending
IBC [r-DNA, bio-hazards] approval number

Do you currently have a PRF Grant  X yes  no
If yes, expiration date  May 31, 2012

Sponsor Program No.

Not required, however, if you know the name of the Ph.D. graduate student you will be supporting:

Name of Student Marshall Klassen
Student ID # 00251-53130

Graduate Index 4.0 (Based on 10 accumulative hours completed)

Project Director Signature  /  1/13/12

Endorsed:

Dean or Delegate Signature  /  Date
A Case Study of Classroom Discourse about Literacy and Mathematics for English Language Learners in Kindergarten

Abstract

Schools in Indiana have recently witnessed a growing population of English Language Learners (ELLs), students who speak English as an additional language. Given the increasing number of ELLs in K-12 classrooms in Indiana schools, their teachers need resources and assistance to support these students’ literacy and mathematics development. This study will investigate the classroom discourse about literacy and mathematics learning of English Language Learners (ELLs) in a kindergarten class in Indiana. Through a case study of a kindergarten classroom, we will examine classroom discourse through a multimodal approach to understand how classroom talk about literacy and mathematics supports and challenges ELLs’ literacy and mathematical development. This study will address the following research questions: (1) What is the nature of classroom discourse for kindergarten ELLs? (2) How does the classroom talk about literacy and mathematics support and challenge kindergarten ELLs in their language development? (3) What ELL strategies does the teacher use to support ELLs’ language and content development in literacy and mathematics? Descriptions of classroom discourse processes, challenges and support ELLs encounter, and ELL strategies the teacher uses will suggest some instructional approaches for teachers and provide instructional support for these students’ literacy and mathematical development.
**Proposed Study Narrative**

English language learners (ELLs), students who speak a language other than English at home, comprise 19.2% of the United States population (U.S. Census Bureau, 2005). As the U.S. population becomes more diverse, the need to educate ELLs becomes increasingly more important. Between 1995 and 2005, Indiana had the third highest rate of growth in the number of Limited English Proficient children in the entire U.S. or 408% (National Clearinghouse on English Language Acquisition, 2006).

A persistent achievement gap exists between ELLs and native English speakers (Kindler, 2002), and students from non-English speaking backgrounds have higher dropout rates than English-background students (Ruiz-de-Velasco & Fix, 2000). To minimize this dropout rate and close the achievement gap, we need to understand the kind of support ELLs receive when they enter school, usually in kindergarten. Kindergarten is a critical year for ELLs (Cirino, Pollard-Durodola, Foorman, Carlson, & Francis, 2007), as it is likely the first time they encounter the English language in a formal setting.

Recent work has called for the preparation of elementary school teachers to effectively support ELLs (Author & Colleague 1, 2010; Hite & Evans, 2006). But providing this instructional support is dependent on understanding the nature of the support and challenges encountered by ELLs in a mainstream classroom context (Gibbons, 2006). Classroom discourse places demands on students who have to understand the language being used by the teacher. Students are expected to interpret and talk about concepts which are simultaneously verbal, visual, and mathematical. Literacy and mathematics learning poses multimodal language demands on students, especially at the kindergarten level, where visual and verbal resources are important for meaning-making in the classroom. As a result, research is needed to examine the existing classroom discourse through a multimodal, classroom discourse approach (Christie, 2005; Kress, Jewitt, Ogborn, & Tsatsarelis, 2001) and to understand how ELLs are supported and challenged by classroom talk.

**Research Questions**

As the number of ELLs in Indiana K-12 schools is dramatically increasing, their teachers need resources and assistance to support them (Author & Colleague 2, 2008). Responding to this need, this
study will take place in an Indiana elementary school. The goal of this case study of a kindergarten classroom with ELLs is to understand how classroom discourse supports and challenges ELLs’ development of their literacy skills and mathematical knowledge. This study addresses the following questions: (1) What is the nature of classroom discourse for kindergarten ELLs? (2) How does the classroom talk about literacy and mathematics support and challenge kindergarten ELLs in their language development? (3) What ELL strategies does the teacher use to support ELLs’ language and content development in literacy and mathematics? We selected to focus on kindergarten because this grade level is essential for ELLs, as it may be their first experiences with formal schooling and the English language. Therefore, the experiences ELLs have at this grade level are critical for their language development as well as their development of literacy and mathematical skills.

Research Design

In order to answer the research questions, we choose to work within a Systemic Functional Linguistics (SFL) classroom discourse analysis approach and a single case study method. A case study allows us to provide an intensive focus on a single kindergarten classroom with ELLs. We draw on an analytical approach to study multimodal classroom discourse, including verbal and visual resources, and interplays of these multiple modes in the context of literacy and mathematics, following the work by Christie (2005), O’Halloran (2008) and Kress, Jewitt, Ogborn & Tsatsarelis (2001). SFL theory, which has already made significant contributions to our understanding of classroom discourse (Christie, 2005; Gibbons, 2003, 2006), links language with social context, enabling us to analyze classroom discourse in terms of semiotic choices that construct meaning (Halliday & Matthiessen, 2004). Our analyses will use Christie’s (2005) framework for conducting classroom discourse analysis by looking specifically at the pedagogic discourse of the classroom. Specifically, we use the concepts of regulative register and instructional register to identify instances of language use by the teacher:

…pedagogic discourse can be thought of as creating curriculum genres and sometimes larger unities referred to as curriculum macrogenres. These… are to be analysed and understood in terms of the operation of two registers, a first order or regulative register, to do with the overall
goals, directions, pacing and sequencing of classroom activity, and a second order or
instructional register, to do with the particular ‘content’ being taught and learned (p. 3).

Where the teaching is really successful, Christie (2000) argues, there will be long sequences in which the
two registers converge as students engage with learning about the “content” (realized in the instructional
register), while working towards clearly defined tasks (realized in the regulative register) (p. 186).

**Planned Analysis and Interpretation**

We will collect interview data and classroom observation data to describe the discourse
processes, support and challenges faced by kindergarten ELLs, and ELL strategies used by the teacher.

We will first interview the teacher for her identification of some particular challenges for ELLs and her
perceptions of why these challenges occur at this grade level. We will conduct classroom observations
and subsequent interviews with the teacher to describe how classroom talk supports or challenges ELLs to
cope with the challenges of construing meaning in kindergarten. Table 1 provides an overview of research
questions, data, and outcomes.

Table 1 Outline of Research Questions, Data Collection and Analysis, & Outcomes

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<th>Research Question</th>
<th>Data Collection/Analysis</th>
<th>Outcomes</th>
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<td>1. What is the nature of classroom discourse for kindergarten ELLs?</td>
<td>- Interviews with one kindergarten teacher&lt;br&gt;- Audio-recordings of classroom discourse in literacy and mathematics teaching&lt;br&gt;<em>Preliminary data analysis</em>&lt;br&gt;<em>SFL multimodal discourse analysis</em></td>
<td>- The teacher’s identification of particular challenges for kindergarten ELLs&lt;br&gt;- The teacher’s perceptions of why these are challenges for ELLs&lt;br&gt;- Analysis of classroom discourse</td>
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<td>2. How does the classroom talk about literacy and mathematics support and challenge kindergarten ELLs in their language development?</td>
<td>- Observations of one kindergarten classroom&lt;br&gt;- Audio-recordings of classroom discourse in literacy and mathematics teaching&lt;br&gt;- Subsequent interviews with the teacher&lt;br&gt;<em>SFL multimodal discourse analysis of classroom observations &amp; subsequent interviews</em></td>
<td>- The teacher’s description of how the classroom talk supports or challenges ELLs to cope with challenges of understanding the classroom discourse around literacy and mathematics tasks</td>
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<td>3. What ELL strategies does the teacher use to support ELLs’ language and content development in literacy and mathematics?</td>
<td>- Observations of one kindergarten classroom&lt;br&gt;- Audio-recordings of classroom discourse in literacy and mathematics teaching</td>
<td>- Teacher’s identification of ELL strategies to support ELLs’ language and content development in literacy and mathematics</td>
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Interviews with kindergarten teacher. Interviews will be audiotaped and subsequently transcribed and analyzed. After interviews are transcribed, a preliminary data analysis will be done following Merriam’s (1998) suggested procedures. Through multiple readings of all interview transcripts, recurrent issues will be identified and emerging categories or themes will be written up. We will apply a preliminary data analysis to analyze the collected interview data for the teacher’s identification of challenges for ELLs and the teacher’s perceptions of why these are challenges for ELLs. SFL multimodal discourse analysis which focuses on grammatical, lexical (vocabulary), and paralinguistic features and their realization of particular social contexts sees the multiple semiotic resources, including words, sentences, diagrams and images, as a set of choices for making meaning (Lemke, 2000; O’Halloran, 2008). Thus, SFL multimodal discourse analysis will serve as the appropriate analytic tool.

Classroom observations & subsequent interviews. We will collect classroom data by audio recording and transcribing the recorded classroom talk about literacy and mathematics. All classroom discourse including the classroom observation data and the subsequent interview data will undergo an SFL multimodal classroom discourse analysis. This multimodal approach will provide a close look at the complex integration of verbal discourse, gesture, diagrams and images, which the teacher uses to communicate literacy and mathematical content to students (Lemke, 2000; O’Halloran, 2008). We plan to provide rich descriptions of the discourse processes and support or challenges ELLs might encounter when construing meaning and suggest some instructional approaches for kindergarten teachers.

A detailed description can help teacher educators and professional development providers to ensure the development of teachers’ expertise and knowledge for scaffolding ELLs’ literacy and mathematical development. This research project will suggest some instructional approaches for elementary teachers who have limited experiences teaching ELLs but who need to develop effective ways to help these students.
References

Author & Colleague 1 (2010).


**Timeline**

The research supported by this grant will be implemented during 2012-13 according to the following timeline:

<table>
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<th>Period</th>
<th>Activities</th>
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<tr>
<td>July – August 2012</td>
<td>Conduct library search and obtain relevant literature; contact the kindergarten teacher, complete IRB proposal, conduct interviews</td>
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<tr>
<td>August – December 2012</td>
<td>Conduct classroom observations, audio-record and transcribe observation notes, conduct preliminary data analyses as well as subsequent interviews with the teacher; write conference proposals for state and national conferences (INTESOL and TESOL); present at state conference (INTESOL).</td>
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<tr>
<td>January – May 2013</td>
<td>Continue data collection; code data; conduct synthesis of completed data analysis; outline initial results.</td>
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<tr>
<td>May 2013</td>
<td>Write draft of manuscript for publication in refereed journal.</td>
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Funding Rationale

Funding for this research is fundamental for the continued development of the faculty member’s research program. In this research area, limited funds are available to support qualitative, discourse analysis work. With these limitations, there is very little that we can do for our Ph.D. students, so a PRF is a great opportunity to provide funding for our students, as we try to grow our graduate program. In addition, I do not have the power to hire Ph.D. students as teaching assistants because I do not coordinate a block course for the elementary teacher education program, which makes it really difficult for students who focus on ELLs to get funding in our program, even though I have the most students in our program area.

The assistance of a Graduate Research Assistant (GRA) is essential in facilitating data collection and analysis. The GRA will conduct library searches and obtain relevant literature. The data will be collected by the GRA and typed as a database for research. Following individual data analysis, we will compare analyses and resolve inconsistencies. The GRA will participate in regularly scheduled research meetings and will be supervised. The GRA will be invited to participate in the dissemination of the results through conference presentations and manuscripts and assist in the preparation of a larger, external grant proposal.
Previous Support

(1) Is this proposal an application for a 2\textsuperscript{nd} year of an existing PRF award? \textbf{No, this is a new application.}

(2) If this is not a 2\textsuperscript{nd} year extension, have you ever had a year-long PRF before, and, if so, when was your most recent award? \textbf{Yes, 2011-2012} “Science Classroom Discourse for 4\textsuperscript{th} Grade English Language Learners’ Scientific Literacy Development,” which focused on 4\textsuperscript{th} grade science for ELLs.)
Strategic Value

This research study is part of a larger research program that focuses on content area learning by ELLs. Initial studies have focused on the content area of history (Author, 2011; 2008; 2006b; Colleague 1 & Author, 2006), English language arts (Author & Colleague 3, 2009; Colleague 3, Author, & Ph.D. student 1), science (Author, 2010; Author & Colleague 1, 2010), and mathematics (Author, in press; Author and Ph.D. student 2, 2011). This study will support a focus on the content areas of literacy and mathematics. The goal of the faculty member’s research program is to first identify the language challenges of the discourse of different disciplines to ELLs. This research can then be directly applied to teaching of preservice elementary teachers at Purdue as it focuses on strategies and methods for teaching ELLs. The faculty member has constantly done workshops and institutes for mainstream, content area teachers of ELLs focused on content area literacies for ELLs. This research program is also relevant for the STEM initiatives at the P-12 levels supported by the College of Education and addresses the new COE Strategic Plan (2009-2014). Two of the values identified in the plan are multiculturalism and competence to enter diverse and dynamic professional environments. The plan identifies modeling “inclusiveness” as a way to address our goals by celebrating cultural and intellectual diversity. The strategies to accomplish this are: prepare P-12 students to live and work in a multicultural, global society; Identify and enact strategies for closing achievement gaps; Recruit, support, and retain undergraduate and graduate students who reflect diversity of cultures to enhance the global experience of all students; Incorporate the international experiences of faculty and students participating in our classrooms. All of these strategies are closely linked to the goals and focus of this research project. Additional external support will be pursued. Funding agencies include the following:

Research on teaching and learning: The National Science Foundation’s Education and Interdisciplinary Research (EIR) program, the Spencer Foundation research grants program, the U.S. DOE Mathematics and Science Education Research program.