English Learner Oral Language Production in Middle School Academic Classes

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Abstract

Because of current federal and state educational policies, oral language development is an often overlooked aspect of language and literacy use and development of English Learning (EL) students in K-12 schools in the United States. This article describes a study in which a researcher used an ecobehavioral approach to investigate the conditional probability that young adolescent EL students would produce language in content area classes as they engaged in four different instructional grouping configurations: whole class, small group, one-to-one, and individual instruction. Significant differences emerged between instructional grouping configurations in terms of EL student production of oral academic language. Overall, there was a significant probability that academic talk would not occur during whole class and individualized instruction and a significant probability that academic talk would occur during small group and one to one instruction. Reading aloud was not likely to occur during whole class, small group, and individualized instruction. However, it was significantly likely to occur during individualized instruction. Although further investigation is warranted across multiple contexts, these data suggest that EL students may engage in more academic language production if they are paired with other students during classroom instruction.

English learning (EL) students in K-12 schools face the challenge of not only having to learn English as a second language, but also using their developing language as a tool for learning (Cummins, 2001). Second language acquisition researchers have demonstrated a strong relationship between academic oral language production, second language acquisition, and academic development. When EL students have opportunities to converse extensively in English with more proficient EL students and native English speakers, their vocabulary tends to improve (Ellis, 1994; Fuente, 2002; Gass & Alvarez-Torres, 2005), they develop more native-like grammar and syntax (Polio & Gass, 1998; Storch, 2008; Swain & Lapkin, 1998, Watanabe & Swain, 2007), and their reading comprehension increases (Early & Marshall, 2008; Echevarria, 1996; Saunders & Goldenberg, 1999). Other researchers have established a strong link between classroom academic language use and language and academic development. Villar (1999) explored the role of instructional conversations. He found that instructional conversations supported students in making critical schematic connections and promoted English language acquisition. Additionally, Barwell (2005) found that EL who collaborated with partners to write and solve mathematic word problems negotiated a stronger meaning about the mathematical concepts and acquired mathematical language in English. Finally, Early and Marshall (2008) found that hands-on project-based learning with an emphasis on student collaboration resulted in increased reading comprehension with deep student conceptual development. Academic language production in the classroom appears to be a key that has the potential to help to close the achievement gap between native English speaking and EL students (Cummins, 1996, 2001).

While second language researchers in the last two decades have begun to explore the ways in which classroom oral language use supports second language acquisition, considerably less research has been conducted on ways to encourage inter-student and teacher-student interaction in either language or content area classrooms. This kind of research is important because English language learners tend to engage in few interactions in academic settings. In a study by Arreaga-Mayer and Perdomo-Rivera (1996), third, fourth, and fifth grade urban English language learners spent less than 8% of classroom time in bilingual classrooms and less than 5% of their time in grade level content area classrooms producing either written or oral language. These classrooms were characterized by teacher-centered instruction in which students spent the majority of their time listening to the teacher lecture. Of the limited time spent producing language, these English language learners predominantly engaged in reading aloud rather than producing language for personal or academic expression. Even when students were producing their own language, these expressions focused on labeling, naming, modeling, and repeating. Students rarely produced language for personal expression. Arreaga-Mayer and Perdomo-Rivera (1996) found that students were most likely to communicate during language arts/reading lessons and had few opportunities to produce language during math, science, or social studies lessons.

Collaborative learning appears to be a promising practice for promoting student academic language use in classrooms. However, in a study of classroom interaction of sixth grade English language learners in a social studies class, Jacob, Rottenberg, Patrick, and Wheeler (1996) found that EL students participating in collaborative groups did not interact much in collaborative groups. On the contrary, Foster (1993) concluded that English as a foreign language (EFL) students were more likely to interact when the activity in some way required the group participants to exchange information. These two studies do not provide enough of a foundation to draw any conclusions about the engagement of EL students in classroom discussions.

This lack of opportunity for academic language production is unfortunate considering that through conducting a series of studies that has encompassed more than two million English language learners in kindergarten through twelfth grades, Thomas and Collier (1995, 1997, 2002) have reached the conclusion that the instructional programs in which English language learners reach the highest levels of academic language proficiency

> are highly interactive, emphasizing student problem-solving and discovery learning through thematic experiences across the curriculum. [These programs] are likely to provide the kind of social setting for natural language acquisition to take place, simultaneously with academic and cognitive development. Collaborative interaction in which meaning is negotiated with peers is central to the language acquisition process, both for oral and written language development (Collier, p. 4, 1995)

While Thomas and Collier have not researched the individual components of second language acquisition such as grammar and syntax, they have measured the attainment of high levels of second language proficiency as the English language learner's ability to perform well on standardized tests of reading in English.

Because of the potential of classroom interaction to facilitate second language acquisition, DeBot (2001) called for more research on classroom interaction. He wrote a research agenda on

classroom interaction for Teachers of English to Speakers of Other Languages (TESOL), the international professional organization for English as a second or foreign language teachers. In this agenda, he concluded that we need some foundational research in understanding how EL students interact under normal instructional conditions and he specifically mentioned that we need more research on adolescent EL student interaction. Very little research in authentic classroom settings under non-experimental conditions have been conducted since then, so we still have little idea of how EL students interact and produce language in their classes on a daily basis.

Methods

Given the paucity of research on academic language use by K-12 EL students in academic content area or language classes, this current study will provide a partial foundation for understanding how K-12 EL interact in classes under normal instructional conditions. This study sought to describe EL student oral language production during five types of instructional grouping configurations: whole class instruction, small group instruction, one to one instruction, individual instruction, and no instruction. The primary questions of this study were

1) What percentages of time during whole group instruction, small group instruction, one-to-one instruction, and individual instruction do EL students engage in academic oral language production?
2) During which instructional grouping configurations are EL students in middle school content area classrooms most likely to produce academic oral language?

Setting

This study took place in two grades 6-8 middle schools in a large urban school district in the Midwestern part of the United States. The school district has seen exponential growth in the past decade that exceeds 1000% while the number of licensed English as a second language (ESL) teachers has only increased by 250%. EL student comprise about 8% of the total student population in the school district. In the two middle schools in the study, they accounted for between 15-20% of the student population. Both schools are situated in economically depressed neighborhoods, with more than 75% of the students at the school receiving free or reduced-fee lunches under the National School Lunch Program.

Participants

The classrooms for the studies were purposively chosen to ensure that the teachers would use a variety of instructional grouping configurations. Ten sixth through eighth grade teachers who taught math, science, social studies, or language arts participated in the study. The 28 students selected for the study were all native Spanish-speaking EL students who attended the sixth, seventh, or eighth grades. The students were randomly selected from a pool of students that returned signed research consent forms. All of the students observed were levels 2-4 in their oral language development as measured by the Language Assessment Scales (DeAvila & Duncan, 1990).

Variables

This study determined the conditional probability of EL students producing academic oral language (talk academic and reading aloud) during various levels of instructional grouping configurations: whole class instruction, small group instruction, one-to-one instruction, and independent instruction. Arreaga-Mayer, Carta, and Tapia (1992) defined these variables as

1) [Talk academic] is defined by those instances in which the student is observed verbalizing, singing, or signing in response to the academic activity or material (p. 44)…
2) Reading aloud is defined by those instances in which the student is observed looking at materials like a book, worksheet, workbook, overhead chart or blackboard and reading aloud what is written (p. 44)...
3) Whole class instruction is recorded when the target student is receiving the same activity and task as all the other students and interaction with the teacher is occurring (p. 32)…
4) Small group instruction is recorded when the target student is involved with the same activity and material with at least one other student, but not all the students, and the interaction with the teacher is occurring (p. 33)…
5) One-to-one instruction is scored when the target student is interacting alone with the person coded in the teacher definition section of the code (p. 33)… This teacher could be a teacher, instructional assistant, or peer [and]
6) Independent instruction is recorded when the target student is engaged in an activity and task that is self-managed (p. 33).

Instrument

The data collection and analysis instrument used for this study is called the Ecobehavioral System for the Contextual Recording of Interactional Bilingual Environments (ESCRIBE). Arreaga-Mayer, Carta, and Tapia developed the instrument in the early 1990s as "an observational coding system for the evaluation of instructional programs serving special education and mainstream culturally and linguistically diverse learners" (p. 2). This instrument used momentary time sampling to record classroom ecological-or environmental-factors, teacher behaviors, and target student behaviors. The researcher collects data every 15 seconds, cycling through rounds that consist of a coding of the instructional environment variable following by 6 sets of coding teacher and target student behavioral variables.

Data Collection

The independent variable included 5 levels: whole class instruction (WCI), small group instruction (SGI), one-to-one instruction (1:1), independent instruction (II), and no instruction (NI). The dependent variables included two levels: talk academic (TA) and reading aloud (RA). Since the observations took place under normal classroom instruction without any research interventions, all students engaged in all levels of the independent variable.

The researcher observed 28 different middle school EL students in content area classes during 28 different class periods over a three week period. During these observations, 1782 lines of data were collected. The mean observation duration was 34 minutes. The observations occurred in several different content area subjects in sixth, seventh, and eighth grade classes: Reading classes accounted for 20.15% of the time, mathematics classes accounted for 26.71% of the time, language arts classes accounted for 23.63% of the time, science classes accounted for 5.22% of the time, social studies classes accounted for 22.62% of the time, and class procedural business accounted for 1.35% of the time.

Data Analysis

Once data are collected while observing the target student, the researcher can run an analysis program embedded within the ESCRIBE software to determine the conditional probability that any specific student dependent variable or combination of variables might occur within a temporal proximity to any one of the independent variables. The data analysis program compared the likelihood of a specific dependent variable (student academic or language behavior) occurring within temporal proximity to a specific independent variable (instructional context or teacher behavioral variable). For example in the current study, the likelihood that reading aloud (the dependent variable) would occur while the target EL student was engaged in individualized instruction (the independent variable), was compared to the likelihood that reading aloud would occur during all of the instructional grouping configuration levels. The ESCRIBE program analyzed this covariation of instructional grouping configurations and student language behaviors using the following formula:

“Where P(Ri/Ai)=the proportion of the response (Ri) given ecological arrangement (Ai), P(Ri)=the proportion of the response (Ri) given all data (base rate), mi=the frequency of (Ai), and mo=the frequency of all data sequences in the file.” (Juniper Garden’s Children’s Project, p. 37, N.D.). The ESCRIBE program provided the frequency that the dependent variable occurred in temporal proximity to each independent variable, the extent of variance in terms of a z-score, and the statistical significance in terms of a p-value.

Findings

This study was conducted to discover under which instructional grouping configurations EL students were most likely to engage in academic language production. This study used the ESCRIBE research instrument to measure EL student oral language responses, the dependent variable, during four types of instructional grouping configurations, the independent variable. These instructional grouping configurations included whole class instruction, small group instruction, one-to-one instruction, and individual instruction. All five instructional grouping configurations were observed: Whole class instruction accounted for 37.77% of the observational time, small group instruction accounted for 13.80% of instructional time, one-to-one instruction occupied 6.06% of class time, independent instruction consumed 38.22% of the time, while 4.15% there was no apparent instruction. Across all instructional grouping configurations, EL

students spent 1.01% of their time reading aloud, and 8.98% of their time talking about academic topics.

The results of the data are reported in terms of frequency, conditional probabilities, z-scores, and p-values. The z-score indicates the amount that the conditional probability for a specific student activity related response varied from the mean of all the student activity related response. The z-score also shows a directional relationship. A negative z-score indicates that the mean for a specific dependent variable is less than the mean for an aggregate of all the dependent variables (Keppel & Wickens, 2004). A p-value <.05 was considered significant for the purposes of the current study.

Whole Class Instruction

The researcher coded whole class instruction when the teacher was addressing the entire class or providing the same instruction to all students at the same time. Examples include teacher demonstrations and class discussions. Reading aloud occurred three times during whole class instruction with a conditional probability of 0.08 of occurring. The z-score for reading aloud during whole class instruction was -1.241 and there was no significant probability that reading aloud would occurring during whole class instruction. Talk academic was coded 16 times during whole class instruction with a 0.02 conditional probability of occurring. There was a z-score of -4.895 with a $p<0.001$. Consequently, during whole class instruction, talking about academic topics was significantly not likely to occur.

Small Group Instruction

The researcher coded small group instruction when the target student was working with at least one other student and an additional person who could be a teacher, assistant, or peer. During small group instruction, EL students read aloud for a total of 5 times with a conditional probability of 0.02 that they would read aloud. The Z-score of 1.496 was not statistically significant. However, EL students engaged in academic talk 69 times during small group instruction. Academic talk was significantly likely to occur during small group instruction with $p<0.001$ and $z=9.300$.

One to One Instruction

The researcher coded one to one instruction when the target student was working with one other person. That person could have been a teacher, and assistant, or a peer. EL students read aloud 10 times during one to one instruction with a conditional probability of 0.09 of occurring. This finding was statistically significant with $z=8.283$ and $p<0.001$. The likelihood of academic talk occurring during one to one instruction was also significant with a frequency of 36 times, a conditional probability of 0.33, $z=6.569$, and $p<0.001$.

Individualized Instruction

The researcher coded individualized instruction when the target student was working alone, without any interaction with a teacher, assistant, or peer. No EL student read aloud during

individualized instruction, so there was a 0.00 conditional probability that it would occur. This finding is significant considering that $z=-2.231$ and $p<0.05$. Similarly, academic talk was also not likely to occur during individualized instruction. EL students talked about academic topics 32 times during individualized instruction with $z=-3.303$ and $p<0.001$.

Summary of Findings

Significant differences emerged between instructional grouping configurations in terms of EL student production of oral academic language. Overall, there was a significant negative probability that academic talk would occur during whole class and individualized instruction and a significant probability that academic talk would occur during small group and one to one instruction. Reading aloud was not likely to occur during whole class, small group, and individualized instruction. However, it was significantly likely to occur during individualized instruction.

Conclusions & Discussion

This study begins to fill in some gaps in the research on EL students and classroom interaction. It shows that a group of 28 urban Spanish-speaking EL students in grades 6-8 in the Midwest were likely to engage in academic talk when they were paired with other people during small group and one-to-one instruction and that they demonstrated a likelihood of reading aloud when paired with one other person during one-to-one instruction. These students were observed over a three week period in the middle of the school year, so these results begin to paint a picture of how adolescent EL students might interact and produce oral academic language under normal daily instructional conditions.

In section 2 of this article, there were two studies about the likelihood of EL/EFL students interacting during collaborative learning activities. Jacob, Rottenberg, Patrick, and Wheeler (1996) concluded that EL students in an elementary content area class were not likely to interact in collaborative groups and Foster (1993) found that when a teacher set the collaborative grouping situation to require an exchange of information, adult English as a foreign language students in a language classroom were more likely to engage in small group discussions. Unlike the findings of Jacob, Rottenberg, Patrick, and Wheeler (1996) the current study found that EL students do interact and produce academic language during small group and one-to-one instruction. While not conclusive, these studies raise the question about whether EL student age, the nature of the instructional setting (academic or language focus, second or foreign language), and the native English speaker presence in a classroom influence EL/EFL student willingness to produce oral language. The findings from the current study suggest that factors other than the presence of native English speaking students may influence EL student willingness to engage in academic discussions and reading aloud when paired with one or more other students. Further studies need to be conducted in K-12 content area, ESL, and bilingual classrooms to explore how student age, grade level, language proficiency level, the nature of the tasks assigned during collaborative grouping configurations, other instructional variables, the native language of the target student, the context of the language learning (second versus foreign language) and the presence of native English speakers in the classroom influence EL student interaction and academic oral language production. Additional studies should also be carried out to explore the

relation between EL students' academic oral language production, participation in different instructional grouping configurations, and the aforementioned additional variables and K-12 EL student language and literacy development.

As discussed in section 2 of this article, Arreaga-Mayer and Perdomo-Rivera (1996) found that 1) urban EL students in grades 3-5, spent less than 5% of their time producing either oral or written language and 2) EL students communicated even less during social studies, mathematics, and science lessons. Even though the findings of the current study found that they spent about 10% of their time producing just oral language, this finding does not contradict the findings of the Arreaga-Mayer and Perdomo-Rivera (1996) study. The percentage of time spent in each level of instructional grouping configuration does not reflect the average middle school classroom in the middle schools included in this study. Specific teachers were chosen for this research project because pre-study observations indicated that they were likely to use a variety of instructional grouping configuration. Purposive sampling was essential for this study, in order to collect enough data about each instructional grouping configuration. Many teachers in the schools used little to no small group and one-to-one instructional grouping configurations, so their classes would not have been suitable for this study. More studies need to be done to explore the extent to which EL students have the opportunity to engage in academic language production in content area classes. These studies need to examine multiple content areas, grade levels, teacher preparation for teaching EL students, and school contexts (urban, suburban, rural, high socioeconomic, low socioeconomic, etc.).

The findings of the current study suggest that if teachers move away from a more teacher-center, whole class instructional model toward greater use of small collaborative groups and pair work, they are likely to increase EL student academic oral language production. These results are important. In the ongoing national, state, and local debates about how best to support the language and literacy development of our students, the language-specific developmental needs of K-12 EL students are excluded from the conversation. As discussed in section 1, national educational policy and literacy initiatives are based on research that was done with native English speaking (NES) students only (NICHHD, 2000). While there are some commonalities between the literacy development of native English speakers and English language learners, the unique EL student characteristics and needs for English oral language development and native language literacy development are ignored. Despite the fact that a large literacy development gap exists between EL and NES students, the national literacy initiative, Reading First does not address strategies for native language literacy development, cross-linguistic reading strategies, and instructional approaches for oral language development (Gamse, Jacob, Horst, Boulay, & Unlu, 2008). Perhaps one contributor to the literacy development gap is that EL students have few opportunities to practice producing language in their content area and ESL/bilingual classes. If EL students are to reach higher levels of literacy development, then content area teachers, who typically spend the most time with EL students, should more explicitly plan for frequent opportunities to engage them in academic language use. How will K-12 EL students acquire academic language at high levels if they have few opportunities to engage in authentic academic discussions?

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