

# Language Environments in Student-Directed Activities in a Preschool Language-Learning Laboratory

Jessica M. Jones  
Faculty: Trisha L. Self

*Department of Communication Sciences and Disorders, College of Health Professions*

**Abstract.** Effecting change in adult communication patterns within an interdisciplinary teaching-learning environment can be challenging. The Language Environment Analysis (LENA) system provides a state-of-the-art wearable recorder that affords researchers the opportunity to collect and analyze interactions of adults and children in classrooms. This pilot study evaluated the ability to use the LENA technology within a preschool language-learning laboratory located at the Wichita State University Speech-Language-Hearing Clinic. Data were collected using LENA's digital language processor at the beginning and end of the semester to determine how students modified their interactions with children in a preschool environment. Data obtained were uploaded and transcribed to determine the total number and types of utterances used by student instructors. Results showed that students' communicative intents (number and types) remained consistent from the beginning to the end of the semester. This study will contribute to literature in the area of adult-child interactions within an interdisciplinary pre-professional preschool.

## 1. Introduction

The importance of effective adult communication in a classroom cannot be underestimated [1, 2]. It is imperative, therefore, to provide pre-professional students with explicit strategies for modifying and enhancing their interactions with young children as they occur throughout the preschool day (e.g., music, reading, and large/small group language-based activities) [1, 3]. This can be challenging, however, when there are multiple adults and children engaging in numerous activities simultaneously within a classroom. The ability to collect the quantitative and qualitative data necessary to provide this specific feedback to pre-professional students has been somewhat constrained by equipment limitations. These constraints have reduced researchers' ability to document and report their findings, especially for naturalistic early childhood special education settings. Measurement breakthroughs often lead to fundamental changes in science and society. The LENA™ [4] system may be one such breakthrough. LENA™ is an automated vocal analysis system that measures key elements of a child's natural language-learning environment. It has been specifically designed to capture communication interactions of children and adults as they interact naturally throughout the day. Further, the software component of this technology provides automated analysis of the recordings to yield critical information about verbal input to the child, the vocal activity of the child, and vocal interactions or conversational turns between the child and adults [5]. The purpose of this pilot study was to determine the following: (1) the effectiveness of using LENA™ to capture adult-child interactions in a language-learning environment during typical classroom activities; (2) the number and type of communicative intents (CI) used by pre-professional students at the beginning and end of a preschool practicum/field experience.

## 2. Method

### *Participants*

Graduate students representing two departments/colleges who chose to enroll in a student practicum/field experience via the Kaleidoscope Preschool program during the fall 2013 academic semester were participants in this pilot study. Twelve children, ages 3.0-5.0, enrolled in Kaleidoscope during this semester were also participants in this study. The children enrolled in the preschool have a variety of communication challenges and have been brought to the clinic by their parents for the purpose of improving his/her communication skills.

### *Procedure*

Child participants were provided with a LENA™ digital language processor (DLP) and a specially designed vest or t-shirt. Each child was recorded on a pre-determined day. The first round of recordings took place over approximately six weeks. On a recording day, a preschool staff member placed the vest/t-shirt with the DLP on the child when he/she entered the classroom. The child wore the vest throughout the school day. Once the first round of

recordings was completed, the second round began. The recording procedure was the same for both rounds and the children were recorded in the same order. All data were uploaded into a dedicated computer by the PI. Three activities were selected for transcription (i.e., circle, story, centers). Fifteen minutes of each activity were transcribed by the PI using the Systematic Analysis of Language Transcripts (SALT) [6]. Then, student and children utterances were coded to determine the number and type of communicative intents (i.e., statements, questions, directives, solicitations, clarifications/revisions, feedback [positive/negative], initiations, imitations, and expansions) used by the graduate students and the children [7].

### 3. Results

Recordings adequately captured adult-child interactions during language-learning classroom activities. The number and type of CIs used by the graduate students ( $n=6$ ) and children ( $n=12$ ) were totaled and averaged for each of the three targeted activities both at the beginning and end of the semester. During circle time at the beginning of the semester, students asked an average of 38 questions and used an average of 109 statements/exclamations (S/E). In contrast, children asked an average of 2.7 questions and produced 32.7 S/E. At end of the semester, students asked 41.3 questions and used 122 S/E, while children asked 1.7 questions and used 35.8 S/E. In story time, initially students asked an average of 49.7 questions and used 117.3 S/E and the children produced an average of 1.3 questions and 47.7 S/E. At the end of the semester, students produced an average of 57.7 questions and 111.7 S/E and children used an average of 1.7 questions and 54 S/E. During center time, students began the semester using 51.2 questions and 122.9 S/E while children used 3.2 questions and 47.7 S/E. At the end of the semester, students used 53.4 questions and 112.7 S/E and children produced 3.8 questions and 58.8 S/E.

### 4. Discussion and Conclusion

Based on the pilot data, it appears the LENA<sup>TM</sup> system would allow researchers to capture adult-child utterances during naturally occurring preschool activities. This pilot study revealed that the average number of graduate student communicative intents (i.e., questions, S/E) did not change from the beginning to the end of the semester during selected activities. Children's use of questions did not change; however, a slight increase in their use of S/E was noted from the beginning to the end of the semester. A limitation of this study was that there were not enough participants (students or children) to determine statistical significance. This pilot data may provide the clinical educator of this preschool practicum with information about students' use of CIs during student-led activities.

### 5. Acknowledgements

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### 6. References

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