Knowing, Thinking, Wondering:
Complement Clauses and Theory of Mind

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INTRODUCTION

Complex syntax development and proficiency can have a great impact on academic success. Complex syntax emerges in the oral language of typically developing children between the ages of two and three (Limer, 1973; Bloom, Tackeff, & Lahey, 1984) with proficiency at entry to kindergarten (Bloom, Tackeff, & Lahey, 1984; Paul, 1981; Tyack & Gottleiben, 1986). Although complex syntax development in typical language learners is far less understood than other aspects of grammatical development, even less is known about the complex syntax development of children with specific language impairment (SLI). The findings from this small body of work indicate that children with SLI are less proficient than age- and MLU-matched peers in complex syntax production. Children with SLI produce fewer instances of complex syntax (Craig & Washington, 1994; Marinis, 2004). When complex syntax is attempted, children with SLI more frequently omit grammatical elements in complex syntax (e.g., relative markers, the nonfinite “to” marker; Leonard, 1995; Schuele & Nicholas, 2000; Schuele & Tolbert, 2001; Schuele & Dykes, 2005; Owen & Leonard, 2006; Arndt & Schuele, 2012).

One measure of syntactic complexity is verb complement structure. Embedded clauses such as full propositional complement clauses and WH-phrase/WH-finite/non-finite complement clauses utilize mental state verbs as part of the verb phrase. Mental state verbs describe abstract inner mental states, and can be used in both simple and complex sentences. Mental state verbs can be used in simple sentences rather than including complex sentences whether or not the scripted story should be comprised of all true mental state verbs?

This study involves feasibility testing for the first author’s dissertation project. The larger study explores the relationship among mental state verbs, complement clauses, and theory of mind in preschool-age children. Of interest is the production of complement clauses in elicited tasks. Productions are examined across two elicited contexts. Syntactic scores will be analyzed via correlation with theory of mind scores. For the current feasibility testing, mental state verbs were analyzed as potential items in the elicited task. The aims of this feasibility study are as follows:

- To investigate the relationship among use of mental state verbs (MSVs), production of complement clauses (CCs), and theory of mind (ToM) across development.
- To analyze selected MSVs and CCs as chosen targets for elicited tasks.

PARTICIPANTS

Two typically developing children ages 46 months (J; female) and 57 months (PB; male) participated in this feasibility study. Both children were monolingual English speakers from college-educated families. Parents of both children reported that language development and other milestones were typically developing.

METHOD

Participants for this larger study will include children with SLI ages 5 to 8 and typically developing children matched for chronological age and vocabulary. Children will be seen on two different 1-hour visits. Visit 1 will include the PPVT, EVT, TEGI, Leiter, a False Belief task, and a narrative language sample. Visit 2 will include the TOLD, short-term memory tasks, elicited language tasks and a spontaneous language sample.

For this feasibility testing, we are collecting data on 1 visit and were given the two elicited language tasks and the false belief task. Elicited language tasks included an Infinitival Complement task and a Full Propositional Complement Clause task. Sixteen verbs were chosen as target Mental State verbs based on the literature. Eight verbs were considered High Frequency verbs and eight were considered Low Frequency verbs (see Table).

About Our Tasks

ELICITED LANGUAGE TASKS

Small toys and pictures were used to elicit target structures. For each target utterance, a scenario was presented and a scripted verbal prompt was provided to elicit the target phrase. Participants were given the desired complex syntax structure. Prompts included the main clause verb.

INFINITIVE TASK

This task, adapted from Eisenberg (2005), elicited ten single-noun infinitives (e.g., Mickey wants to stand up) and six two-noun infinitives (e.g., Mickey wants Goofy to swim).

Target: Mickey wants to stand up.

MICKEY AND GOOFY ARE PLAYING SCHOOL. GOOFY IS THE TEACHER. MICKEY RAISES HIS HAND.

Mickey to Goofy: CAN I STAND UP?

Mickey wants Goofy to stand up. (Full Propositional Complement Clause)

PB and J perform similarly on overall proportion of CS produced in the Infinitive Task, although PB had greater success in production of target utterances. J had one utterance with an error in CS and PB had none.

RESULTS

DISCUSSION

There seems to be a slight age effect in success on the elicited language tasks of PB. PB was more productive with target utterances in the Infinitive task and with total utterances with CS in the Full Propositional Complement clause task. PB did not make any errors in CS production on either task, whereas J had errors across both tasks when attempting CS structures. PB also passed all aspects of the False Belief task, whereas J failed the Belief Question. Concerns with the False Belief task include the language used in the story script. The absolute score on the PB task represents a true achievement of Theory of Mind or is the FB task a proxy for Complex Syntax abilities?

The high and low frequency verbs for the task will be revised to replace both verbs and target utterances that were ineffective. More feasibility testing will be completed prior to finalizing the tasks.

Further analysis of verbs will occur by verb category. Should verbs of communication be considered separately from true mental state verbs?

Language in the FB task will be reviewed to consider whether or not the scripted story should be comprised of all simple sentences rather than including complex sentences throughout.

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