Academic language in early childhood interactions: a longitudinal study of 3- to 6-year-old Dutch monolingual children

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Summary in English

This study examines academic language in early childhood interactions. It covers children's exposure to academic language in early childhood, children's early production of academic language, the development of academic language proficiency and the co-construction of academic language by children and adults. An important assumption of the study is that academic language is functional in a context where the communicative goal is to convey a cognitively complex message, such as educational settings.

When a speaker uses academic language, he or she draws from the academic register. The term register is defined by Halliday (1994) as “a set of meanings that is appropriate to a particular function of language, together with the words and structures which express these meanings” (p. 195). In an educational context, the function of language is often to convey a cognitively complex message. It is stated in this thesis that a proficient user of academic language is able to apply the essential linguistic tools (lexical, syntactic and textual) to efficiently convey a cognitively complex message in such a way that a minimum of contextual cues or non-verbal support is required (Chapter 1). It can be expected that experience with the academic register at home will help children to make an easy transition to school. Therefore, it is important to study the way in which children do, or do not, become familiarised with this register in early childhood.

General description of the study

This study is an in-depth study, which forms part of a larger interdisciplinary research project called 'the Development of Academic language at School and Home' (DASH). In the DASH project, 150 children were followed over a period of three years, between the ages of three and six years (Chapter 2). The children came from Moroccan-Berber-Dutch, Turkish-Dutch and Dutch families. From the participants in the project, a Dutch monolingual sub-sample, consisting of 25 children together with their primary caretaker, took part in the current in-depth study. This dissertation presents only the results from this group. The children were observed in interaction with their parent four times over the course of three years. The ages of the children at the four subsequent measurement points were 3;3 (T1), 3;10 (T2), 4;2 (T3) and 5;10 (T4). At T3 and T4, the children were also observed in interaction with their teacher in first and second grade of primary education1. The interactions involved spontaneous and structured activities. The spontaneous activity in the design was a mealtime conversation at home, and a circle time conversation at school. Furthermore, we observed both parents and teachers with the children during an instructional activity: the joint construction of a marble slide made of blocks at home, and a crafts lesson at school. Both at home and at school, a book reading interaction was observed. Finally, at home a fourth activity was observed: joint picture description.

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1 In the Netherlands, formal education is mandatory from 5;0 years onwards. In practice, however, most children enter the first grade of primary education at the age of 4;0.
Theoretical framework

The linguistic analyses of the interactions are guided by systemic functional linguistics. Systemic functional linguistics distinguishes three variables that characterise context: field (what is being talked about), tenor (what relationships between interlocutors are established) and mode (how the discourse is organised). Together, these three contextual variables construe context. Field, tenor, and mode are realised by a speaker’s lexico-grammatical choices. For example, a speaker’s choice of words (the lexical level) determines what is being talked about (field), the choice for a particular speech acts expresses the relationships between interlocutors (tenor), and the extent to which one adds new information to the conversation affects the build-up of the conversation (mode). The contextual variables field, tenor, and mode are operationalised in terms of these linguistic choices.

Twelve linguistic features are identified, each reflecting different manifestations in the academic register compared to more informal registers. The choice for these linguistic features is based on studies of highly academic texts and discourse. The selected features are categorised according to four linguistic levels: a lexical, a syntactic, a textual, and a sociopragmatic level. The use of these features is referred to as the linguistic variables. The frequency of occurrence of these linguistic variables in the conversations during the activities described above is studied.

For all linguistic variables four kinds of effects are studied: task effects (does the frequency in use of the particular linguistic feature differ across the activities studied?); setting effects (does the particular feature occur more frequently in teacher input compared to parental input?); time effects (does the use of the linguistic feature by children, parents and teachers change over time?); and relationships (is parental use of the feature associated with children’s use of the variable?). In addition, relationships are studied between parents’ use of academic register features and children’s scores on a vocabulary test, a syntactic awareness test, and an academic language production task.

In Chapter 3, the lexical level of academic language is discussed (i.e. task effects, setting effects, time effects, and input - output relationships). The linguistic variables that belong to this level are lexical density, lexical diversity and linguistic explicitness of references to space and time. Chapter 4 deals with the syntactic level of academic language, focusing on multi-clause sentences, complex multi-clause sentences and lexical realisations of clause subjects and objects. In Chapter 5, the textual level is discussed, studying conversations on topics beyond the here-and-now. Such conversations are referred to as ‘nonpresent talk’. The sociopragmatic level is discussed in Chapter 6, reporting on speech acts and on the extent to which new information is added to the discourse. Finally, in Chapter 7, the linguistic variables discussed in chapters 3 to 6, are reinterpreted in terms of the contextual variables field, tenor and mode. This concluding chapter is therefore referred to as a synthesis, where the theoretical, contextual variables (field, tenor and mode) are integrated with the linguistic variables. This concluding chapter, gives an overall picture of children’s exposure to academic language in early childhood, children’s early production of academic language, the development of academic language proficiency and the co-construction of the academic language register by children and adults in terms of field, tenor and mode.

The results of the analyses conducted with the linguistic variables (task effects, setting effects, time effects and relationships) are summarised in Tables 1 to 8 in Appendix 5. In these tables, a detailed overview of the results of the analyses conducted with the linguistic variables is presented. In this summary, the interpretation of these empirical results is
presented in terms of the contextual variables field, tenor, and mode – as is elaborately done in Chapter 7.

**Young children’s exposure to academic language**

The study shows that children are more frequently exposed to a number of language features characteristic of the academic register in the first two years of primary school than at home. Based on the findings with regard to the linguistic variables, the field variable in school is characterised as specific and cognitively challenging; the tenor variable is characterised as distanced and eliciting; and the mode variable is characterised as a combination of monologue-like discourse and dialogue. The general picture that emerges from the analyses is that, in comparison to the parents in our participant group, the teachers create linguistic contexts where the topics are relatively often nonpresent, and thus more abstract. Talking about these topics occurs in conjunction with more lexically diverse conversations and with linguistic choices that enhance specificity on what is being talked about. The feature of specificity also fosters accessibility to the information for all interlocutors, and independence of material context. In general, teachers alternate asking questions with episodes in which they display knowledge. Typically, the children are positioned as knowledgeable individuals whose contributions to the conversation are valued. In addition to the general findings discussed above, variation across teachers is found and across teacher-activities (see Overview results 3 in Appendix 5). Variability in the use of the linguistic variables in teachers, however, is smaller than variability in parents, indicating that teachers adhere to a register that is functional for the messages conveyed in the classroom.

Results indicate that considerable variability exists in the frequency of parents’ production of academic language features in interaction with their children. Some parents’ language input is more teacher-like than others. Moreover, variation also exists within parents, meaning that in some activities the parents are more likely to use features of academic language than in other activities. A noticeable finding is that the parents use more academic language during the mealtime conversation than was initially expected. For example, results show that the discourse during mealtime is more lexically diverse and more lexically dense than during the structured tasks. Also, unexpectedly, the mealtime conversations contain relatively more linguistically explicit references to space and time, more complex multi-clause utterances and more assertive speech acts (see Overview results 1 in Appendix 5). Within the category of structured tasks, differences are also shown: the marble slide construction task generally eliciting the least academic language features (see Overview results 1 in Appendix 5). The main finding is that parents, who utilise a particular interaction with their child as an opportunity for their child to learn something new, typically create a linguistic context that contains features of the academic register. These parents often ask open-ended questions and add new information to the conversation, but they also ask their child to add new elements. In conclusion, these parents position their child as knowledgeable.

**Children’s early production of academic language**

The children in our participant group are very young. It therefore seems more appropriate to talk about emergent academic language when referring to the children’s production of academic language. The results indicate that children are most likely to influence the field variable of the linguistic context, by means of initiating particular topics. In addition, a relationship is established between parents’ rate of open-ended questions and children’s production of assertive speech acts. As such, parents and children shape the field variable
in cooperation. This also impacts the tenor variable, as children take a stance when they answer a question by means of an assertive speech act.

Similar to the parent data, considerable variability is also found in the child data across activities, in the extent to which children made use of the academic register features. Again, many of the articulated features occur more frequently during the mealtime conversation compared to the structured tasks (see Overview results 2 in Appendix 5). In addition, the joint construction of the marble slide elicits by far the least academic language features by children because the children rely heavily on situational cues.

The development of academic language

The study examines the development over time (i.e. a period of three years) of children's exposure to and production of academic language. First, as their children get older, parents broach topics outside the here and now more often. In this respect, we argue that the field variable becomes more complex over time. Parents' lexico-grammatical choices to talk about these topics, however, vary only to a limited extent: The extent to which parents are specific in their references is not affected by time, and neither is the diversity nor density of their wording (see Overview results 4 in Appendix 5). Parents do use more lexical clause subjects over time during the mealtime conversation and more lexical clause objects during the marble slide construction task, which is interpreted as increased specificity of the discourse. This increased specificity of the discourse, in turn, is interpreted as impacting the tenor variable as well. By means of increased specificity, the discourse becomes more distanced over time. Another significant change impacting the tenor variable is a decline in the extent to which parents use language to direct children's behaviour, which becomes clear from a decline in imperative mood choices. This decrease allows for more room for children's contributions to the discourse.

Some aspects of parents' realisation of the mode variable also change over time. Parents use more multi-clause sentences as children get older. However, parents do not use of complex clause combinations more often. The extent to which parents add new information elements to the discourse increases over time in the spontaneous activity, but not in the instructional activity. This is related to the change in the tenor variable mentioned above: as parents employ a less behaviour-directing style during interaction with their child in the instructional setting, they add fewer new elements. In the spontaneous setting of mealtime conversation, indeed, children contribute an increased amount of new elements.

For the children, the interaction between time and task as described above, is considerable. Over time, the children realise a more abstract field during joint picture description, a more specific field during the book reading interaction and the marble slide construction task, and a more diverse field during the mealtime conversation. None of these developments hold for all activities (see Overview results 4 in Appendix 5). The tenor variable, i.e. the social relationships construed, is increasingly characterised by equal interlocutor relationships. As the children grow older, they position themselves increasingly as knowledgeable, taking a stance in what they want to convey. This development typically influences the tenor variable. The mode variable is typically realised in co-construction with the parents, by means of an increasingly balanced alternation of information adding utterances by parents and children. As should be expected, children produce an increasing number of multi-clause sentences over time. During the picture description tasks, children also produce more complex clause combinations over time. This is, however, not the case for the conversations during the other activities.
Analysing the teacher data longitudinally turned out to be difficult because many children were taught by different teachers at the consecutive measurement points (T3 and T4). Taking the perspective of the children's language environment, however, teachers' use of academic language during book reading at T3 and T4 is analysed. Comparing the book reading interaction at T4 to the book reading interaction at T3, we conclude that the field variable remains equally rich over time, but becomes more challenging, as a higher amount of nonpresent talk at the final measurement point shows. Also, teachers' realisation of the field variable is characterised by an increasing lexical density and specificity. With regard to the tenor variable, we are limited to drawing on the specificity measures that also determine the field variable. The tenor teachers realise is tentatively described as becoming more distanced over time, based on the lexical linguistic variables of density and specificity. With regard to the mode variable, we study teachers’ use of multi-clause utterances longitudinally (see Overview results 4 in Appendix 5). The other linguistic variables that contribute to mode and tenor (e.g. the contribution of new elements, the use of lexical noun phrases, the use of particular speech acts) are not available for one activity at two different measurement points. The teachers’ realisation of the mode variable is characterised by an increasing rate of multi-clause sentences, however, not by an increasing rate of complex multi-clause sentences.

The co-construction of the academic language register

Two kinds of input-output relationships are studied (see Overview results 5 to 8). First, we examine the relationships between parental use of academic register features during the interaction tasks and children’s scores on three independent measures of child language skills. The three measures of child language skills are (i) a measure of receptive vocabulary, (ii) a measure of syntactic awareness, and (iii) a measure of academic language production. Second, we evaluate the relationships between parents’ and children’s use of academic register features while they are involved in the same interaction task.

The results show that a positive relationship exists between a lexically diverse realisation of the field variable by parents and children’s receptive vocabulary scores (see Overview results 5 in Appendix 5). Children’s vocabulary skills are also related to parental lexical sophistication in the picture description task and in book reading.

Children’s syntactic awareness is positively related to parents’ use of multi-clause utterances during the structured interaction tasks (see Overview results 6 in Appendix 5). It is striking that parents’ use of multi-clause utterances during the mealtime conversation is not related to children’s syntactic awareness. This finding is interpreted as an indication that grammatical complexity during school-like tasks in particular, as opposed to a spontaneous unstructured activity, is of importance for children’s skills with complex utterances. Parents’ rate of complex multi-clause sentences is not related to children’s syntactic awareness.

Children’s performance in an academic language production task is positively associated with parent’s lexical diversity during mealtime (T1) and during the structured tasks (T4). Positive associations with the other linguistic variables in the input are not significant.

The second type of relationships studied, is the relationship between parents’ and children’s concurrent use of the target linguistic variables, during the interaction tasks. The data show that the field variable in particular is co-constructed in interaction between children and their parents (see Overview results 5 in Appendix 5). Particularly the degree of abstractness - thus, the rate of nonpresent talk employed by both parents and children - is strongly co-constructed (see Overview of results 7 in Appendix 5). The tenor variable is also
subject to the dynamics of interaction. At more than one measurement point, parents’ rate of imperative mood choices is negatively related to children’s rate of assertive speech acts (Chapter 6). On the assumption that assertive speech acts are typically expected in a formal educational setting, we argue that a strongly directive lead by parents constrains children’s opportunities to become familiarised with the typical classroom sequence of initiative-response-evaluation. At the first two measurement points, input-output relationships with respect to the mode variable exist, but not at the final measurement points. At the first measurement point, children are more likely to use multi-clause utterances and lexical realisations of clause subjects when parents show these features. However, as the children get older, these relationships cease to exist. These findings suggest that parents, who foster their children’s use of academic language in interaction, are parents who provide a field variable characterised as cognitively challenging and diverse. The tenor variable is realised to a large extent through questions, and is characterised by a low degree of imperative mood choices and a balanced ratio of adult-child statements. The latter can also be manifested in the mode variable, by a high rate of utterances that build on information that was previously introduced in the discourse (expansions), thus encouraging children to contribute new information to the discourse (extensions). The mode variable may in addition be realised through the use of multi-clause utterances, though this relationship seems to be apparent only in the early years.

Contribution to the field of academic language research

This study is explorative in nature. The focus is on describing the phenomenon of academic language in the language environments of young children and relating this to the early production of academic language. The study investigates whether this kind of language use is more prominently present in the language environment of one child, and less prominently in the language environment of another. An important outcome of the study is that the framework of systemic functional linguistics is shown to allow for differentiation between the informal register and the formal, academic register. In this respect, the tenor dimension, the way in which social relationships are construed in discourse, plays an essential role. The way in which adults position children during spoken discourse has a strong influence on the nature of the conversation, and on the opportunities created for children’s own creative contributions to the particular discourse. Hence, when the social relationships are thus shaped, ample opportunity is created for knowledge transfer and co-construction, and the content of the conversation and the structure of the conversation (field and mode, respectively) follow accordingly in an ‘academic’ way. In this way, children can become familiarised with the academic register at an early age.