TODDLERS' SOCIAL SKILLS AND EXPRESSIVE VOCABULARY

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Abstract: *Social skills are critical for language acquisition. In addition to other related factors, this study examined how social skills relate to language development. Data for 100 children (20 with language difficulties) were collected at age three; parents completed the ECDI-III and teachers completed the Social Skills Questionnaire (86 children). At age four, 76 parents repeated the ECDI-III. Language difficulties, maternal education, and social skills had significant concurrent effects on vocabulary. Maternal education and social skills were able to predict changes in vocabulary one year later. Emotion regulation and interaction skills supported vocabulary more than behaviour regulation. Relationship skills at age three predicted vocabulary at age four.*

Keywords: *expressive vocabulary, social skills, toddlers, longitudinal study*

INTRODUCTION

Social competence is defined as one's emotional and regulatory competence during interactions with others, and it can evolve through experience in various social contexts (Junge et al., 2020). Social competence is shaped by underlying social skills (i.e., learned, socially acceptable behaviours) that allow a person to regulate themselves and interact positively with others (Gresham, 1998). These skills develop alongside language abilities and support social information processing, which is essential for social competence (Caporaso et al., 2021).

Effective communication skills are crucial for social competence. Children with stronger pragmatic abilities tend to have more positive peer relationships, whereas children with developmental language disorders often experience social difficulties. Social skills, such as empathy, self-regulation, and the ability to understand emotions, foster social interactions that are critical for language acquisition. For example, socially competent children tend to form better peer relationships, creating richer contexts for language use and learning (Junge et al., 2020).

The language input received by children from caregivers and educators can influence both language and social development, impacting later academic success and social adjustment (Larson et al., 2020). Natural language input from mothers is associated with maternal education (Vernon-Feagans et al., 2020).

Given that social and language development are closely intertwined, it is of interest to examine the specific social skills that are strongly associated with language skills at a given age, in addition to other related factors. Furthermore, even after accounting for the level of language skills and other related factors, it is worth investigating whether social skills significantly contribute to predicting language development one year later.

METHODS

Participants

In the first stage, data were collected for a total of 100 children (44 boys, 56 girls) around their third birthday (age range = 34 to 39 months, M = 35.77 months, SD = 0.85). Estonian was the dominant language in the families of all children included in the study. Among them, 20 children (12 boys, 8 girls) were identified by their parents as experiencing difficulties with language development. According to the parents, the children were otherwise healthy. Approximately half of the mothers (54%) had completed university education.

Materials

The Social Skills Questionnaire (SSQ; Häidkind et al., 2018) includes 41 statements describing behaviours related to the children's social skills. These skills were categorised into five factors: social skills related to future academic success (e.g., *Follows rules of games*; 12 statements, α = 0.88), emotion regulation (e.g., *Loses self-control easily*; 8 statements, α = 0.85), peer interaction (e.g., *Initiates games and invites peers to join*; 8 statements, α = 0.86), dexterity (e.g., *Is clumsy*; 3 statements, α = 0.60), and egocentrism (e.g., *Interrupts others while they are speaking*; 7 statements, α = 0.85). Teachers rated the frequency of each behaviour from 0 (indicating "never") to 3 (indicating "almost always"). For the analyses, teacher ratings were reverse-coded when necessary to ensure that higher scores consistently reflect higher levels of skills. Mean scores for each factor, as well as scores for the overall SSQ, were used in the analyses.

The Estonian Communicative Development Inventory - III (ECDI-III; Tulviste & Schults, 2020), adapted from the Swedish CDI-III (Eriksson, 2017), includes a vocabulary checklist of 100 words (mainly verbs and adjectives). Parents were asked to mark the words that their child produces across four themes: food (16 items), body (26 items), mental (30 items), and emotion (28 items). Only the total vocabulary score was used in the present study.

Procedure

Participants were recruited through kindergartens. Teachers who agreed to participate passed the invitation on to parents. Parents completed a subject information questionnaire, as well as the ECDI-III. After parents completed the ECDI-III, teachers completed the SSQ for the same child. The SSQ was completed for 86 children from the sample of 100 children.

The parents were contacted one year later for the second stage of data collection. Seventy-six parents completed the ECDI-III for the second time around their child's fourth birthday.

The present study was reviewed and approved by the Research Ethics Committee of the University of Tartu.

RESULTS

Social skills and expressive vocabulary

Descriptive statistics were calculated for SSQ social skills scores (n = 86) and ECDI-III vocabulary scores (N = 100, first data collection; n = 76, second data collection). Significant differences were observed in scores for gender, difficulties with language development, and maternal education levels (See Table 1).

Table 1. *Social skills and expressive vocabulary scores, and group-wise differences in these scores*

Variable	*M (SD)*	Range	Boys *M (SD)*	Girls *M (SD)*	*t*-value	No LD *M (SD)*	With LD *M (SD)*	*t*-value	No ME *M (SD)*	ME *M (SD)*	*t*-value
Academic success	2.00 (.70)	0.00-3.00	1.83 (.73)	2.13 (.66)	- 2.02*	2.13 (.69)	1.57 (.58)	3.19*	1.78 (.69)	2.14 (.72)	- 2.23*
Emotion regulation	1.71 (.63)	0.38-2.88	1.66 (.58)	1.74 (.66)	- 0.59	1.76 (.59)	1.51 (.73)	1.59	1.61 (.61)	1.80 (.64)	- 1.32
Peer interaction	1.98 (.60)	0.38-3.00	1.96 (.67)	1.99 (.56)	- 0.17	2.03 (.60)	1.80 (.61)	1.48	1.88 (.56)	2.02 (.65)	- 1.05
Dexterity	1.99 (.74)	0.33-3.00	1.70 (.69)	2.20 (.70)	- 3.25*	2.13 (.69)	1.51 (.69)	3.44*	1.68 (.74)	2.21 (.69)	- 3.25*
Egocentrism	1.80 (.60)	0.29-3.00	1.80 (.56)	1.80 (.63)	- 0.03	1.75 (.61)	1.95 (.52)	- 1.30	1.72 (.44)	1.86 (.68)	- 1.04
SSQ	1.89 (.43)	0.68-2.66	1.81 (.41)	1.95 (.44)	- 1.53	1.96 (.42)	1.67 (.40)	2.67*	1.75 (.39)	2.00 (.45)	- 2.54*
ECDI-III 3	52.52 (21.65)	0-92	49.11 (24.42)	55.20 (18.99)	- 1.40	55.89 (19.88)	39.05 (23.65)	3.26*	45.74 (23.53)	58.20 (18.02)	- 2.89*
ECDI-III 4	73.0 (17.06)	12-100	71.36 (18.83)	74.40 (15.70)	- 0.77	75.81 (13.07)	63.59 (24.99)	2.71*	70.11 (20.24)	75.32 (14.50)	- 1.26

Note: ECDI-III 3, vocabulary score at 3 years of age; ECDI-III 4, vocabulary score at 4 years of age; LD, difficulties with language development; ME, maternal education (university level); SSQ, social skills score; *p < .05.

Social skills related to expressive vocabulary

Correlation analysis was conducted to examine the relationships between different aspects of social skills, as well as between social skills and vocabulary scores. Social skills related to self-regulation showed weak correlations with skills related to interactions. Social skills associated with egocentrism were not correlated with vocabulary scores (See Table 2).

Table 2. *Correlations between social skills scores and vocabulary scores*

Variable	Academic success	Emotion regulation	Peer interaction	Dexterity	Egocentrism	SSQ	ECDI-III 3
Emotion regulation	0.163						
Peer interaction	0.734*	- 0.035					
Dexterity	0.734*	0.196	0.525*				
Egocentrism	- 0.042	0.585*	- 0.231*	0.094			
SSQ	0.844*	0.580*	0.656*	0.727*	0.378*		
ECDI-III 3	0.427*	0.255*	0.167	0.431*	0.018	0.393*	
ECDI-III 4	0.487*	0.244*	0.328*	0.458*	0.051	0.485*	0.729*

Note: ECDI-III 3, vocabulary score at 3 years of age; ECDI-III 4, vocabulary score at 4 years of age; SSQ, social skills score; * $p < .05$.

Poisson regression was used to model the concurrent effects of variables on vocabulary scores of the three-year-old children. Social skills, language difficulties, and maternal education had a significant effect on vocabulary scores (See Table 3).

Table 3. *Regression model of vocabulary score at the age of three years*

Effect	Estimate	Standard error	Wald statistic	Lower CL 95.0%	Upper CL 95.0%	*p*
Intercept	3.256	0.076	1835	3.107	3.405	0.000
SSQ	0.333	0.039	71	0.256	0.410	0.000
Gender	0.005	0.017	0	- 0.027	0.038	0.747
LD	0.065	0.021	9	0.023	0.107	0.002
ME	- 0.053	0.017	9	- 0.087	- 0.019	0.002

Note: LD, difficulties with language development; ME, maternal education (university level); SSQ, social skills score.

Poisson regression was used to model the predictive effects of variables on the vocabulary scores of the four-year-old children. Previous vocabulary score, social skills, and maternal education had a significant effect on vocabulary scores (See Table 4).

Table 4. *Regression model of vocabulary score at the age of four years*

Effect	Estimate	Standard error	Wald statistic	Lower CL 95.0%	Upper CL 95.0%	*p*
Intercept	3.642	0.069	2748	3.506	3.778	0.000
SSQ	0.097	0.038	6	0.022	0.173	0.012
ECDI-III 3	0.008	0.001	92	0.007	0.010	0.000
Gender	- 0.002	0.016	0	- 0.032	0.028	0.896
LD	0.033	0.019	3	- 0.004	0.069	0.077
ME	0.033	0.017	4	0.001	0.066	0.046

Note: ECDI-III 3, vocabulary score at 3 years of age; LD, difficulties with language development; ME, maternal education (university level); SSQ, social skills score.

DISCUSSION AND CONCLUSION

First, we examined group-wise differences in social skills and vocabulary scores. All observed differences were in the expected direction. It appeared that children with language development difficulties experienced the most persistent challenges in both social and language development. Teacher-reported questionnaires indicated that children with language development difficulties generally had lower social skills scores, particularly those linked to future academic success and dexterity, compared to peers without such difficulties.

Second, we examined the concurrent associations among different aspects of social skills, as well as the associations between social skills and vocabulary scores. Social skills related to self-regulation were not significantly correlated with those related to peer interactions. Additionally, social skills associated with egocentrism were not correlated with vocabulary scores. Relationship skills were not significantly correlated with vocabulary scores at age three, but they showed a significant correlation at age four. Thus, it appears that better peer relationships may create opportunities for language learning.

Next, we examined the concurrent effects of gender, language development difficulties, maternal education, and social skills scores on vocabulary scores. With the exception of gender, all variables contributed significantly to vocabulary outcomes. Therefore, if a child has higher levels of social skills, no difficulties with language development, and a mother who has completed higher education (university level), their vocabulary score tends to be higher, with each of these variables making a unique contribution.

Furthermore, when predicting language development one year later, both maternal education and social skills scores made unique and significant contributions, even after accounting for previous language skills and other relevant variables.

In conclusion, social skills contribute to language development. Skills related to emotional regulation and interactions in different contexts appear to support vocabulary development more strongly than skills related to behaviour regulation. Having good relationship skills at age three predicts higher vocabulary scores at age four.

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