Introduction

Relationship between Private Speech and Age?
- There have been supports (Winsler, Diaz & Montero, 1997) to Vygotsky’s hypothesis:
  1. An inverted-U, curvilinear relationship between age and the overt form of private speech
  2. A U-shaped, curvilinear relationship between age and the internalized private speech

Relationship between Private Speech and Task Performance?
- To date, different and unconfirmed relationships have been found.
- Yet, there is no research in the field that has studied the relationship between private speech and performance in tasks that can have divergent solutions (divergent problem-solving tasks).

Objective

1. To investigate the relationship between private speech and the task performance of divergent problem-solving tasks in pre-school children.
2. To investigate if an age-related developmental trend of private speech could be found that was consistent with the findings in previous studies.

Method

Participants
- 43 pre-school children (22 boys and 21 girls), aged 3 – 5 with no reported history of Specific Language Impairment (SLI) were recruited. They were divided into 3 different age-groups according to their ages: age 3 (n = 14; M = 3.5 years), age 4 (n = 13; M = 4.8 years), and age 5 (n = 16; M = 5.3 years).

Task and Materials
- This treasure-hunting task inspired by Sodian et al.’s (1991) study. It involved divergent solutions in 2 different task conditions.
- The materials used are shown in the pictures. The position where the white arrow lies is the starting position for an arrow to move.

Procedures
- Before the task started, each child was administered Cantonese Receptive Vocabulary Test (CRVT).
- When the task started, the child was allowed to hide the chocolate, and he/she would be demonstrated the use of the stick and the document clip. Yet, that the use of them could facilitate or impede the arrow to locate the chocolate was not explicitly explained.
- Then, the child was involved in two conditions: facilitative condition and impedimental condition.
- The child had to devise solution to facilitate the red arrow to locate the chocolate in the facilitative condition and impede the black arrow to locate the chocolate in the impedimental condition.
- During the process of devising solutions, the child was videotaped for analysis of private speech.
- In each condition, after finishing devising solutions, 2 questions regarding the task were asked.

Measures
- Task performance - it was scored according to (a) sophistication of solutions and (b) answers to the questions.
- Private speech - it was categorized into 3 levels in Berk’s (1986) scheme.
  1. Private speech at Level 1 was task-irrelevant speech;
  2. Private speech at Level 2 was task-relevant overt speech;
  3. Private speech at Level 3 was task-relevant covert speech.

Results

Age trends in private speech
An inverted-U, curvilinear relationship between age and the overt form of private speech (PS2) was found, yet a U-shaped, curvilinear relationship between age and internalized private speech (PS3) was not found.

Private speech and task performance
Private speech at Level 2 and Level 3 is positively associated with higher sophistication of solutions which thus leads to better task performance, yet is not correlative with the performance of the participants in answering questions related to the tasks.

Conclusion

- An age trend of private speech partially consistent with the findings in the previous studies was found. It supported that use and internalization of speech extended farther than was originally hypothesized by Vygotsky, explaining the unobservable U-shaped, curvilinear relationship between age and internalized private speech (PS3).
- A positive correlation between PS2 and PS3 and the degree of sophistication of solutions was found.
- Caregivers and teachers of pre-school children are advised to encourage the use of task-relevant private speech in pre-school children.

Key references
