How Internalization Is Evolved?

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Introduction

According to the social constructivism (Vygotsky, 1986), children learn new strategies and knowledge through interactions with others, and internalize them. Once they acquire the new skills, children can utilize them by themselves when performing similar tasks. Many researchers presented the existence of internalization; however, they failed to present factual evidence to how the internalization was evolved. Therefore, we examined the internalization process by using the frequencies of error-bias (the number of errant reporting of “I did it” is greater than that of “You did it” in the decision making) as an index of the internalization (Ratner et al., 2002). Additionally, we showed the result that the level of internalization varied in the quality of interactions.

Method

Participants

The participants were 29 randomly selected Japanese third graders (15 boys and 14 girls). Their mean age was 9.3 years (range: 8.9 to 9.8 years old).

Task

“The errand task” was used: the participants were asked to find the optimal route to visit 7 shops on the map of the imaginary town (Radziszewska et al., 1991).

Procedure

The errand task was performed in order of a pre-test, collaborative-session, and post-test. In the pre- and post-test, each participant independently performed the task. In the collaborative-session, a participant and an experimenter jointly worked on finding the optimal route from one shop to another. Route choice was made in turn; thus, there were 8 route decision-making interactions between the participant and experimenter.

After the collaborative-session, the experimenter pointed each route, and then asked the participant “who chose this route”. The experimenter later calculated frequencies of error-bias as “I did error” (the number of participants incorrectly reported as if s/he did) minus “You did error” (the number of the participant incorrectly reported as if the experimenter did). Based on the frequencies of error-bias, participants were divided into 2 groups: no-bias and bias group.

Results and Discussion

The excess distance (“the route actually taken” minus “the optimal route”) was calculated, and then a 2 (group: no-bias vs. bias) × 2 (test: pre vs. post) mixed-design ANOVA was conducted. The interaction was significant ($F(1, 19) = 2.16 p < .05$). Further analysis identified that, the excess distance in the bias group notably decreased in the post-test ($F(1, 20) = 7.63 p < .05$). This result, in accordance with Ratner et al. (2002), implied that internalization process involved the recording of agent information.

The following analysis qualitatively examined the level of internalization varied depending on what kind of types and qualities of interactions. The frequency of interactions, quantity of words that were uttered by each participant, and concrete activity (e.g., nod and self-corrective activity) were examined. As shown in Table 1, the bias group was more likely than the no bias group to perform the self-corrective activity in the collaborative-session, where the participants reexamined, and determined the better route by themselves ($G = + .67, p = .08$). This shows the bias group did the engagement with interactions like that associate each considered route positively, then they recorded the other’s action as their own.

<table>
<thead>
<tr>
<th>Table 1 The number of the self-corrective activities by the error bias</th>
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<tbody>
<tr>
<td>no-self-corrective activity</td>
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<td>no-bias group</td>
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<td>bias group</td>
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References

