Effects of early learning experience on infants’ exploration skills.

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Introduction

Reaching is an important milestone in infant development as it opens up new opportunities to learn about objects (Gibson, 1988). Infants do not systematically reach for objects until approximately 5 months of age (von Hofsten, 1979) and before this age they are less interested in objects (as measured by visual and manual exploration) than they are after reaching begins (Gibson, 1988; Rochat, 1989). Simulated reaching experience using “sticky mittens” has been shown to facilitate infants’ reaching for objects by making a grasp unnecessary for pickup (Neesetham et al., 2002). Infants with experience using the mittens for a two-week period showed more intentional swatting at the toys and more visual and oral exploration compared to a group of age-matched controls. Infants do not systematically reach for objects until reaching is an important milestone in infant development as it opens up new opportunities to learn about objects (Gibson, 1988). Infants do not systematically reach for objects until reaching is an important milestone in infant development as it opens up new opportunities to learn about objects (Gibson, 1988). Infants do not systematically reach for objects until Reaching is an important milestone in infant development as it opens up new opportunities to Reaching is an important milestone in infant development as it opens up new opportunities to

Hypothesis

- Do infants need to experience the training intervention for a two-week period or would a shorter duration suffice?
- Is it important that infants are actively manipulating with the objects or is it sufficient to engage them with the objects alone?

To answer these questions, we compare short training with “sticky mittens” to a modified version of this training where the infants themselves are not able to actively move the objects.

Method and procedure

- 28 healthy, full-term babies (16F, 12M): 14 in “sticky mittens” group and 14 in “object dance” group. M = 3 months, 28 days (118 days). Groups were matched in age and sex distribution.
- The procedure was the same for both groups with a slight difference in the training phase.
- Babies were sitting in the parent’s lap behind a white table, facing the experimenter.
- First test phase: Babies were given a red gummy teether toy for 1 min and were able to freely explore the toy.
- Training phase: Babies were wearing “sticky mittens” while being presented with several different toys, one at the time for about 8 min in total. The mittens had soft velcro straps sown on the palms and the toys had harsh velcro straps glued on them - the toys got stuck to mittens when touched which simulated a successful grasp. Babies in the “sticky mittens” group were able to freely manipulate the toys while the babies in the “object dance” group were only observing the experimenter move the toys in their visual field.
- Second test phase: Babies were again given a red gummy teether toy for 1 min and were able to freely explore the toy.

Results

- Looking at the object significantly increases in the “sticky mittens” group from T1 to T2 (t(13) = 2.621; p<0.01) and the difference between the group is significant in T2 (t(26) = 2.133; p<0.05).
- Latency time significantly decreases in the “sticky mittens” group from T1 to T2 (t(26) = -2.290; p<0.05) and the difference between the groups becomes significant in T2 (t(26) = 2.290; p<0.01).
- While there’s no difference between the groups in T1, the “sticky mittens” group spends significantly less time looking at other things in the environment compared to the “object dance” group in the T2 (t(26) = 2.494; p<0.01).

Conclusions and further work

- Short training with “sticky mittens” leads to significant increases in object exploration and engagement.
- Only active object manipulation as experienced when using “sticky mittens” facilitates infants’ object engagement. Passive observation of object motion in an otherwise identical context does not show these effects.
- With the help of active training, babies might become more motivated to focus on objects and reach and grasp them.
- What other aspects of the training situation influence early reaching? Does multimodal information enhance the training?
- Does reaching experience also influence how infants perceive the actions of others?

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References