

Abstract

In our experiment, children with Down syndrome learn the names of new objects displayed in a scene. Our contribution explores to what extent the context associated with the object is beneficial or detrimental to the association between an object and its name in recall, denomination and designation tasks. We hypothesized that the contextual congruence between the learning phase and the test would lead to better performance than a new object-context association in the test phase. The results don't confirm our hypothesis completely: the contextual congruence leads to better performance with time only for the denomination tasks.

Introduction

In everyday life, young children learn the names of new objects included in natural settings.

However, in most studies of lexical learning, authors reduce the word-object association to a labelling task and don't take factors that enhance the retrieval of the association into account.

Moreover, only few research studies focus on the conditions of lexical development and learning in Down syndrome (DS) children.

Our experiment explores the effects of the manipulation of the presentation context of new objects (animals and musical instruments) on DS children's performance in recall, naming and designation tasks.

We manipulate the congruence of the context between the learning and the test phases and observe its consequence on lexical learning.

We also compare the results of DS children with those of « normal » (N) children.

Experimental conditions

The « context of presentation » factor consists of two experimental groups:

- « Same context of presentation »: the stimuli were presented in the same scene in the learning and the test phases. Half of the DS children and N children were exposed to this situation.

- « New context of presentation »: the stimuli were presented in a scene during the learning phase and in a new scene during the test phases. The other half of the DS children and N children were exposed to this situation.

Method

Participants

- 34 DS children (8;10 to 15;4 years old), French native speakers, special schools.
- 34 N children matched to DS children in mental age, ordinary schools.

Materials

- Colored pictures of objects, the names of which were unknown to the children.
- Two sets of pictures were used: animals and musical instruments.
- The objects were presented to the children and displayed in scenes.

Exemples of animals presented in context



Exemples of musical instruments presented in context



Procedure

Learning phase (day 1)

Each child learned 4 non-words associated with 4 new objects.

- 1) Presentation and denomination of the picture (animal or musical instrument).
- 2) Repetition of the non word by the child.
- 3) The 4 pictures are displayed and their names are produced again by the experimenter.
- 4) The child has to produce each object name.

Steps 1+2+3+4 = 1 trial. The learning phase consists of 5 trials.

Tests phases (days 1, 3, 15)

The posttests took place immediately after the learning phase, 2 days later and 2 weeks later.

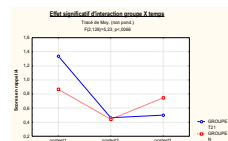
Each posttest includes:

- Recall task: free recall of learned words
- Denomination task: production of each target object's name.
- Designation task: pointing to the object named by the experimenter.

Results

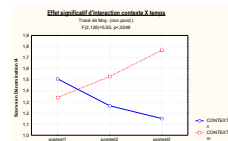
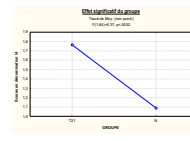
Recall task: an ANOVA 2 (group) X2 (context of presentation) X3 (time) reveals:

- No difference between SD children and N children. SD children perform as well as N children.
- No effect of presentation context. The results are the same with congruence condition and non congruence condition.
- A main effect of time. Performances are the best immediately after the learning phase, decrease for the « day 3 » posttest, and increase for the « day 15 » posttest.
- An interaction effect groupXtime. DS children are better than N children at the immediate posttest and less effective than N children at the « day 15 » posttest. At the « 3 day » posttest, DS and N children have the same pattern of results.



Denomination task: an ANOVA 2 (group) X2 (context of presentation) X3 (time) reveals:

- No effect of time. The results are the same at days 1, 3 and 15.
- No effect of presentation context. The results are the same with congruence condition and non congruence condition.
- A main effect of group. DS children have better results than N children.
- An interaction effect timeXcontext. The congruence condition leads to better results with time, contrary to non congruence condition.



Designation task: an ANOVA 2 (group) X2 (context of presentation) X3 (time) reveals:

- No difference between SD children and N children. SD children perform as well as N children.
- No effect of presentation context. The results are the same with congruence condition and non congruence condition.
- No effect of time. The results are the same at days 1, 3 and 15.

Conclusions

The association of a new object and a new name is independent of the object's visual presentation context. This is valid for the DS children and for the N children of our study. The context of presentation does not seem to be a relevant cue for lexical learning in DS children.

DS and N children learn names similarly. They have similar results for recall and designation tasks. For denomination task, DS children are better. However, for a same mental age, DS children have a higher chronological age.

The performance persists with time. For N children, we can observe an improvement at tests after 2 weeks.

The only influence of the presentation context is present for the denomination task. In congruence condition, performances improve with time. In non congruence condition, performances decrease with time.