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PERCEPTION OF IMITATION IN THE EARLY STAGE OF DEVELOPMENT

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ABSTRACT

This study investigates how children, younger than one and up to age three, in the first stage of development act when they are being imitated by an adult. When a child perceives that it is being imitated by an adult, it indicates that the child is making a clear distinction between itself and another person. The child objectively compares his behavior with the adult's behavior, and the child needs to be able to perceive the adult's intention. Perception of being imitated is a very important concept because it demonstrates the capacity of the child to recognize another person's intentions. We constructed a controlled situation where a child is playing with toys that he/she chose, while an adult imitates the child using another set of identical toys. As a result, children from one and half years of age, when they are being imitated by an adult, react as if they perceive that they are being imitated. Children indicate their perception by "deliberately changing their toys' direction of movement while watching the adult move his toy" or "exhibiting strange behaviors" or by "correcting the adult's behavior". Children's reactions to being imitated by adults gradually become more complicated and diverse.

Key Words: imitation, perception, children

INTRODUCTION

It is not uncommon to witness imitation between infants and adults, and even among other infants in daily life. Trevarthen (1977) reported that mothers' communications with infants six to 12 weeks old are formed by the mothers' imitating their children's speech sounds. Also Eckerman (1993) reported that communications using imitations are not only used in a controlled laboratory, but are used in free space as well. Meltzoff (1990) reported that 14-month-old infants are able to distinguish the adults who are imitating them from those who are not. Children gaze longer at the adults who are imitating them, and smile, and make actions as if testing to ascertain whether the adults are imitating them or not. Therefore, the children prefer the adults who are imitating them.

Hashiya (2005) also reported children's reactions when they were imitated by adults. He asked the children's mothers to "Please imitate your child's every movement and utterance for three minutes and then report the result." (The mothers were asked to freely describe their children's reactions.) Mothers of children from ages one to four answered how their children reacted when they were imitated. The results were that 70 percent of the one-year-old children changed their reactions when they were imitated, and 100 percent of two-year-old children changed their reactions. Furthermore, this

research emphasized the word "*mane* (imitation)" when the children were being imitated.

The research reported that five percent of the two-year-old children began to use the word "mane" and the number of children using the word increased with age - up to age three. Less then 10 percent of the one-year-old children responded with "Negative actions" by crying or getting angry when they were imitated, but more than 50 percent of the four-year-old children reacted with "Negative actions". A little less than 20 percent of the one to four-year-old children "Gaze" at their mothers when they are imitated. From two years of age, children begin to ask about the intention of imitating, and the numbers of the children asking increased with age - up to age three. Older than three-and-half-year-old children were "embarrassed" to be imitated.

Definition of imitation

The research reported that five percent of the two-year-old children began to use the word "mane" and the number of children using the word increased with age - up to age three. Less then 10 percent of the one-year-old children responded with "Negative actions" by crying or getting angry when they were imitated, but more than 50 percent of the four-year-old children reacted with "Negative actions". A little less than 20 percent of the one to four-year-old children "Gaze" at their mothers when they are imitated. From two years of age, children begin to ask about the intention of imitating, and the numbers of the children asking increased with age - up to age three. Older than three-and-half-year-old children were "embarrassed" to be imitated.

METHOD

Participants & Experimenters

Fifty-five nursery school children participated in this research. Seven of the children were younger than one year of age, 18 were one-year-olds, 16 were two-year-olds, and 14 were age three. There were 29 boys and 26 girls. The experimenters were nursery school teachers who were familiar with children.

The laboratory environment

In the laboratory, two small tables were prepared for one participant and an experimenter, and set at an angle of about 30°. Participants sat on the small chair and the experimenter sat on the floor. There were several identical toys placed on each table in the same specific order. (Figure 1)

Procedure

The participant enters the laboratory and sits down on the chair, and then spontaneously starts to play with the toys on the table. When the experimenter has confirmed the participant has begun playing spontaneously, the experimenter starts to imitate the participant for 180 seconds. After 180 seconds, suddenly the experimenter stops imitating the participant for 60 seconds. During the 60 seconds, the experimenter intentionally exhibits different actions.

The same trial is repeated three times and each trial is recorded on video.

Figure 1 In the laboratory

Description of how and when the experimenter imitates the participant

1. The experimenter imitates the participant's every action, expression, and utterance.
2. The experimenter imitates the participant with the same toys in the exact same manner.
3. The experimenter imitates the participant identically, that is, if the participant performs an action with the right hand, the experimenter imitates the action using the right hand. It is not mirror imitation.

RESULTS

Reactions of children by age when imitated

The actions which the children demonstrated, in the laboratory were classified into four groups. "Group (A) No reaction: No reaction was exhibited when being imitated." "Group (B) Changed the toy's movement: When the participant gazed at the experimenter imitating the participant, the participant changed the toy's movement each time.""Group (C) Strange action: When the participant gazed at the experimenter who was imitating the participant move his toys, the participant reacted in a strange or out-of-the-ordinary manner.""Group (D) Language expression: 1. Corrections were made by using spoken language either with or without actions, as the participant corrected the experimenter's actions to make them resemble the actions being exhibited by the participant. 2. Urging: The participant urged the experimenter to imitate him/her. 3. Refusal: The participant told the experimenter not to imitate him/her. 4. Question: The participant asked why the experimenter was imitating him/her.

The results indicated that 21 children could be classified as "Group (A) No reaction". Ages progressed from the youngest child at seven months to the oldest who was two years and ten months and the average age was one-year-and-five-months old. Ten children were classified as "Group (B) Changed the toy's movement." Children's ages ranged from the youngest at one year and eight months, to the oldest who was three years and eight months and the average age was two years and six months old. Thirteen children could be classified as "Group (C) Strange action". The youngest age was one year and five months, and the oldest age was three years and eight months. The average age was two years and seven months. Eleven children were classified as

“Group (D) Language expression”. The youngest age was one year and ten months, and the oldest age was three years and ten months. The average age was three years and three months.

The youngest children in each of these groups, “Group (B) Change the toys movement”, “Group (C) Strange action”, and “Group (D) Language expression”, who exhibited reactions were from one year and six months. Then, the age of the participants and four reactions were distributed. And a line graph was made. There was a strong correlation between the age of participants and four reactions(r=0.706). This result suggested that the reactions shift from (A) to (B), to (C), to (D) while the participants' ages increase. (Table1, 2) (Figure 2)

Table 1 The Reactions When the Participants are Imitated

Reaction	Definitions & Examples
(A) No reaction	There were not any actions to indicate that the participant was aware that he/she was being imitated.
(B) Change the toy's movement	While the participant gazes at the experimenter moving his/her toys, the participant changes his/her toy's movements one after another. ex. While looking at the experimenter's face, the participant hits the hammer on the right side and then changes to left side and then plays with the whistle.
(C) Strange action	While the participant gazes at the experimenter, as he/she moves his/her toys, the participant exhibits a strange action that he/she would not normally exhibit in daily life. ex. Suddenly, the child raises his/her foot, or puts a toy on his/her head by him/herself.
(D) Language expression	By using the language or actions, the participant corrects the experimenter's action to make it resemble the participant's action more closely.
1. Correction	ex. “Not like that. Do it like this.”
2. Urging	The participant asks the experimenter to imitate him/her. ex. “Please imitate me.” “Please do what I do.”
3. Refusal / Protests	Participant refuses to allow the experimenter imitating him/her. ex. “Stop it!”“Don't imitate me.”
4. Question	The participant asks the experimenter why he/she is imitating him/her. ex. “Why are you imitating me?”“Are you doing the same thing as I am?”

Table 2 Category and Age

Category	The youngest age	The oldest age	The average age	The number of participants
A	0:07	2:10	1:05	21
B	1:08	3:08	2:06	10
C	1:05	3:08	2:07	13
D	1:10	3:10	3:03	11

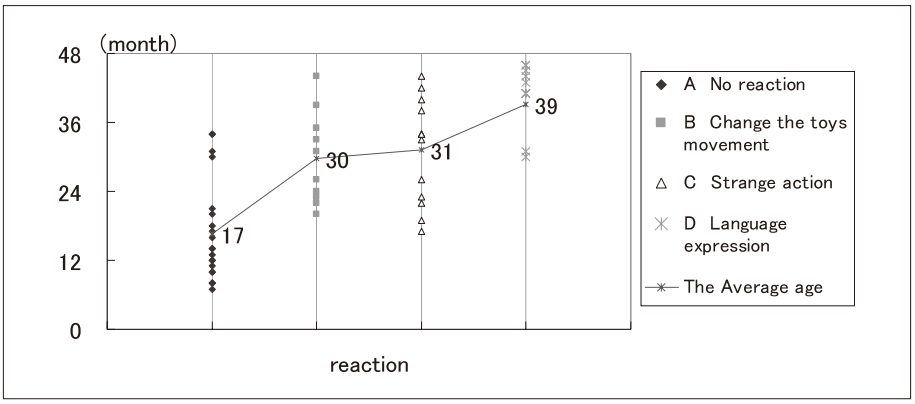

Figure 2 Category and Reaction

Positive and Negative reaction

Reactions of the participants were further categorized as "Positive: Smiling or laughing at the experimenter" and "Negative: Getting angry at the experimenter or crying". A "Positive" reaction was exhibited by 28.6 percent of the children younger than one, 87.5 percent of the one-year-olds, and 100 percent of the two-year-olds. None of the children younger than one, aged one or aged three exhibited a "Negative" action, and only 33.3 percent of the two-year-old children did so.

DISCUSSION

The age and the reaction

This research looked at young children of various ages at play and their actions in response to being imitated by adults. It is easy to surmise that children would exhibit different actions when playing freely as compared to playing and being imitated. The actions exhibited by the children could not be considered consistent with solitary free play only because in many cases, the children demonstrated an awareness of the experimenter and an intention to interact.

For example, children younger than one year of age just smiled or laughed at the experimenter. This indicated that when the children were playing by themselves they wanted the experimenter to know that it was very exciting. Furthermore, from one and half years, children reacted in such a way that indicated they knew and acknowledged that they were being imitated. Meltzoff (1990) reported that fourteen-month-old children could recognize that they were being imitated when he compared the actions of children who were being imitated with those of children who were not being imitated. He found that the imitated children would gaze longer and smile and exhibited the testing actions.

In this research, I did not compare imitated children with not imitated children, but I examined whether the children recognize that they are being imitated or not from the children's actions when they were being imitated by the experimenters. This difference in conditions differentiated this research from the Meltzoff (1990) report. Whereas, Meltzoff reported that children from fourteen months start to recognize that

they are being imitated, this research found that children from one year and six months recognized they were being imitated.

In our study, two-year-old children exhibited more "Positive" actions than children between age one month and 24 months. On the other hand, the two-year-old children showed "Negative" actions when they did not like the experimenter imitating them. The children tried to elicit a reply from the experimenter indicating compliance. This was interpreted as an attempt to make a conversation. A two-year-old child definitely seems to be aware of himself or herself as 'myself'; someone separate and different from the experimenter. A large number of two-year-old children exhibited "Change the toy's movement", "Strange action" and children from two-and-a-half-years of age showed these actions: "Urging", "Refusal", and "Questioning". These results indicate that the two-year-old children are clearly aware of being imitated and can acknowledge this and communicate to the experimenter the extent to which they like or dislike being imitated.

All of the three-year-old children exhibited "Change the toy's movement ,and "Strange action". Furthermore, they actually attempted to strike the experimenter during expression of "Correction", "Urging", "Refusal" and "Question" actions. It seems that three-year-old children recognize that they are being imitated and they have advanced ideas of how they themselves can cope with or resolve the situation. It was apparent that as children progressed in age, their reactions to being imitated by an adult were expressed with greater intricacy and diversity.

Children develop and progress from the youngest stage, when they are content to play by themselves, seemingly oblivious to being imitated by an adult, to the next stage when they have a little interest in being imitated by an adult and they begin to react and indicate that they are recognized. Eventually, they progress to a stage when they react in a more animated fashion as they recognize and indicate that they are aware of being imitated. Finally, they reach a stage when they use language and gestures to seek compliance from the adult imitating them. Thus, indicating that they recognize and can differentiate between themselves and the adult and can explain their feelings by themselves to the adult.

How the children feel when they are imitated

In daily life, children imitate and may be imitated others. In this research, children were imitated by an experimenter continually throughout the experiment. This study turned out to be a very peculiar experience for the children. In this situation, it is easy to suppose that the reactions of the children will change as the children recognize they are being imitated. In this research, the children's actions changed as the children progressed in age.

For children younger than age one, imitation situations that involve an older person standing in front of them and their trying to mimic the older person, are usually without conversation. At this stage, children are able to play by themselves and they react positively when imitated; exhibit "Positive" actions.

One-year-old children, especially one-and-a-half-year-old children indicated that they recognize that they are being imitated. A large number of children react positively to being imitated; exhibited ("Positive" actions) and seem to enjoy it.

Of the two-year-old children, whether or not cognizant of being imitated, most children showed "Positive" reactions. In the experiment, some children either urged the experimenter to continue imitating them, or they lightheartedly protested to being imitated again, laughing in either situation. These reactions mean that the children were not just enjoying the situation, but that they treated the situation like a game.

All of the three-year-old children, acknowledged being imitated and most children exhibited "Positive" actions. The children corrected the experimenter's imitating actions as if the children wanted to ensure the experimenter was imitating them correctly, or they objected to being imitated, but did so while laughing, or they asked the experimenter why he/she was imitating them. These reactions indicated that they recognized that they were being imitated, and they could see the situation objectively, and they elaborated on situations as if playing an advanced game, and they enjoyed themselves in the process.

When children are imitated continually by adults, it is a very peculiar case for them; in a way the shoe is on the other foot. Ultimately, whether or not the children acknowledge that they are being imitated, many do indeed relish the attention.

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