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# A Longitudinal Study of the Socialization Process in Early Infancy\*

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The socialization process of two institutionalized infants (A.N.—girl, M.S.—boy) was observed for six months from the time they were born. Even though smiling response, vocalization and visual fixation of infants have been extensively studied, from the aspect of social response, little has been mentioned. So, in this study, these things are analyzed from the point of social responses. Development of A.N. was found to be faster than M.S. in almost all socialization phases. Since both of them were born on the same day and reared in the same institution, their differences in social development are thought to be partially attributable to some innate factors.

## **A Longitudinal Study of the Socialization Process in Early Infancy**

Social behavior in infancy has been studied mostly in experimental settings with a cross-sectional design. In order to obtain a better understanding of the developmental trend in their social behavior, however, an observational and longitudinal study is needed. The aim of the present study is to trace the socialization process in early infancy by using an observational and longitudinal design. Smiling response, vocalization and visual fixation of persons (e.g. eye to eye contact) are very important

social behaviors. In studying social response the terms, social smile, social vocalization and social fixation have not commonly been used. This is because in experimental settings only one or two behaviors have been analyzed and brought to partial understanding. For example, in the smiling response 'what element is most important in releasing the smiling response' has been the main theme since Spitz & Wolf (1946). With respect to vocalization 'what and how vowel elements develop in infancy' has been the major interest since Irwin & Chen (1941), and in visual fixation since Fantz (1958) 'what figures are preferred by infants' has been studied in almost the same manner. Wolff (1963) has pointed at the development of the 'social smile' in his observational and longitudinal study. Rheingold (1960, 1961) has used 'vocalizes to mother' in another observational study. So in this research these social behaviors are observed in their natural settings and attended carefully (e.g. baby's interaction with caretakers, other babies and the observer) as was done by McGrew (1972).

## **Method**

*Subjects* — Two physically normal infants (A.N.<sup>1)</sup> — Birth Weight 3400 g, M.S. — Birth Weight 2745 g), born on the same day and

\* The author is grateful to many people who kindly advised and helped him in doing this study; especially to two infants.

1) She is an abandoned child, so her weight was measured when hospitalized.

reared in the same institution, were used. A. N. was hospitalized when two days old and M. S. when 20 days old because of their inadequate family conditions.

*Procedure*—With the exception of a few points, observations were made in the same manner as Caudill & Weinstein (1969). All the observations were made by the author (Observational reliability is mentioned below). During each 10 minute observational session almost all actions of both infant and his caretakers were recorded in terms of free description. Each observational session was followed by a 5 minute break, one day consisted of ten morning and early afternoon sessions (Phase 1) and five afternoon sessions (Phase 2). As a rule the observations were made on Tuesdays and Fridays from 10:50 a. m. to 1:15 p. m. (Phase 1) and from 2:30 p. m. to 3:40 p. m. (Phase 2). A. N. was observed in Phase 1 on Tuesday and Phase 2 on Friday, while M. S. was observed in Phase 2 on Tuesday and Phase 1 on Friday. This procedural difference was considered to be negligible and the results of A. N. and M. S. were compared by one week periods. In Phase 1 infants were bathed by caretakers (not everyday) and bottle fed (or given semi-solid food), after which they took a nap. In Phase 2 they played freely. In making the observations the observer (*O*) used a simple observation sheet on a clip-board with a stopwatch mounted on the top. *O* sat near the infant and his participation was minimal. When the infant smiled or vocalized to *O*, he responded back to the infant. At various points in the observational sessions the caretaker carried the infant from one room to another, or into the yard. At these points, *O* followed along and continued to observe as far as possible.

*Observational indexes*—Even though *O* relied heavily on free description to record behavior, some observational indexes were used in the present study.

Examples of these indexes are listed below:

- a) Infant's state—Sleep (SL.); Drowsy (DR. cf. Wolff, 1959); Alert Inactivity (AI.); Alert Activity (AA.); Crying (CR.)
- b) Infant's action—Spontaneous Smile (Spo. S. Smiles when DR. or SL.); Spontaneous Laugh

(Spo. L.); Social Smile (Soc. S. cf. Wolff, 1963, "Social" means response to person.); Social Laugh (Soc. L.); Self Smile; Smile at Object; Eye Movement (E. M. Eye movement in REM sleep); Fixation on Object (Fix.); Social Fixation (Soc. Fix.); Visual Pursuit (V. P.); Hand Regard (H. Reg.); Vocalization (Voc.); Social Vocalization (Soc. Voc.); Vocalization to Object (Voc. O.); Spontaneous Sucking Movement (S. U.); Finger Sucking (F. S. U.); Spontaneous Startle Movement (S. S. M.); Startled Reflex (S. R.); Prehension (Pre.); Social Prehension (Soc. Pre.); *Negaeri* (Neg. Japanese, i. e. Turning over in bed).

c) Setting—The surroundings of the infant and the relations with other people (caretakers and the other infants) were also recorded.

*Observational reliability*—One day (during the 4th week) reliability was checked with the help of five psychologists (K. W., Y. O., N. M., M. T., and H. K.—all of them are specialists in developmental psychology). The author was the 'constant' factor in the reliability check, being paired with each of five other *O*'s.

Table 1. Observational Reliability

Ob-server	Index					
	S. U.	Spo. S.	S. S. M.	S. R.	E. M.	ΣT <sup>a*</sup>
K. W.	76		100		89	50
Y. O.	40 <sup>b*</sup>	92		96	77	100
N. M.	75					10
M. T.	80					10
H. K.	60 <sup>c*</sup>		73		71	60

Note: a\*—ΣT denotes total observation time (min.) for each observer with the author.

b\*, c\*—Regarding these, see the text.

In Table 1, the percentage of agreement between observers is shown for each observational index. A level of 70 percent agreement was considered to be satisfactory. Two, b\* and c\*, did not reach this level. In b\*, tongue movement was not recorded in one observation, and in c\*, one observer failed to note mouth movement. Here only five indexes are examined, other indexes, however, can be considered to be satisfactory.

**Result**

The aim of this study is to observe the development of socialization, so results concerning Smiling response, Fixation and Vocalization are presented below.

1) Smiling response—Fig. 1 shows the frequency of smiling responses, and Table 2 the first appearance of these responses from these infants.

From the data in Fig. 1 and Table 2, it is clear in all indexes smiling responses appeared faster with A.N. than with M.S. (even when considering that M.S. began participating in

Table 2. First Appearance (in weeks of age) of Smile and Laugh Responses of Infants

	A. N.	M. S.
Spo. S.	1	4
Spo. S. (With Eye Open)	3	6
Soc. S.	7	11
Self Smile	12	17
Smile at Object	13	17
Spo. L.	*	8
Soc. L.	16	17

Note: \* never happened.

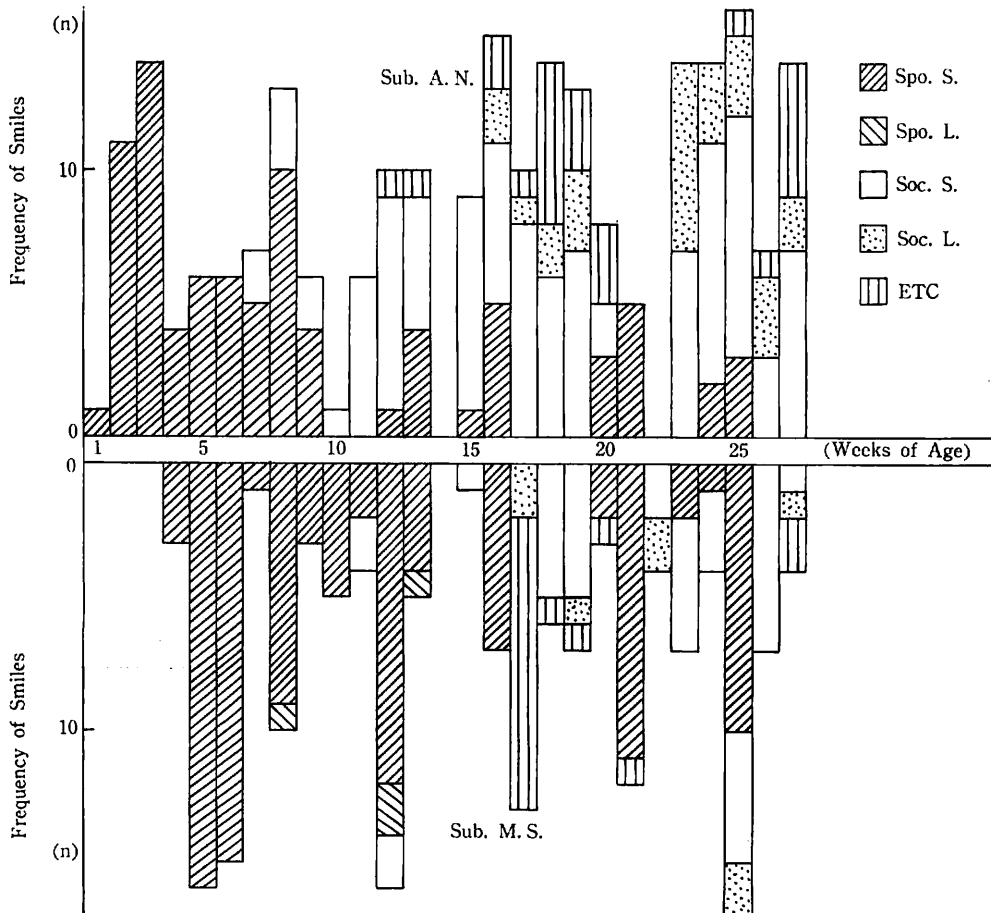


Fig. 1. Development of Smiling Response.  
(At 14 weeks of age observations were not made)

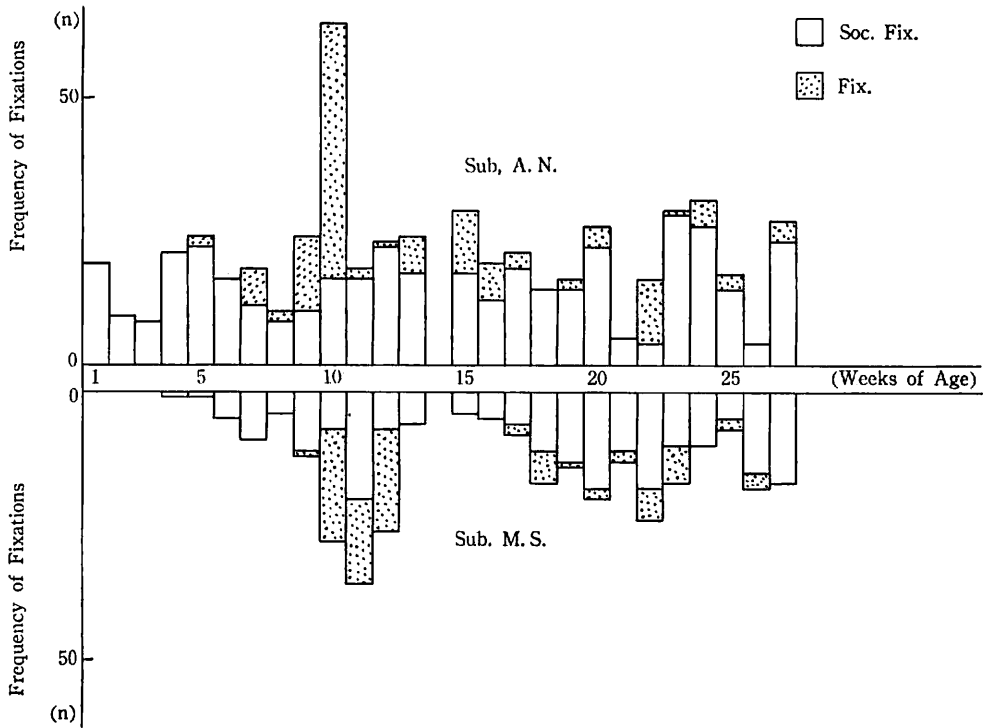


Fig. 2. Development of Visual Fixation.

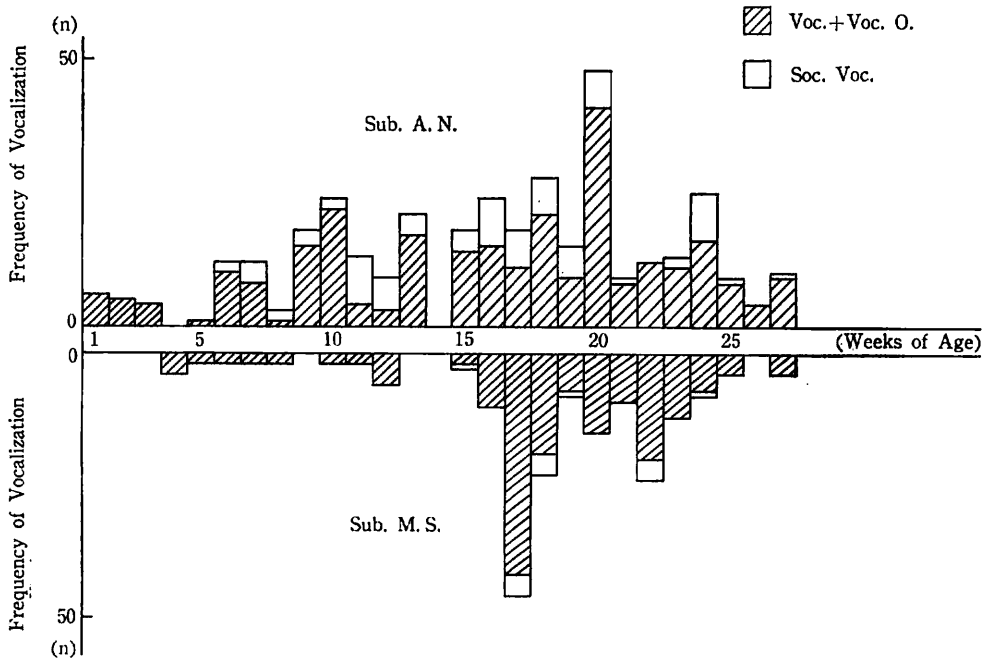


Fig. 3. Development of Vocalization.

observations at a later time). With respect to Soc. S., A. N.'s are more frequent than M. S.'s. On the other hand A. N.'s frequency of Spo. S. decreased with weeks of age, but those of M. S. continued for a longer period (cf. Shimada, 1969, shows that elicited smiles of children with brain damage continue for a long period.). First appearances of other smiles were in proportion with Soc. S. etc. In Soc. L. first appearances in both infants did not differ, but frequency differed very much.

2) Fix.—Although the method adapted in this study cannot be expected to be as strict as the experimental method, it can provide much information about the development of socialization. Fig. 2 shows frequency of Fix. for both infants.

Table 3 shows first appearances of 'turn to the caretaker's voice' and V.P. for both infants.

From the data in Fig. 2, it is clear that with A. N., response, especially Soc. Fix., is more frequent than with M. S.

Table 3. First Appearance (in weeks of age) of Fixation of Infants

	A. N.	M. S.
Turn to Voice	5	12
V. P.	8	13

The data in Table 3, which are concerned with capability of head movement, show that with A. N. appearance is faster than with M. S.

3) Voc.—In most of the studies, which concentrate on the development of phoneme types, there are many problems with data reliability. In this study, however, Voc. is recorded not by phoneme types but by Voc., Soc. Voc. or Voc. O., so these problems are avoided. Fig. 3 shows frequency of Voc. for each infant.

From the data in Fig. 3, it can be seen that A. N. and M. S. differed in their action level and in the first appearance of Soc. Voc.

In three groups of observational indexes

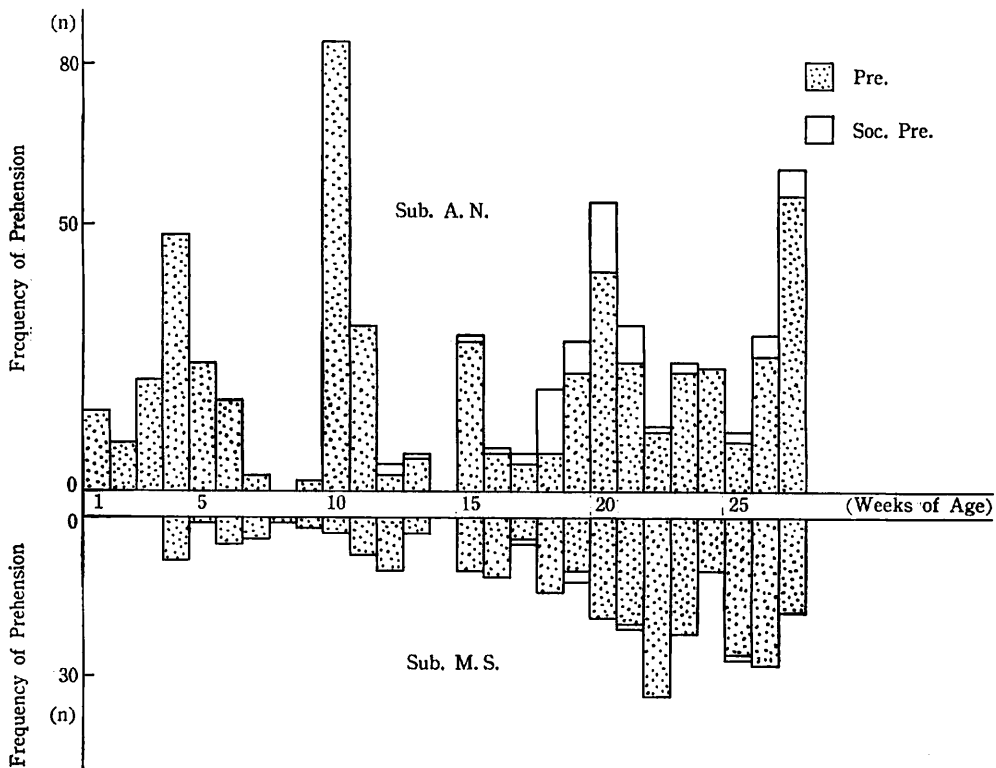


Fig. 4. Development of Prehension.

mentioned above (Smiling response, Fix. and Voc.), it was clearly shown that A.N. has been developing faster, and behaving more actively than M.S. This trend can be paralleled in other observational indexes, even in motor skill indexes. For example, Fig. 4 shows frequency of Prehension for both infants.

### Discussion

Now, we have to examine some plausible factors which have brought about these differences.

First, a difference in the amount of sleeping time can be pointed out. Fig. 5 indicates the amount (per cent) of sleeping time during the observations.

From the data in Fig. 5, there are clear

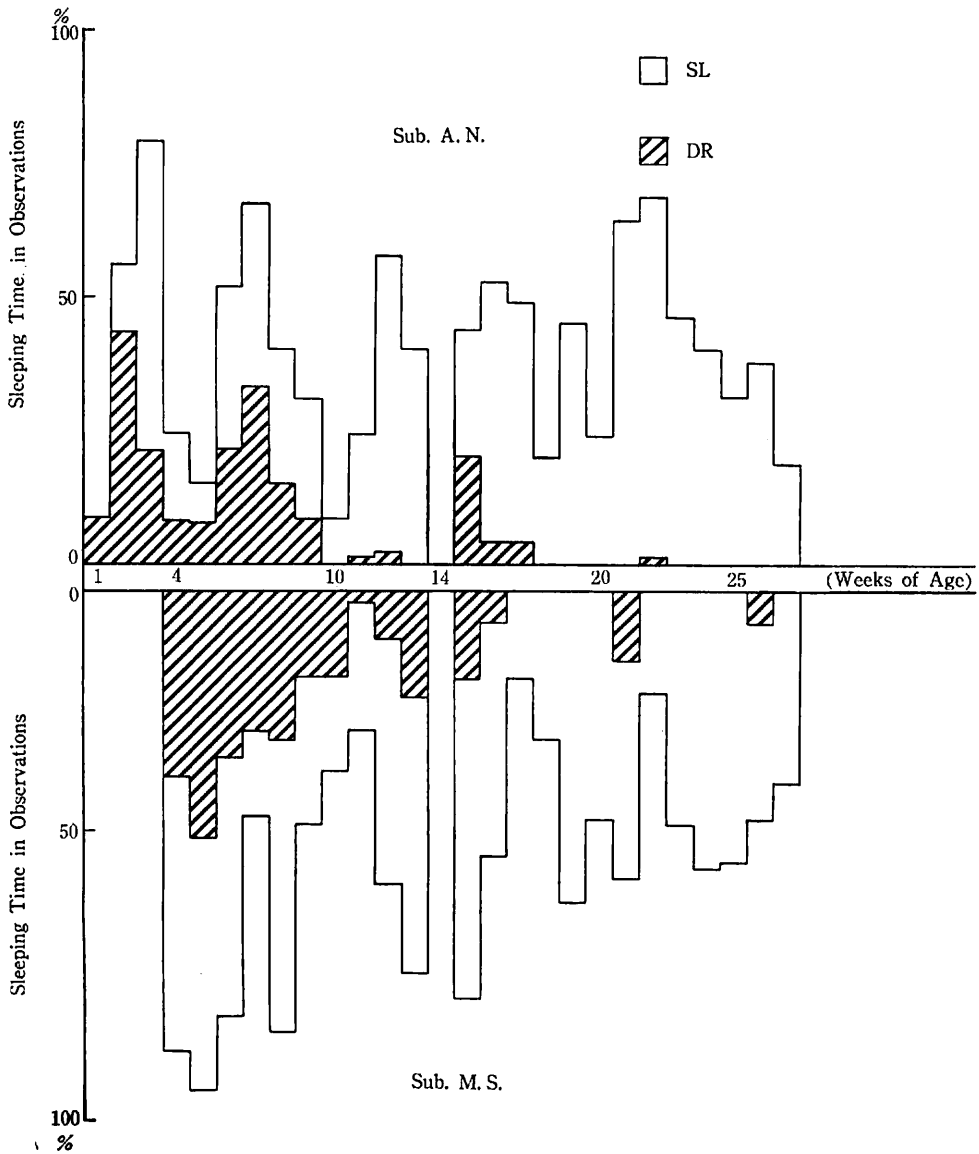


Fig. 5. Sleeping Time.

differences between A.N. and M.S. in the early stage. This can be one factor which causes M.S.'s social behaviors to appear later and his Spo. S. to be more frequent.

Second, a difference in personality can be pointed out. This personality means intellectual curiosity and sensitivity to stimuli, which may be similar to the concept of Assimilation and Accomodation (Piaget, 1953). A.N. responds to new stimuli or complex stimuli more actively and more quickly than M.S. This trend can be seen also in Fig. 4, and can be related to intellectual abilities (Miranda and Fantz, 1973).

Other factors, differences in sex (Fagan, 1972), birth weights and the relationship to caretakers & O, can also be pointed out.

Since these two infants have been reared in the same institution, these developmental differences can be assumed to come from innate factors. These innate differences can be the most unique points of every human-being. We must remember that all human-beings have different Innate Releasing Mechanisms (IRM's). Each man's IRM's respond to his own environment. These processes result in differences in social development.

Imprinting has been regarded as an important theory of the human socialization process (Gray, 1958; Ambrose, 1963; Brody & Axelrad, 1971). From the definition of imprinting by Hess (1973) and from the points discussed above, however, imprinting is too rigid to explain the human socialization process. The author insists upon *Exprinting* instead of imprinting as a technical term for the human socialization process. *Exprinting* requires more plasticity and individuality than imprinting and can be considered like canalization in learning theories. *Exprinting* comes from the idea of the old Czechoslovakian educator, Comenius (1657). He claimed the new method of education, *διδασκογραφία* (Didacticography), in analogy of print. As with the educational process, the socialization process can be reversible and continue to the end of one's life. The socialization process, therefore, cannot be explained by "Imprinting" but by "*Exprinting*". In this concept, patterns can be unlearned.

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