

# Effect of enriched sensori motor stimulation on the physical and psychological development of institutionalized pre-school children

Priya M.S., Sarad Menon

## Introduction:

Although the early literature (Spitz 1946) suggested that marked retardation in perceptual-motor development and personality disturbance were inevitable outcomes of institutional care, recent research has contradicted the earlier findings, (Decarie, 1965). It is now accepted that institutionalization in itself does not cause developmental delay, but rather the simple lack of stimulation that is inevitable in such environments, is the deciding factor for the detrimental effects of institutionalization. A number of researchers have been concerned with providing more optimal conditions of care with brief experimental interventions with limited kinds of stimulation.

(Wachs, 1971)

The significant variables in institutional settings that effect the development of the child are 1. The amount, quality and variety of sensory and perceptual stimulation provided by the caretaker. 2. The extent of opportunities for acquiring and practicing fine motor skills. 3. The timing and appropriateness of the caretakers responses to the child's behavior.

In this connection, Hunt (1961) postulated a number of hypotheses about the nature of experiences of importance.

1. Development is a function of the exercise of sensori motor system.

2. During the early years, variations in auditory and visual inputs are

very important to maintain alertness through evoking the orienting response.

Ms. Priya M.S.  
M.A(Psychology),  
Psychologist, Dr. Sarada  
Menon Consultant in  
Psychiatry, Scientific  
Advisory Board Member,  
Bala Mandir Research  
Foundation, (BMRF),  
Madras – 600 017.

3. There should be an increase in the attractiveness, variety, novelty, complexity and challenge in the inputs encountered.

4. It is important for the child to have considerable control of the stimuli through his own actions.

Hunt with a collaborator in Tehran conducted a study to test the above hypothesis, with 5 successive interventions. The I group was the control group. The II group received audio-visual enrichment. The III group got extra untutored human care. The 4<sup>th</sup> group got audio-visual tactile stimulation. The 5<sup>th</sup> group received tutored human care. The results showed that each successive group achieved the top steps of nearly all 7 of the ordinal scales at mean ages younger than the preceding group.

The present study is aimed at providing enrichment to the sensori-motor system, with Hunt's hypothesis as the baseline.

Material and Methods:

34 pre-school children of both sexes in the age range of 2-3 years, free from major illness, vision, hearing and motor-neurone defects were selected from a local Home for destitute. The study sample formed a homogenous group as they received the same nutrition and human care. The variables like length of stay in the institution and the number of living parents were also controlled. Children suffering from anaemia and nutritional deficiencies were treated and then included in the study. Epilepsy and other neurological deficits were eliminated. The children were assessed on the Catell Developmental and Intelligence Scale and only those who displayed 2 to 6 months of delayed developmental profiles were selected for the study. 34 children who were finally selected after meeting the inclusion criteria were randomly allocated to the experimental and control groups of 18 and 16 respectively matched for initial developmental age.

The following were the parameters of assessment:

1. Catell Developmental Schedule:  
This test measures the milestones and yields a developmental age.
2. Vineland social maturity scale:  
This scale measures the child's standing in the social ladder in areas like self-help(eating, dressing etc), locomotion, socialization etc. A social

quotient is arrived at finally.

Conduct of the study:

While the experimental group received the following sensori-motor stimulation, the control group spent the same amount of time with the psychologist, to offset the effect of special attention and were

engaged in some indoor activities like carrom, chess etc. the period of intervention was 6 months. High intensity stimulation which is not contingent on the child's signals and involuntary exposure to an excessive variety of objects were avoided.

1. Visual situation – Coloured picture books,

variety of toys, access to responsive disco strobe lightings and inanimate materials.

2. Auditory – Tape recorded mother-talk, music, mobiles that the child could activate, electric and wooden bells, tining forks, rattles, clockwork.

Table I

**Effect of enriched sensory-motor stimulation on the physical/mental development of pre-school children**

Parameter	Experimental Group			Control Group			Level of Sign.
	Initial Mean SE	Final Mean SE	Mean DIF SE	Initial Mean SE	Final Mean SE	Mean DIF SE	
1.Cattell Developmental Schedule	22.37+1.53 (18)	35.19+2.94	12.82+2.02	22.67+1.28 (16)	23.50+1.29	0.83+0.13	P<0.001
2.Vineland social maturity scale	25.06+1.90 (18)	36.12+2.86	11.06+1.55	26.70+2.04 (16)	27.76+2.07	1.06+0.79	P<0.001

Note : Figures in the brackets represent sample size. SE – Standard Error

3. Olfactory – Soaps, incense sticks, flowers, perfumes.
4. Tactile – Ice cubes, clay, soft and roll along toys, turkey towels, spring mattress, paper darts.
5. Taste – Different cooked items, including citric acid, acetic acid, quinine, sugar salt, clove oil, asafetida, olives, vinegar, ice cream, lemonade, salt biscuits etc.

A time table is drawn for each month predetermining the stimulation to the 5 senses is equally distributed in a month.

Results and Discussion:

Table I indicated that both the groups were at the same position at the start of the programme in all the parameters, as indicated by their initial means. In other words the developmental profile was the same for both the groups at the beginning of the project. Table I further shows that as compared to the control group, there was a statistically significant increase in the development and social quotietns of the experimental group due to the intervention which lasted for 6 months.

This study has corroborated the hypothesis and studies of Hunt in bringing about an all-round improvement in the psychological functions due to the sensori-motor enrichment.

Investigators such as Phyllis Levenstein (1974) have contented that the period most crucial for later competence comes during the 2<sup>nd</sup> and 3 years and it is necessary to provide the development fostering requirements to the children at this time of their life. Thus in this study changing the developmental quality of the environment during the early years produced substantial advancements in the rate of development of the children.

Studies by Provence et al (1962) have shown that institutionalised children attain the maturational sequence or the milestone at the same time as homereared ones, but fail to practice their achievement. Seen in this light, the sensori-motor enrichments have contributed to the

significant increments in the rate of growth of the children.

The findings of this study project one important point. There should be variation, novelty, complexity, challenge and attractiveness in the stimuli encountered. These factors contribute to the optimal conditions of care. A global and pervasive change can be made in institution taking a cue from this study.

#### Conclusions:

34 pre-school children of both sexes in the age range of 2-3 years residing in an institution were given sensori-motor enrichment for 6 months. The results indicated that there was an increase in the developmental and social quotients in the experimental group, due to the intervention. A global and pervasive change can be brought about in the institutions, taking a cue from the findings of this study.

#### References:

1. Spitz, R.A. Anaclitic depression. Psychoanalytic study of the child. 1946. Vol.21,P.313-42.
2. Decarie, J.G. Intelligence and effects in early childhood. New York. International University Press 1965.
3. Wachs, T. Uzgiris I.C and Hunt J. Mcv Cognitive development of infants of different age levels and from different environmental backgrounds. An exploratory investigation. Merrill-Palmer Quart, 197 ,17,283-317.
4. Hunt J. McV. Toward a theory of guided learning in development. In R.H.Ojemann and K. Pritchett (Eds.) Giving emphasis to guided learning, Cleve-land. O: Educ. Res. Council. 1966, P.98-160.
5. Levenstein P. The mother-child home programme. In R.L. Parker (Ed) The pre-school in action. (2<sup>nd</sup> Ed.) Boston: Allyn and Bacon, 1974.
6. Hunt. J.McV.Khoserow Mohandessi Mehri Ghodssi and Michihiko Akiyama. The psychological development of orphanage reared infants. Interventions with outcomes (Teheran) Genetic Psychological Monographs.Nov.1976 Vol.94, II half, P.177-226.
7. Provence,S. and Lipton. R.C. Infants in institutions. New York. Internat. Univ. Press.1962