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# Association of Cognition with Cognitive Environment

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All children go through a sequence of development that can be observed. From large to small motor coordination, from simple ideas to complex thinking, from one word utterance to lengthy sentences, from scribbles to representational drawing ..... all children everywhere seem to proceed through a step by step sequence of development that can be traced by a knowledge-able observer, one who knows what to look for. Environmental influences can stunt or promote an organism's growth, can create long-tasting anxieties or help to form complex skills.

It is probably true that the basic competencies needed for living have always been the same - the ability to work, to love and to play. However, it is in the quality, quantity and priority of these competencies that the changes necessary for living more effectively in the future will have to be made. What we do know is something quite starting to those unfamiliar with recent findings : that children create their own knowledge. Using the physical and mental tools they are born with, children interact with their environment to make sense of it, and in doing so, they construct their own mental images of their world. But if the child does not have the opportunity to explore his environment, if his environment is uninteresting or sterile, or if his caregivers are harsh, controlling or neglectful-he may not develop his intellect to the same extent as children who are provided with a stimulating environment and affective caregivers.

Earlier it was believed that very young children are not capable of acquiring knowledge but recent researchers have indicated that children are active beings and are capable of acquiring knowledge, intellectual aptitude as well as cognitive qualities as their physiological and psychological faculties are adequately developed for this stage.

The word "cognition" refers to the inner process (viz., perception, thinking, attention, language, reasoning, problem, etc.) and products of human mind that leads to knowing (Flavell, 1985).

It is evident that if cognitive development is delayed, intelligence is also delayed. A number of cognitive capacities critical to child's overall intelligence begin to develop during the early years of life. According to Piaget, just as the body has physical structures that enable it to adapt to the environment, so that mind builds psychological structures organized ways of making sense of experience - that permit it to adapt to the external world. In the development of these structures, children are intensely active. Pre-school years are considered crucial for cognitive development as they are capable of using all kinds of units in cognitive activity i.e. Schema, Images, Symbols, Concepts and Rules. To develop all these cognitive units, it is important for an indi-vidual to adapt to his environment. Some physio-logists believe that basic human concept emerge from the interaction of innate capacities with environmental opportunities (Rohwar et al., 1974). So, environment may have a direct or indirect bearing on the child's cognitive skills. Home environment provided by the parents, parental behaviour, their interaction with the child tends to influence the cognitive development of children through the influence may vary. One obvious fact is that the child learns through the interaction with the physical as well as the social environment. Environment around the child therefore must be rich and stimulating to develop his/her cognitive capacities Hendrick (1998) found that if children in a classroom is provided with natural, spontaneous, lively environment, children will gain experiences in both linguistic and mathematical skills through use of interesting and challenging material in comparison to one in which there are opportunities for passive learning. There are many structures which hold the view that if stimulating factor is present in the environment of a child for a longer time it has more positive results in comparison to environment which is provided for a shorter time and then withdrawn from the situation.

## METHODOLOGY

The study was conducted in randomly selected three schools of Hisar city. After making

a purposive list of children between the age group of 3-4 years, 150 children and their parents were randomly selected. On these 150 children MSCA scale was applied to test their cognitive level. Mothers of selected children were taken for experimentation. Independent variables constitute intervention package for cognition, SES factors, existing cognitive status of pre-schoolers, parental stimulation and cognitive environment present in the home. Improvements in stimulation level of parents and gain in cognitive development of children due to intervention constituted the dependent variable for the present study. Besides this, cognitive status of the preschoolers, parental stimulation and cognitive home environment are again included as dependent variables. To measure cognitive environment, self-developed interview schedule was used taking Home Inventory Scale (Caldwell, 1978) as a base. Various questions were included in the interview schedule which measures cognitive environment in the form of mass-media, literature and play material availability and given to the experts for their comments before its finalization. After making desired modifications on the basis of expert's comments, a final interview schedule was prepared. Chi-square was used to see the association of cognition with different aspects of cognitive environment.

**Table 1: Association of cognition with mass-media. N = 150**

| *Cognitive aspects* | *Mass-media* | | | | $c^2$ |
|---|---|---|---|---|---|
| | *Low (n=60)* | *Medium (n=71)* | *High (n=19)* | *Total (B=150)* | |
| *Verbal* | | | | | |
| Low | 16 | 26 | 6 | 51 | |
| Medium | 32 | 29 | 4 | 68 | 3.90 |
| High | 12 | 16 | 3 | 31 | |
| *Perceptual Performance* | | | | | |
| Low | 12 | 14 | 6 | 32 | |
| Medium | 27 | 34 | 6 | 67 | 2.08 |
| High | 21 | 23 | 7 | 51 | |
| *Quantitative* | | | | | |
| Low | 46 | 58 | 16 | 120 | |
| Medium | 14 | 13 | 3 | 30 | 0.75 |
| High | 0 | 0 | 0 | 0 | |
| *General cognition* | | | | | |
| Low | 19 | 27 | 11 | 57 | |
| Medium | 33 | 38 | 5 | 76 | 6.23 |
| High | 8 | 6 | 3 | 17 | |
| *Memory* | | | | | |
| Low | 10 | 9 | 2 | 21 | |
| Medium | 23 | 28 | 9 | 60 | 0.99 |
| High | 27 | 34 | 8 | 69 | |
| *Motor* | | | | | |
| Low | 14 | 19 | 3 | 36 | |
| Medium | 28 | 34 | 11 | 73 | 1.42 |
| High | 18 | 18 | 5 | 41 | |
| *Total cognition* | | | | | |
| Low | 15 | 32 | 5 | 52 | |
| Medium | 20 | 32 | 9 | 52 | 9.25* |
| High | 25 | 16 | 5 | 46 | |

*Significant at 5% level of significance.

## RESULTS AND DISCUSSION

The association of mass-media availability is very clear from Table 1 itself. When association of mass-media availability in family with overall cognitive performance was studied, it was found that both were significantly associated. Whereas, other sub-aspects of cognition such as verbal, perceptual - performance etc. came to be non-significantly associated with mass-media availability. The reason for the same may be that cognition of children is not much affected by the mere availability of mass-media, but how parents indirectly motivate or stimulate the child to clear some basic concepts (like size, shape, colour etc.) through media, plays an important role and that in turn affects the cognitive abilities of the child. Though the association of mass-media and sub-aspects of cognition was not significant but the frequency distribution shows that to some extent impact of mass-media is clear on verbal, percep-tual-performance, memory and motor aspects. So, it can be said that only provision of media in family has no impact of cognitive performance but parents should explain about the things being presented to children through media so that children can improve their cognitive skills.

The association of cognition with literature availability is presented in table 2. Quantitative and memory aspects of cognition show significant association with literature availability ($c^2 = 9.29$ and 8.29, respectively). Whereas, other aspects of cognition i.e. verbal, perceptual performance, general cognition, motor and total cognition, they were not significantly associated with the availability of the literature, which means that if the children are provided with different kinds of literature they will improve their cognitive skills on different aspects (i.e. quantitative and memory skills) which can be due to the reason that motor and perceptual performance skills require physical involvement

**Table 2: Association of cognition with literature**

| Cognitive aspects | Literature | | | | $c^2$ |
|---|---|---|---|---|---|
| | *Low (n=60)* | *Medium (n=71)* | *High (n=19)* | *Total (B=150)* | |
| *Verbal* | | | | | |
| Low | 21 | 16 | 14 | 51 | |
| Medium | 29 | 22 | 5 | 17 | 3.24 |
| High | 15 | 5 | 11 | 31 | |
| *Perceptual Performance* | | | | | |
| Low | 11 | 8 | 13 | 32 | |
| Medium | 29 | 22 | 16 | 67 | 4.05 |
| High | 25 | 13 | 13 | 51 | |
| *Quantitative* | | | | | |
| Low | 50 | 30 | 40 | 120 | |
| Medium | 15 | 13 | 2 | 30 | 9.29* |
| High | 0 | 0 | 0 | 0 | |
| *General cognition* | | | | | |
| Low | 23 | 14 | 20 | 57 | |
| Medium | 34 | 25 | 18 | 76 | 2.41 |
| High | 8 | 5 | 4 | 17 | |
| *Memory* | | | | | |
| Low | 11 | 4 | 6 | 21 | |
| Medium | 19 | 18 | 23 | 60 | 8.29* |
| High | 35 | 21 | 13 | 69 | |
| *Motor* | | | | | |
| Low | 16 | 7 | 13 | 36 | |
| Medium | 34 | 19 | 20 | 73 | 5.59 |
| High | 15 | 17 | 9 | 41 | |
| *Total Cognition* | | | | | |
| Low | 28 | 12 | 12 | 52 | |
| Medium | 22 | 12 | 18 | 52 | 7.57 |
| High | 15 | 19 | 12 | 46 | |

*Significant at 5% level of significance.

of the child in acquiring the skills which is not possible when the parent read the literature to the children or just provide the literature.

The close perusal of table 3 show association of cognition with play material availability. The association of all cognitive aspects came to be non-significant with play material availability. The reason for the same may be that the parents just buy and leave the material with the child which further explains that only providing the child with different play material cannot help the child in improving cognitive ability but the way the child is exposed to a particular game or toy decide the quality of impact it will have on the child's abilities. The present result are corroborated with the findings of Rath et al, (1979) who reported that children who suffer from inadequacy of material, affectional and educational provisions as a result perform poorly on cognitive and linguistic tasks.

From all the above tables, it can be concluded

**Table 3: Association of cognition with play material**

| Cognitive aspects | Play Material | | | | $c^2$ |
|---|---|---|---|---|---|
| | *Low (n=60)* | *Medium (n=71)* | *High (n=42)* | *Total (B=150)* | |
| *Verbal* | | | | | |
| Low | 1 | 48 | 2 | 51 | |
| Medium | 4 | 60 | 4 | 68 | 2.53 |
| High | 2 | 26 | 3 | 31 | |
| *Perceptual Performance* | | | | | |
| Low | 0 | 31 | 2 | 32 | |
| Medium | 4 | 57 | 6 | 67 | 4.02 |
| High | 3 | 46 | 2 | 51 | |
| *Quantitative* | | | | | |
| Low | 6 | 106 | 8 | 120 | |
| Medium | 1 | 28 | 1 | 30 | 0.65 |
| High | 0 | 0 | 0 | 0 | |
| *General Cognition* | | | | | |
| Low | 3 | 51 | 0 | 57 | |
| Medium | 3 | 68 | 6 | 76 | 0.27 |
| High | 1 | 15 | 3 | 17 | |
| *Memory* | | | | | |
| Low | 1 | 20 | 1 | 21 | |
| Medium | 4 | 50 | 5 | 60 | 4.56 |
| High | 2 | 64 | 3 | 69 | |
| *Motor* | | | | | |
| Low | 2 | 33 | 1 | 36 | |
| Medium | 3 | 65 | 5 | 73 | 0.97 |
| High | 2 | 36 | 3 | 41 | |
| *Total Cognition* | | | | | |
| Low | 4 | 42 | 6 | 52 | |
| Medium | 2 | 49 | 1 | 52 | 6.67 |
| High | 1 | 43 | 2 | 46 | |

*Significant at 5% level of significance.

that cognitive environment influenced few subaspects of cognitive performance of child. The reason being that the parents provide the material to the children but parents lack in providing encouragement to children to explore and use the environment which in turn results in poor cognitive performance. The findings of Sahu (1979) provide strength to the contention of this investigation as children coming from stimulating environments do invariably better in cognitive tasks than children coming from non-stimulating environments.

**KEY WORDS** Cognition. Cognitive Environment. Children. Haryana.

**ABSTRACT** The study was conducted in randomly selected three schools of Hisar city Initially, 150 children were selected and tested for their cognitive abilities (using MSCA profile) and availability of cognitive environment in the form of mass-media, literature and play material

availability. Chi-square was run to examine the association of cognition with cognitive environment. The results revealed that the association of mass-media and sub-aspects of cognition was found to be non-significantly association except with total cognition. Quantitative and memory aspects of cognition show significant association with literature availability whereas the association of all cognitive aspects came to be non-significant with play material availability.

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