The results given in Chapter 4 are presented in the same order in six different sections for discussion. They are as follows:

Section 1: Comparison of socio-economic status

Section 2: Effect of playschool environment on the study variables

Section 3: Effect of gender on study variables

Section 4: Contribution of each aspect within the study variable with regard to the total score for each study variable.

Section 5: Relationship between study variables.

Section 6: Results on the basis of the descriptive analysis of the data

From Chapter 4 it is seen that the trend of results obtained while comparing preschoolers, preschool boys and preschool girls who had attended and those who had not attended playschool is in the same pattern in almost all cases (except for two dimensions of behaviour profile, where preschool girls who had attended playschool showed similarity in the attention span and persistence and quality of mood with respect to their counterparts). Hence the results obtained for these three groups are clubbed together and discussed under one heading with regard to each study variable.

Though not considered under the main objectives (out of curiosity) multiple regression and correlation analysis was done to find
out (1) the differential impact of each study variable on its total score and (2) the interrelation between different aspects within the study variables. Hence no in-depth discussion is done with regard to these areas.

Section: 1 Comparative analysis of the data

5.1 Comparison of the socio-economic status

From table (4.1) it is seen that there is no significant difference with regard to the socio-economic status of the sample taken for the study. So it can be concluded from the mean values that the sample selected for the present investigation belonged to more or less the same socio-economic status.

Socio-economic status can act as an intervening variable, which can influence the result of the study. So comparison was done to find out whether there was any significant difference between the different groups of children - preschoolers, preschool boys and girls in specific who had attended and those who had not attended playschool and for preschool boys and girls in general with regard to their socio-economic status. From the comparison (table - 4.1) it is noticed that socio-economic status is not an intervening variable influencing the result of the study.

Section: 2 Effect of playschool environment on study variables

5.2 Comparison based on the scores obtained for behavioural profile - nine dimensions and two categories for preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool

Table (4.2), (4.3) and figures (4.1) and (4.2) show that there is a significant difference in the intensity of reaction, reaction pattern and for
all the eight dimensions of behavioural profile except quality of mood for preschoolers in general and preschool boys who had attended and those who had not attended playschool. It is seen from the table (4.4) and figures (4.1) and (4.2) that there is a significant difference in the case of girls for reaction pattern, intensity of reaction and for the seven dimensions of behavioural profile. No significant difference is seen in the quality of mood and attention span and persistence of preschool girls who had attended and those who had not attended playschool.

Hence the hypotheses stating that there will be a significant difference in the nine dimensions of behavioural profile and the two categories with reference to preschoolers in general, preschool boys and preschool girls are partially accepted. Analysis of the mean values shows that preschoolers who had attended playschool were better on all occasions.

Discussion based on the nine dimensions of behavioural profile

1. Rhythmicity

As noticed from the tables (4.2), (4.3), (4.4) and figure (4.1) that, the daily pattern of eating, sleeping and eliminating of a child who attended playschool was more predictable compared with the unpredictability of these patterns of a child who is a first timer in school. This can be explained in terms that, the activities of children who attended playschools are set or organized to a particular pattern and they do the same every day. On the other hand, the child who was at home has no clear-cut regulation. The set pattern of activities for a child who had attended playschool is a routine task / predictable behaviour; but for
a newcomer in the nursery it may take a long time to acquire these rhythmic bodily functions.

2. Adaptability

It was found from the tables (4.2), (4.3), (4.4) and figure (4.1) that children who attended playschools could easily change their initial response to a new stimulus; whereas it was not so for children who had not gone to playschool. The data also showed that children who attended playschools found no difficulty to adjust to the rules of a new household, they got accustomed to the changes quickly, without getting upset. On the other hand, for children who had stayed at home, it was difficult to adapt themselves to the changes.

The better adaptability of preschoolers who had gone to playschools may be because they would have got opportunities for co-operating and sharing with their peers and must have learned some rules of school. By interacting with peers, children learn to consider their desires and to adjust accordingly. So as indicated by Helms and Turner (1986) companionship teaches the child how to make adjustments, compete with peers and respect the rights of others. Children who had not attended playschool lack others’ company, almost all their desires whether needed or not are satisfied by their parents and they find adjustment difficult in a new set up, when they enter the nursery.

3. Approach withdrawal

From the tables (4.2), (4.3), (4.4) and figure (4.1) it is seen that there is a significant difference in the approach withdrawal pattern of preschoolers in general, preschool boys and preschool girls, who had
attended and those who had not attended playschool. It has been noticed that the initial response score to a new stimulus for preschoolers who attended playschool is higher and so more positive, whether it be a new situation, people, food or routine activities whereas a comparatively negative reaction to new things and changes was shown by children who had not gone to playschool. They showed fear of new people and situations.

The result of the study indicated that children who attended playschools were bashful when first meeting new children whereas for the other group it was not always the same. When the family takes a trip, the child who was in the habit of going to playschool was found to feel himself/herself at home in the new surroundings, whereas the other group of children were hardly ever at ease in the new surroundings.

Farran and Ramay (1977) stated that infants with prior day care experience adapt more quickly and explore more in unfamiliar environment and play more with peers. The children who have gone to playschools will have a wide range of opportunities to meet new people and situations. They constantly explore the world around them and learn to approach everything in a more facile way. The children who are going to school for the first time may not have got ample opportunities to meet and face new situations, events or people. So it is not surprising if they create a fuss or withdraw from a new stimulus.

4. Quality of mood

As observed from the tables (4.2), (4.3), (4.4) and figures (4.1) it is seen that there is no significant difference in the quality of mood of
preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool. Evaluation of the responses showed that irrespective of whether children had attended playschool or not they were found to show pleasant, joyful and friendly behaviour when with other children. Both groups seemed to have a good time when playing with other children, they seldom argued during play and they were happy and pleased when told about something that had happened during the day.

On the whole it is observed from the scores that both the preschoolers who had attended and those who had not attended playschool showed almost the same pattern of quality of mood. Hence it can be assumed that quality of mood can be said to be more genetically determined and less influenced by environmental factors. So quality of mood can be said to be a highly canalized variable.

5. Attention span and persistence

Tables (4.2), (4.3) and figure (4.1) show that there is a significant difference in the attention span and persistence of preschoolers in general and of preschool boys who had attended and those who had not attended playschool. But no significant difference is observed for preschool girls irrespective of whether they had attended playschool or not.

It is found from the responses that, in the face of obstacles children who had attended playschool had a tendency to pursue any activity, whereas children who had not gone to playschool had a tendency to drop that activity or seek help from parents. It was noticed from the responses given by parents that when learning a new activity
the children who had gone to playschool continued practising it and this was not the case with children who had not gone to playschool.

According to Leavitt (1958) young children are capable of great industry, concentration and deep absorption when the environment and play materials within the nursery school cater to natural inner growing and learning impulses.

For children who had gone to playschool teachers give constant attention and encouragement when a project or puzzle is completed and may also appreciate them. So they find a challenge in every activity that caters to their learning impulse and they may try to finish it with great concentration and absorption even in the face of obstacles.

Preschool girls irrespective of whether they had attended playschool or not showed no significant difference with regard to their attention span and persistence. From the present study mutually complementing result is obtained (table 4.15) while comparing the attention span and persistence of boys and girls. Girls in general were found to have better attention span and persistence.

It may be because of this genetic predisposition that there was no significant difference in the attention span and persistence of preschool girls who had attended and those who had not attended playschool.

6. Distractibility

Tables (4.2), (4.3) and (4.4) and figures (4.1) illustrate a significant difference in the distractibility of preschoolers in general and
of preschool boys and preschool girls in specific who had attended and those who had not attended playschool. The degree to which the child's behaviour can be interfered with or altered by an outside event is different for preschoolers who had attended and those who had not attended playschool.

As noticed from the responses, it was found that children who had attended playschool could easily be joked out of a bad mood or it seemed easy to side-track them when they were angry, whereas it was not the case with the other group. This may be because when children go to playschool they get ample opportunities to interact and socialize with their peer group and during the course of socialization they learn to adjust their behaviour in such a way that it becomes appealing to others.

In the words of Goosenghe (1984) play creates an atmosphere of mutual understanding and children develop correct attitudes to playmates. So for a preschooler who had attended playschool it becomes easier to alter his/her behaviour by an outside event.

For a child who has not gone to playschool this adjustment becomes difficult. This is because parents try at home to satisfy most of their needs and the opportunity children get to socialize and to understand the social rules is also limited. Because of all these factors the children who had not gone to playschools were found to be less susceptible to distraction and hence their current behaviour cannot easily be inferred or altered by an outside event.
7. Activity level

Tables (4.2), (4.3), (4.4) and figure (4.1) illustrate the difference in the activity level of preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool. The data obtained indicated that the amount of typical movement by the children and the active time in each day was more for children who had gone to playschool than for those who had not attended playschool.

As noticed in the responses obtained, when outdoors, in a playground or park, the children who had attended playschool were constantly on the go. The other children were not always found active. So also when the weather was bad and if confined to the house, children who had gone to playschool cannot be entertained by quiet activities.

This is so because the children who had gone to playschools would have got freedom to learn through play and had a variety of stimulation, experiences and less restriction. The children get enough and more opportunities to explore the things around them. Playschools also provide children with materials, which will enhance their competence and co-ordination.

For children who are confined to home there will be less challenging and stimulating experiences. The mother may be placing more restrictions and the opportunity for exploring, competing and promoting motor development may be limited and this would make them less active compared with the other group.
8. Threshold of responsiveness

A significant difference is noticed from tables (4.2), (4.3), (4.4) and figure (4.1) in the threshold of responsiveness of preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool. Children who had attended playschool require less intense stimulus to trigger responses. As noticed from the responses, children who had attended playschools quickly noticed colours and commented on how pretty or ugly they were; they also noticed odours and commented on unpleasant smells, whereas for children who had not attended playschools a comparatively higher degree of stimulus was required to trigger a response.

Playschools provide a wide range of sensory experience to enable the child to understand the nature of perceptual stimuli in a better way, so their senses were found to be more discernible in comparison with the other group. According to Indulekha (1977) disadvantaged infants showed a higher threshold of responsiveness making themselves less discernible to surroundings whereas the advantaged group had a very low threshold of responsiveness. The reason was attributed to the distinctiveness in mother’s stimulation because according to Kagan (1971) mothers who were attuned to their infant’s needs, to be aroused at times, to be quietened at other times and to help their babies to attend effectively to their surroundings were fostering faster development.

The case is similar here. It is found from the data that playschools provided more stimulation to the child’s sensory capacities as compared with the mothers at home. The mothers may also be
attending and fostering development but the results indicate more of this stimulation in playschools.

9. Vigour of reaction

Tables (4.2),(4.3), (4.4) and figure (4.1) illustrate the difference in the vigour of reaction of preschool children in general and of preschool boys and girls in specific, who had attended and those who had not attended playschool. The level of energy of a child’s response regardless of whether it was positive or negative was higher for children who had not gone to playschool compared with the other group where it was moderate. The children who attended playschools showed a mild response to stimuli and they tend to fuss if everything did not go quite right.

As noticed from the responses, when upset or annoyed with a task, children, who had not gone to playschool slam the door, throw, cry or yell. When scolded by parents these children would scream loudly; but these were rare occurrences in the case of children who had gone to playschool.

The environment in playschool provides opportunity for socializing. Children who attend playschool become distinctively social and they show marked interest in the surrounding environment and they never become noticeably upset. Preschoolers who sit at home without going to playschools tend to express their intense and vigourous reactions openly. This is due to the fact that children who attend playschools are exposed to a more regulated environment where they are allowed to show only milder reactions to stimuli and this becomes a part of their behaviour.

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10. Discussion based on the two categories

Reaction pattern

It can be seen from the table (4.2), (4.3), (4.4) and figure (4.2) that there is a significant difference in the reaction pattern of preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool. In the playschool setting, the teacher has time and education to understand the individual child’s specific characteristics, needs and is able to bring out better relationship. So these children scored higher in positive reactions.

This observation finds support in the views of Thomas et al (1971); they have emphasized the need for harmonizing two influences - individual characteristic and environment of infants for healthy development of personality. The result of the study conducted by Indulekha (1977) also supports the above fact that infants in advantaged group had more positive scores on reaction pattern.

The findings of a study done in Cochin by Varghese (1994) show that a significant positive relationship exists between caregivers’ behaviour pattern and infant’s reaction pattern. Better care-giving leads to more positive reaction pattern; this shows that the environment has a role to play in determining the reaction pattern.

Reaction pattern comprises the six dimensions of behavioural profile namely: rhythmicity, adaptability, approach withdrawal, quality of mood, attention span and persistence and distractibility. The preschoolers who had attended playschools tend to do all their routine activities at a specific time, adapt to new situations more easily, their
initial response score to a new stimulus was higher, their attention span and persistence was better on the whole and their behaviour could easily be altered by an outside event. It may be because of all these factors they showed better reaction pattern, when compared with their counterparts.

From the present study it can be concluded that the environment in playschools is appropriate to the development of the child’s personality.

**Intensity of reaction**

Tables (4.2), (4.3), (4.4) and figure (4.2) show that children who had attended playschools have higher scores, indicating more intense behaviour patterns compared with their counterparts. Intensity of reaction comprises three dimensions of behavioural profile-activity level, threshold of responsiveness and vigour of reaction.

It can be inferred from the present study that preschoolers who had attended playschool were found to be more active. The level of energy of the child’s response was higher for preschoolers who had not attended playschool, but for the other group it was moderate. The intensity of some stimulus required to trigger a response was low for preschoolers who had gone to playschool. All these differences can be attributed to the impact of playschool environment.

The result of the present study is in line with the findings of Indulekha (1977) that an infant in an advantaged group had higher score for intensity of reaction indicating more intense behaviour patterns.
A study undertaken in Cochin by Varghese (1994) has revealed a moderate relationship between caregivers' behaviour pattern and infant's intensity of reaction. The more intense and frequent the caregiver's behaviour pattern the more positive the baby's behaviour.

In the view of Kaul (1984) play contributes significantly to the development of behavioural controls. Preschoolers who have attended playschools get ample opportunities to interact with playmates and to engage themselves in-group and co-operative play. These experiences provide them with the opportunity to modify their behaviour, so that they become acceptable to the social group they are exposed to.

To conclude, it was noticed that children who had attended playschools were found to have 'easy' temperamental characteristics when compared with those children who had not gone to playschool and this group of children can be categorized as those with 'difficult' temperamental traits based on the definition of Thomas et al (1977).

The results of the present study are in line with the findings of a study carried out in Kochi by Mathew (1992) on preschoolers, which showed that children who were in playschool were having easy temperamental traits.

5.3 Comparison based on the scores obtained for creativity tests for preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool

Table (4.5), (4.6), (4.7) and figure (4.3) reveal a significant difference in the performance of preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended
playschool on tests of creativity. Detailed analysis of the table shows that the mean values obtained for preschoolers who had attended playschools were more and hence they were found to be better performers on all the tests of creativity. Hence the hypotheses stating that there will be a significant difference in the performance of preschoolers in general, preschool boys and preschool girls on tests of creativity are accepted.

The difference in the performance of preschoolers on the tests of creativity indicates a desirable impact of playschool on creative ability of preschoolers.

Creativity involves divergent thinking with respect to the traits of fluency, flexibility and originality of thought process (Guilford 1969). Divergent thinking is the central component of creativity, as pointed out by Helms and Turner (1986). Children's creativity essentially refers to the performance on tests of divergent thinking as per Ross (1973). Scores on divergent thinking will be high in preschoolers, if they are given freedom and choice in learning (Baron 1996).

Creativity is fostered by a proper level of stimulation. Creativity flourishes in an environment which values independent and free thinking; encourages curiosity; enhances a positive effect as noted by Isen and Baron (1991). Facilities for imaginative play should be mentioned as a road to creativity in the view of Winnicott (1970). In the words of Gown (1979) a child’s experience is the springboard from which creativity develops.

Play enhances divergent thinking as noted by Kaul (1984). Developmental benefits of play include increased imagination and
creativity as remarked by Malley (1991). Preschoolers who attend playschool get adequate opportunity to engage in free play. Creativity and inventiveness in child’s play are associated with facility in divergent thinking (Watson 1993). The environment in playschools provides preschoolers with facilities to involve themselves in different types of play activities; which they would have been deprived of if they were kept within the four walls of their home. Preschoolers who are at home will grow up in a more restricted environment, where freedom for exploration and expression is less. So their curiosity level will be low as opportunity for exploration is limited.

Preschoolers who go to playschool are in a less pressurized environment and are free to give their views and opinions truly. Psychological freedom, the freedom of expression, which will enhance creativity, is enjoyed more by children who have attended playschool. Under the supervision of the playschool teacher the child is able to develop creative and imaginative skills. In playschools through active, interactive and manipulative play the child’s language develops and their thinking becomes more fluent, flexible and divergent (Thomas and Berk 1981).

Play especially dramatic/pretend play provides infinite scope for developing the child’s imagination and curiosity. Preschoolers are highly curious and through language and physical exploration they learn to satisfy their curiosity (Nakra, 2000 September). Curiosity enhances creativity in the opinion of Torrance (1969). Rubenstein and Howes (1983) have observed that playing with peers raises the diversity and creativity of children’s activities.
In the modern urban society where the flat system has become very popular the space available for children to play is limited. This drawback is compensated by playschools by providing ample space to engage in play.

All these factors can be attributed to the difference in the performance of preschoolers in general, preschool boys and preschool girls, on tests of creativity.

5.4 Comparison based on the scores obtained for problem solving ability for preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool

It can be inferred from the table (4.8), (4.9), (4.10) and figure (4.4) that there is a significant difference in the performance of preschoolers in general and of preschool boys and girls in specific with regard to the tests of problem solving ability. Hence the hypotheses stating that there will be significant difference in the performance of preschoolers in general, preschool boys and girls are accepted. Comparison of the mean values reveal that preschoolers who had attended playschool were better performers on all the tests of problem solving ability. The difference was more pronounced for tests using shape sorter and puzzle when compared with the other two tests-memory test and test to measure the physical concept of the human body.

Better performance of preschoolers who had attended playschool indicates a positive impact of playschool on children’s problem solving ability.
Human beings solve problems using different strategies. Problem solving depends upon the availability of a wide range of concepts and their generalization. It also depends on the development of the thinking process. The concepts and generalizations, which a child acquires, depend upon the kind and quality of experiences he has had.

According to Feldman (1989) problem solving typically involves three major steps-preparation of creation of a solution, production of a solution and judgment and evaluation of solutions that have been generated.

As per Fisher (1990) problem solving depends on the attitude of the person, cognitive ability that includes knowledge, memory, metacognition and experience, which is the starting point of problem solving.

According to Bruner (1972), Vandenberg (1978), Malley (1991) various aspects of play have been hypothesized to be important for enhancing the ability to solve problems. It has been suggested that play provides the behavioural subroutine that might later be used in a problem situation.

Play significantly enhances problem-solving abilities (Rubin, Fein, Vandenberg 1983). The constant interaction with and manipulation of objects in the environment facilitate the child’s understanding of basic relationship between objects and it helps in the subsequent problem solving in the opinion of Roy (1984).
Vygotsky (1976) points out that play is the leading source of development in preschool years. Repetition is an important aspect of play. Through repetition the child can consolidate his skills and can become an expert. Play serves as a means to help the child solve a problem.

Preschoolers who attended playschools would have spent an inordinate amount of time playing. Play makes the child more task-oriented and goal-directed as per Malley (1990). Playschools provide children with appropriate play materials, which will enhance their thinking ability and this, in turn, fosters the development of problem solving skills. The qualified teacher of the playschool provides children with adequate guidelines in the use of the play materials and also in their general play; which will facilitate the all round development of the child.

Preschoolers who are at home without going to playschools will have inadequate space and materials to play with. Parents may not be able to provide appropriate guidance that will be at par with the one provided by a qualified and experienced playschool teacher.

In the present study it has been seen that creative ability of preschoolers (table-4.5) who had attended playschool is superior to that of their counterparts who had not attended playschool. Creativity and problem solving ability are interrelated in the view of Rebok (1987) and the result of the present study is in agreement with this fact. In the problem solving tests more difference was noticed in the tests involving the use of shape sorter and puzzle. This may be due to the fact that preschoolers who had attended playschool might have a better
concept of shape and patterns. They would have got opportunities to play with blocks, toys of different size and shape and with a variety of simple puzzles. Manipulating the different toys facilitates better understanding of the concepts and their generalization and this aids in problem solving.

Difference in performance was also noticed in the memory test as well as in the test to measure physical concept of human body. It may be because: within playschool setting high-level cognitively challenging and constructive materials may be available and in the view of Clarke-Stewart (1990) physical materials and equipment in turn may encourage more frequent intellectual activities and this can supplement the sophistication of the child’s problem solving skills.

The difference in the quality of environment and in the attention and stimulation provided to preschoolers at home and in playschool can be highlighted as the basic cause of the difference in performance of the preschoolers on tests of problem solving ability.

5.5 Comparison based on the scores obtained for social cognition for preschoolers in general, preschool boys and preschool girls who had attended and those who had not attended playschool

It can be observed from the table (4.11), (4.12), (4.13) and figure (4.5) that there is a significant difference in the performance of preschoolers in general, preschool boys and preschool girls on the tests of social cognition. Hence the hypotheses stating that there will be a significant difference in the performance of preschoolers in general, preschool boys and preschool girls on the tests of social cognition are accepted.
Analysis of the mean values show that preschoolers who had attended playschool had better scores on all occasions. The difference in the performance can be due to the influence of playschool.

Preschoolers who had attended playschool were found to respond in a better way on all the tests of social cognition. Preschoolers who had attended playschool would have enjoyed an environment where they would have got more opportunity for group play and social interaction than the preschoolers who sit at home. Play during the preschool period helps to develop competence, autonomy, independence and satisfaction. It also helps them to learn about themselves, others and the social world around them (Knight 1984).

Play also advances co-operation, conservation and complex peer interaction as observed by Clarke- Stewart and Fein (1983). Play helps to develop social relationship. Children use play materials and equipment to understand the role of father, mother, teacher and doctor as noticed by Watson (1993).

Preschoolers who engage themselves in make-believe/dramatic play get an opportunity to speak out, imbibe his/her culture and heritage. Play provides opportunity for social interaction. It is the social interaction especially with the peer group, which helps in the broadening of the child's social concepts.

Preschoolers who attend playschool get ample opportunity to interact with children of their age. As per Fowler and Khan (1974) and Cochran (1977) children attending early childhood programmes are found to be more verbally expressive, more knowledgeable about the
social world and more competent to manage on their own. This can be the reason for the better responses given by preschoolers who had attended playschool for the tests of social cognition.

It was also noticed by the investigator that preschoolers who attended playschools were more free to give responses when asked to describe their father, mother, teacher and themselves. On the contrary preschoolers who had not gone to playschool were found to be shy and less responsive.

Playschools provide opportunity for free play and also for free expression of their thoughts and feelings. One of the social functions of play as per Wood and George (1973) is to enable them act out social roles. Many of the young child’s experiences come to him during the impressionable period of his life through play.

Rheingold (1981) has pointed out that it is through exploration that infants learn about the world, people as well as things.

Preschoolers who do not go to playschool may not get an environment, which stimulates their exploration and thought process. They may not get adequate opportunity to expand their social concepts as in the present nuclear family set up; in the majority of homes either there will be only the mother or a substitute when mothers go for work, for the child to interact with, throughout the day. She may be busy with the household chores and the child may spend most of the time engaged in solitary play or glued to the television set. This passive activity of the child can hamper the development of social concepts and hence of social cognition.
For a preschooler who attends playschool adequate guidance is provided by the teacher of the playschool in the development of his/her social concept. Through discussion with peer groups in playschool and by participating in socio-dramatic play children get an opportunity to share their feelings, thoughts, impressions or a general concept of father, mother, teacher and also of themselves. A child who is at home all the time is devoid of such experiences.

The result of the present study can be explained by all these factors.

5.6 Comparison of the influence of playschool environment on the study variables based on the ‘t’ values obtained

A comparison of the ‘t’- values obtained shows the influence of the playschool environment on the various study variables (fig.no.4.6) and table (4.14). Comparison of the preschoolers who had attended and those who had not attended playschool with regard to the study variables yielded the following ‘t’- values. The ‘t’ values obtained indicate that the maximum difference is seen for the variable reaction pattern (‘t’=41.30; P< 0.001) followed by social cognition (‘t’=27.98;P< 0.001), which is followed by creativity (‘t’=24.56;P< 0.001). The next in line is problem solving ability (‘t’=17.00;P< 0.001) and the least difference is obtained for intensity of reaction (‘t’=12.92;P< 0.001). From the figure (4.6) it is seen that playschool exerts 33% influence on reaction pattern, 23% on social cognition, 20% on creativity, 14% on problem solving ability and 10% on intensity of reaction.
An in-depth study of the result shows that reaction pattern is the variable, highly influenced by the playschool environment. Preschoolers who had attended playschool were showing more positive behaviour patterns. Rhythmicity, adaptability, approach withdrawal, attention span and persistence and distractibility being components of reaction pattern were found to be significantly better for preschoolers who had attended playschool. So their reaction pattern was also found to be better.

Social cognition was the next variable influenced by playschool environment. In the modern nuclear family set-up, most of the families studied had servants looking after the child in the absence of the mother. The opportunity a child got for adult-child interaction was limited. The chance for child-child interaction was also less as all the families had one or at the most, two children. All these constraints were overcome in the playschool environment, as there was a dedicated full time supervising teacher and the children had avenues for peer interaction. These factors would have definitely aided the child’s development of social concepts and hence of social cognition.

Creativity is the next variable influenced by attending playschool. In playschool, children got ample opportunity to engage in the play activities of their choice. They were also provided with toys and play activities which would enhance their creative thinking and imagination; as the teacher had a better basic knowledge of how to supplement the child at each stage of his/her development, than a mother who is not so sure about how to encourage the child at each developmental stage.
Problem solving ability was the next influenced variable. Through interaction with peers and by participating in different play activities the child's skill to manipulate objects is enhanced. They learn to do different tasks independently. This will definitely help in the development of their concepts and this concept formation and generalization have a central role to play in the child's problem solving ability.

Intensity of reaction is the least influenced variable when compared with other variables. Intensity of reaction can be said to be a highly canalised variable with reference to other study variables.

Section: 3 Effect of gender on study variables

5.7 Comparison of behavioural profile based on gender

Table (4.15) and figure (4.7) and (4.8) illustrate no significant difference between preschool boys and girls in their rhythmicity, adaptability, distractibility, reaction pattern and threshold of responsiveness. But significant difference is observed in approach withdrawal, quality of mood, attention span and persistence, activity level, vigour of reaction and intensity of reaction.

For rhythmicity, adaptability, distractibility reaction pattern and threshold of responsiveness no difference was noticed, may be, because these aspects may be, more influenced by environmental determinates of personality traits and this could also be due to the absence of differential influence of the constitutional factors which affect positive and negative balance of preschooler's behaviour.
Result of the study done by Indulekha (1977) on infants supports the fact that for reaction pattern no significant difference exists between males and female and the findings of the present study are in line with this.

The observed difference in the approach withdrawal, quality of mood, attention span and persistence, activity level, vigour of reaction and intensity of reaction can be attributed to the genetic determinants which may be having more of a dominant effect.

Preschool boys in general had better approach withdrawal pattern. Their initial response to a new stimulus was more positive in comparison with preschool girls. They showed more pleasant friendly behaviour with respect to the dimension quality of mood.

Preschool boys were seen to engage themselves in more active play when compared with preschool girls and this is in support of the findings of Buss (1989) that boys tend to have higher motor activity than girls.

Preschool boys showed more vigorous reaction and intense behaviour patterns in comparison with preschool girls.

All these can be attributed to the differential constitutional or organismic factors. The result of the study done by Moss (1968) and Korner (1969) found that male babies are more vigorous in their activities. Bhutt (1972) a supporter of this view reviewing many studies and literature on related topic come to the conclusion that some part of the brain is characteristically different for male and female babies.
It can hence be concluded that rhythmicity, adaptability, distractibility, reaction pattern and threshold of responsiveness are less canalized when compared with approach withdrawal, quality of mood, attention span and persistence, activity level, vigour of reaction and intensity of reaction.

5.8 Comparison of creativity based on gender

As shown in table (4.16) and figure (4.9) overall creativity, verbal creativity and its dimension fluency and flexibility and the dimension flexibility of non-verbal creativity show gender difference, with superiority of boys over girls. However it is found that there is no significant gender difference in the non-verbal creativity and its dimension fluency. Therefore the hypotheses stating that there will be a significant difference in overall creativity, non-verbal and verbal creativity and its dimensions are partially accepted.

The results of the study agree with the studies of Indian researchers Raina (1971), Rewart and Agarwal (1977), Badrinath and Satyanarayanan (1979) who have found significant difference in different components of creativity favouring males.

Through language and physical exploration, children learn to satisfy their curiosity as per Nakra (2000, November) and according to Torrance (1969) the curiosity level is a factor fostering creativity. Higher scores for overall creativity, verbal creativity and its dimension fluency, flexibility and the dimension flexibility of non-verbal creativity may be because boys in general are expected to be more independent and get a lot of opportunities to indulge in activities of their choice. This in turn
gives them more opportunities for physical exploration and self-expression and it enhances their curiosity; while girls even from a very young age are more protected and expected to conform to the structured environment set by parents. All these factors might have helped boys to respond/perform better in all tests of verbal creativity and this must have also helped them to have better flexible thinking on non-verbal tests and to score better on overall creativity.

Both boys and girls performed almost in the same way on tests of non-verbal fluency and non-verbal creativity. Significant difference was not seen might be because it was a performance test.

Result of the study by Feingold (1992) has shown that gender difference in cognitive abilities tend to decrease with age.

The result of the present study is in line with the findings of the study conducted by Sebastian (1997) that there is a significant difference in the overall creativity of boys and girls.

5.9 Comparison of problem solving ability based on gender

Table (4.17) and figure (4.10) reveal a significant difference in the performance of preschool boys and girls on the tests of problem solving ability. Hence the hypothesis stating that there will be significant difference in the performance of preschool boys and girls on the tests of problem solving ability is accepted.

Comparison of the mean values shows that preschool boys are better performers on all tests of problem solving ability.
The result of the study is in line with the findings of Martin and Stendler (1970) that boys are superior to girls in problem solving.

The difference in performance of preschool boys and girls can be attributed to the difference in the environment provided to them and to their upbringing. In the Indian context parents knowingly or unknowingly show differential treatment to boys and girls from a very young age.

Boys from a very young age are given the freedom to explore and manipulate the objects they are given. Constant interaction with and manipulation of the objects in the environment facilitate the child’s understanding of basic relationship between objects and it helps in subsequent problem solving in the opinion of Roy (1984).

Girls are generally provided with toys, which are labelled as feminine-dolls, stuffed toys- and these toys do not offer much scope for exploration and manipulation.

The result of a study undertaken by Panikulam (1986) in the nursery schools coming under Kochi Corporation to identify the play patterns of children revealed that girls involve themselves in more sedentary play activities and boys in more active, vigourous and strenuous games. Toys given for boys tend to serve for gross and functional activities and that for girls tend to elicit familial role enactment.

Boys are given more freedom of expression, exploration and manipulation. Even when boys start destroying objects/toys in course of
their exploration they are not scolded; but for girls a structured rather submissive environment is provided in the majority of the homes.

Table (4.15) of the present study shows that preschool boys are engaging themselves in more of active play and this in turn gives them ample opportunities for manipulating and exploring different objects; this can enhance their problem solving skills. So constitutional factors may also be contributing to the differential performance of preschool boys and girls on the tests of problem solving ability.

As per Feingold (1992) the difference in performance of boys and girls on cognitive ability test is more in young age.

The difference in performance of preschool boys and girls can be attributed to all these factors.

5.10 Comparison of social cognition based on gender

Table (4.18) and figure (4.11) shows that there is no significant difference in the performance of preschool boys and girls on the tests of social cognition. Hence the hypothesis stating that there will be significant difference in the performance of preschool boys and girls in general is rejected.

According to Shantz (1975) and Flavell (1977) an important component of social knowledge is the child’s understanding of social relationship. In the modern society nuclear families are becoming more popular. A majority of the mothers have started joining the workforce and the child is left to the care of servants or babysitters. The number of siblings the child has to interact with at home is less.
For both boys and girls the opportunity to interact with the family members in the modern set up is limited. It may be because of all these conditions prevailing in the home environment that must have resulted in the similarity in performance of preschool boys and girls on the tests of social cognition. Moreover the minimum information with respect to family members is learned from school. This can also contribute to the lack of difference between boys and girls with respect to the dimension social cognition.

A recent study done by Swapnarani (2000) shows that both boys and girls show a similar concept of gender. It is actually the concepts they have about their father, mother, teacher and themselves that is revealed in the present study through the tests of social cognition. The result of the present study can be substantiated by all these factors.

Section: 4 Contribution of each aspect within the study variable with regard to the total score for each study variable.

5.11 Pattern of influence of different aspects within each study variable on its total score.

The results obtained by applying the technique of multiple regression show that there is a significant difference in the pattern of influence of each aspect on its respective study variable. The pattern of influence obtained for preschoolers who had attended and those who had not attended playschools, preschool boys and girls and for preschoolers on the whole is discussed in this section. Figures (4.12), (4.13), (4.14), (4.15), (4.16) and (4.17) illustrate the pattern of influence of every aspect within each study variable to its total score. In all the figures, aspects
having highest influence are seen towards the centre and those having less influence towards the periphery.

1. Behavioural profile

1.a Reaction pattern

The pattern of influence of different aspects to the total score for reaction pattern for preschoolers who had attended and for those who had not attended playschool is not the same. For preschoolers who had attended playschool, rhythmicity has the highest influence followed by approach withdrawal, distractibility, quality of mood, attention span and persistence and adaptability. For the other group the order of influence is: approach withdrawal, adaptability, distractibility, attention span and persistence, rhythmicity and quality of mood.

The pattern of influence of different aspects to the total score for reaction pattern is different for boys and girls. In both the cases distractibility has the highest influence. There is a slight variation in the pattern of influence of other aspects. For boys the order is distractibility, adaptability, approach withdrawal, rhythmicity, attention span and persistence and quality of mood. For girls the pattern is distractibility, approach withdrawal, adaptability, rhythmicity, attention span and persistence and quality of mood.

For preschoolers, on the whole, the pattern is distractibility followed by approach withdrawal, adaptability, rhythmicity, attention span and persistence and quality of mood.
Figure (4.12) illustrates the pattern of influence of the different aspects of reaction pattern.

1.6 Intensity of reaction

The order of influence of different aspects of intensity of reaction is the same for preschoolers who had attended playschool and for preschool boys. It is in the order: threshold of responsiveness followed by vigour of reaction and activity level. For preschoolers who had not attended playschool and for preschool girls the pattern is vigour of reaction followed by threshold of responsiveness and activity level.

For preschoolers on the whole the pattern is threshold of responsiveness followed by vigour of reaction and activity level.

In all the cases activity level had the least influence.

Pattern of influence of different aspects is given in figure (4.13).

2. Creativity

For verbal and non-verbal creativity the pattern of influence of the aspects- fluency and flexibility is the same for preschoolers who had attended and for those who had not attended playschool and for preschool boys and preschool girls. Fluency has the greatest influence followed by flexibility.

The same pattern is seen in the case of preschoolers on the whole.

Figures (4.14) and (4.15) also illustrate the pattern of influence of the different aspects of verbal and non-verbal creativity.
3. Problem solving ability

The pattern of the influence of the tested aspects to the total score of problem solving ability for preschoolers who had attended and for those who had not attended playschool is different. The influence of the tested areas for preschoolers who had attended playschool is in the order: shape sorter followed by puzzle, assembling of body parts and memory test. For the other group puzzle has the highest influence followed by shape sorter, memory test and assembling of body parts.

For preschool boys and girls the same pattern of influence is noticed and the influence is highest for puzzle followed by shape sorter, assembling of body parts and finally memory test. The same pattern of influence is seen for preschoolers on the whole.

The pattern of influence of the tested aspects to the total score for problem solving ability is given in figure (4.16).

4. Social cognition

The order of influence of different tested aspects to the total score obtained for social cognition is the same for preschoolers who had attended and for those who had not attended playschool. Father has the highest influence followed by mother, teacher and themselves.

For both preschool boys and girls the pattern of influence is the same and it is in the order: teacher followed by father, mother and themselves.

Preschoolers on the whole also exhibit the same pattern of influence.
Figure (4.17) represents the pattern of influence of the different aspects to the total score of social cognition.

It can be seen from the coefficient of regression that the pattern of influence of different aspects within each study variable to the total score for the different groups of children is not in the same order. The order of influence of the different aspects with regard to the total score obtained for reaction pattern, intensity of reaction and for tests of problem solving ability was found to be different for children who had attended and for those who had not attended playschool. But the order of influence of each aspect within the study variables namely, verbal and non-verbal creativity and social cognition is the same for both the groups.

The pattern of influence of each aspect within the study variables namely verbal and non-verbal creativity, problem solving ability and social cognition is the same for preschool boys and girls.

For reaction pattern and intensity of reaction the order of influence of the different aspects is different for preschool boys and girls.

The pattern of influence of different aspects within reaction pattern for preschoolers on the whole is different from that of preschoolers who had attended and those who had not attended playschool, preschool boys and girls.

For intensity of reaction the pattern of influence obtained for preschoolers on the whole is similar to that of preschoolers who had attended playschool and as that of preschool boys.
The pattern obtained for creativity test for preschoolers on the whole is the same as that of preschoolers who had attended and those who had not attended playschool and of preschool boys and girls.

Preschoolers on the whole had the same pattern of influence as that of preschool boys and girls for problem solving ability.

The pattern of influence of different aspects to the total score for social cognition for preschoolers on the whole is the same as that of preschool boys and girls.

**Section: 5 Relationship between study variables**

**5.12 Interrelationship among the study variables**

As seen from the table (4.49) and fig (4.18) it can be concluded that there is a positive relationship among the study variables. Analysis of the coefficient of correlation reveals the extent of the relationship among these variables.

From the coefficient of correlation it is seen that there is significantly high relationship between the variables reaction pattern and social cognition. Reaction pattern, a category of behavioural profile is studied in terms of positive and negative aspects of behaviour. The more positive a child is, the better is found the social cognition and from this it seems that the positive, comfortable state within the child makes him a better observer. This quality enables the child to understand others' role in a better way and it helps in the development of social concepts, which is the base for social cognition. Thus the analytical approach of the child is found to be positively related to social cognition.
Creativity and reaction pattern show a significantly high positive correlation. Reaction pattern is found to be more positive in a playschool environment. The more desirable the environment, the more positive the child’s personality traits and this in turn has a direct influence on the child’s creativity. Positive traits of reaction pattern are found to be related to the enhanced state of creative ability.

Creativity and social cognition are found to show a direct positive relationship.

This may be due to the fact that these variables have a cognitive base. Intelligence level of the child may influence creativity as well as social cognition. Intelligence is a fostering factor for both social cognition and creativity. As per Telford and Sawrey (1974) creativity will flourish only at a certain desirable level of intelligence. Higher intelligence will definitely enhance social cognition as it will aid in the development of social concepts. Guilford (1967) suggests that every intelligent child may not be creative, but a high percentage of creative people possess intelligence in a high degree. Because of the intelligent factor, which will influence both creativity and social cognition, the correlation obtained between the two variables is justified.

Reaction pattern and problem solving ability are seen to show a significant positive relationship. Positive behaviour patterns have a direct influence on the child’s problem solving ability. Of the dimensions, which come under reaction pattern - approach withdrawal, attention span and persistence may be the most influential ones. These dimensions determine the child’s problem solving approach - the ability to concentrate on it and to pursue it. Positive approach and better attention
span and persistence are associated with better problem solving skills. Thus the relationship between the two variables can be substantiated.

Creativity and problem solving ability are seen to be significantly correlated. Problem solving might depend upon the child's creativity (Elkind 1971). As stated by Rebok (1987) problem solving ability and creativity lie along a continuum and are not true dichotomies. Both these variables have a strong cognitive base. This can be attributed as the cause of their relationship.

Problem solving ability and social cognition are found to be significantly interrelated. Both these variables are found to have a common base of cognition. Social cognition as per Flavell (1977) depends on the child's social concepts. Problem solving ability in the views of Helms and Turner (1986) depends on concept formation and generalization. It can be because of these common factors that the two variables show a good relationship.

Intensity of reaction and reaction pattern are found to be significantly related. Both these variables are based on the dimensions of behavioural profile. The items included in the "Parent Questionnaire" developed by Thomas and Chess (1977) may have a relationship among them. This can be considered a factor to influence the relationship among the variables.

Intensity of reaction and problem solving ability are found to have a moderately significant relationship. Development of problem solving skills is facilitated by moderate activity level of the child and
moderate level of the threshold of responsiveness. So these variables are seen to possess a moderately significant level of relationship.

Intensity of reaction and social cognition are found to be moderately related. Thomas and Chess (1977) have specified moderate intensity of reaction for easy category of children. Highly intense behaviour patterns make the child hyperactive and these children in the views of Hetherington and Parke (1986) show attention deficit disorders. This nature of the child makes him / her less attentive to the happenings around them and many details escape their attention. So their social concepts may be less developed/inadequate. It can be justified that moderately intense behaviour patterns may have moderate relationship with social cognition.

Creativity and intensity of reaction are found to be moderately related. Highly intense behaviour patterns may not be a factor, which will foster creativity. As per Fontana (1981) easy children are said to possess moderately intense behaviour patterns. Moderately intense behaviour patterns may be ideal and they help in the development of creativity.

5.13 Interrelationship of the different aspects with in each study variable:

The table (4.50) shows that all the six aspects of reaction pattern are having positive relationship among themselves, but the extent of relationship varies. Quality of mood is found to have negligible relation with adaptability, distractibility, rhythmicity. Attention span and persistence in seen to have no significant relation with approach withdrawal. In all other cases a significantly high correlation is seen.
From table (4.51) it can be concluded that all the three aspects of intensity of reaction have a positive relationship. The relationship between threshold of responsiveness and vigour of reaction is not significant. For all the other aspects a significantly high relationship is observed.

For both verbal and non-verbal tests of creativity significantly high correlation is seen (tables 4.52 and 4.53) between different aspects namely, fluency and flexibility. So these aspects can be inferred to be highly related.

A significantly high correlation is seen among the different tested aspects of problem solving ability, so all these aspects can be said to be highly interrelated as seen from table (4.54).

The table (4.55) show a significantly high correlation among different tested aspects of social cognition. Hence it can be concluded that all the tested aspects are highly interrelated.

It can be inferred from tables (4.50) to (4.55) that the majority of the tested aspects are highly related. For the tools constructed by the investigator significantly high correlation is obtained between the test items and the total score; this also reveals the reliability of the tools constructed.

Section: 6 Results obtained on descriptive analysis of the data

5.14 Findings of the present study

The evaluation of the results of the present study give a positive indication of the influence of playschool on the behavioural profile, creativity, problem solving ability and social cognition of preschoolers.
The positive impact of playschool on the tested variables can be attributed to the environment of playschools.

Analysis of the environment of playschools revealed the following aspects:

(a) **Physical facilities**: All playschools were located on the ground floor except two. All playschools were in residential areas.

(b) **Outdoor space**: Outdoor space was free from dust, noise, smoke. Play areas were smooth and had sunny and shady regions. Enough outdoor space was provided by all playschools.

(c) **Indoor space**: All playschools had ample indoor space with good ventilation. Children’s free movement was possible indoors.

(d) **Bathroom facilities**: Toilets were neat and clean and were of proper size and shape.

(e) **Storage space**: There was availability and accessibility to open space as well as cupboards.

(f) **Equipment and materials**: All playschools had equipment for block building, doll playing, equipment for music, and painting and creative crafts. Different outdoor play equipment was also seen like slide, swing, merri-go-round, seesaw.

Educational equipment included puzzles, simple books to show letters, pictures of animals, birds, vegetables; but no formal teaching was undertaken in the playschools.

(e) **Daily programme**: The schedules were flexible in all the playschools observed. The programmes followed were giving opportunities for the
children to learn through play and informal activity. The programmes were designed to give the children independent training and also individual attention. The programmes were providing the development of desirable and healthy habits. It was also helping in the development of good social relationship. The programmes were aiding in making the children understand the need for responding in a more positive way.

The environment at home was assessed using the questionnaire method of data collection. It was seen that most of the children were staying in flats (65%), some were living on the first floor of rental apartments (13%) and others were in independent houses (22%). But all of them had limitations in the space available for free play, both indoors and outdoors. Parents were found to provide the children with a number of play materials. But the children tend to stay glued to the television sets or video games. As most of the families were nuclear (97%) and due to the absence of peer group, chances for social interactions were limited.

The only opportunity available to these children during the day to interact was with their parents or with their siblings. That too was limited, as most of the families had only one child (85%) and the remaining (15%) had only one sibling. In the families where mothers worked (90%); servants looked after the children while the parents were away.

For a child who was at home, the routine activities had no general organization. So as per the convenience of their mother or the care taker the children were asked to engage themselves in some activities like playing with toys, watching television, eating and sleeping. The chances for peer interaction were fewer for a child who was at home as most of the parents were reluctant to allow their tiny tots to play with
children who were their neighbours. There was limitation in the variety of toys available for children who were at home. As there was scarcity in the time available for parents for free interaction with the children; the children were not able to express their thoughts, feelings and ideas freely.

The comparison of the two environments revealed a significant difference with regard to the quality of the environment. The figure no (4.19) shows the difference in the ecological background of the preschoolers who had attended and those who had not attended playschool. All the playschools had a teacher who had some training with regard to child development. So they were seen to be more resourceful when compared with the mothers of preschoolers who had not gone to playschool. The teachers were able to provide ample and appropriate guidance to the preschoolers and they could plan activities, which were suitable for the particular developmental stage of the child. The teacher was provided with a helper.

Provision for adequate free indoor and outdoor space was available for children in playschools whereas for those who were at home there was space constraint for playing.

The time available for adults to interact with the child was more in playschool. Children were given freedom to express their views and the teacher had enough time and aptitude to listen to them; whereas at home there was limitation in the time available to the parents for free interaction with the child, as the mother was working in most of the cases.
Availability of resourceful adult

PS: Playschool attended
NPS: Not attended playschool

Free indoor and outdoor space

Choice of play materials

Routine habits

Orderliness

Peer interaction

Time spend in watching television

Better Behavioural profile
Creative ability
Problem solving ability & Social cognition

PoP More
Ample
More
Specific habits
More
Nil

PS
NPS
Limited
Less
More
Less
More

Poor Behavioural profile
Creative ability
Problem solving ability & Social cognition

Fig. 4.19 Flow chart depicting the differential ecological background of preschoolers who had attended and those who had not attended playschool
There was freedom to choose play activities as per one’s preference in playschool, but at home there was limitation in the variety of toys children had and it curtailed their chances to choose the play activity of their preference.

For a child who was at home the routine activities had no general organized pattern. So as per the convenience of parents especially the mother or the caretaker, children were asked to be occupied with some activities like playing with toys, watching television and their time of sleeping, having food and other routine tasks varied.

There was more orderliness for a child who had attended playschool as his/her routine activities had already a fixed time and they found it more convenient while going to the nursery school compared with a child who had to go to school for the first time.

There was more peer interaction for children who attended playschool. This is highly significant as in the modern society nuclear families has gained vogue and the number of siblings the child has is limited. So chances for peer interaction were fewer at home. Peer interaction is very essential for the child’s all round development. It aids in social interaction and through social interaction the child learns socially acceptable forms of behaviour.

At home especially in the absence of the mother children spend their time watching television, working on computer/video games. This inhibits the child’s creative ability, social cognition, and problem solving ability. Whereas in playschools television is absent and the child gets more time for adult / teacher - child interaction and child - child
interaction. In the playschool set up children tend to be occupied more with active, imaginative and supervised plays and this in turn fosters the child's all round development.

More time, space and freedom of individualized activities and availability of resources for personal growth and personal attention for children were the noteworthy ecological advantages of the playschools studied. These showed remarkable positive relationship to the study variables namely, behavioural profile, creativity, problem solving ability and social cognition of preschoolers.

5.15 Other relevant findings

Parents were satisfied with the facilities provided in playschools. Children were eager to go to playschool daily. It was noticed from the responses given by parents that children who had gone to playschool had no difficulty in adjusting when they joined nursery school. But for all children who had not gone to playschool there was some difficulty in the initial days to adjust with the system in nursery school. Of the children who had attended playschool 75% had gone to playschool for one year and the remaining 25% for more than eight months.