

The Effects of Placement in Integrated  
Preschools on the Social Behaviour of  
Intellectually Handicapped Preschool  
Children

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The important part that deficits in social behaviour play in both the developmental process and the diagnosis of mental retardation has been well established, (Zigler and Harter, 1969) (Grossman, 1973) and given the detrimental effects of social inadequacy on individual performance and community acceptance, there can be little doubt that maximisation of social development is a major goal in the education of the mentally retarded. Despite the general agreement amongst special educators on the importance of social development as an educational goal the traditional approach has been to establish special programmes for the mentally retarded on a segregated basis, either in special classes or in special schools. Recent writers (Bricker, 1978) (Guralnick, 1976) have argued however that segregated programmes tend to inhibit the social development of intellectually handicapped children by increasing the time such children spend associating with children with similar behavioural difficulties and at the same time decreasing their opportunities to interact with appropriate non-handicapped peers. A relatively new approach to the problem in the United States is that of 'Mainstreaming'. That is the planned integration of handicapped and non-handicapped children in regular educational settings. (Corman and Gottlieb, 1977). Such integration seeks to maximise the social learning opportunities for handicapped children in regular preschool and school settings. In New Zealand many intellectually handicapped children do not attend any preschool setting, (Barney, 1975) and the majority of those who do attend segregated facilities run by the New Zealand Society for the Intellectually Handicapped where opportunities for social interaction with non-retarded children is minimal. Until comparatively recently, public educational and care provisions for the mentally retarded in New Zealand were restricted to those administered by the Department of Health through the Psychopaedic Hospital system. In 1949 the Intellectually Handicapped Children's Parents Association (now the New Zealand Society for the Intellectually Handicapped) was formed initially as a reaction to the then current situation. New Zealand Education Department involvement in this area did not commence until 1956 when the department took over responsibility for the Society for the Intellectually Handicapped special school system (Callander, 1972). As yet however

Education Department involvement has not extended into the preschool area, and although the state financially underwrites preschool education through grants to the various voluntary agencies that administer the New Zealand preschool services it has no direct responsibility in this area. Currently preschool services appear to be rather fragmented with no formal liaison between the New Zealand Society for the Intellectually Handicapped who administer special preschool facilities and the Playcentre Federation or the Free Kindergarten Association. Movement of intellectually handicapped children between the three preschool systems is virtually controlled by a third party, the Department of Education Psychological Service, who act in an advisory capacity to all three groups. The practice has developed of referring any of those admissions deemed problematic by regular preschool teachers or supervisors to the Psychological Service in the main centres, and the majority of intellectually handicapped preschoolers are admitted to the special systems. Indeed many intellectually handicapped infants and toddlers never attend regular facilities as they are diagnosed by medical services before they reach preschool age. Although some intellectually handicapped children subsequently attend regular preschools there is little data available on the criteria used to predetermine such placements. In these circumstances it is difficult not only to clearly evaluate the efficacy of any given placement, but also the appropriateness of the criteria themselves. Thus not only is the general placement procedure unclear but it is possible that intellectually handicapped children who could benefit from the differential social environment offered by a regular preschool are either delayed or prevented from attending through lack of a clear unequivocal selection procedure and a fragmented system of administration.

A further factor leading to the exclusion of intellectually handicapped preschoolers from regular facilities lies in the variety of behavioural difficulties apart from cognitive and social limitations which characterise mentally retarded children. Such maladaptive behaviour often adds to the management problems such children present in a regular preschool setting. Both playcentres and kindergartens in New Zealand have relatively high teacher/supervisor to pupil ratios (1:20), thus increasing the difficulties of teaching and supervision of children with special needs. (Barney, 1978). This problem is probably compounded by the lack of specialist training of staff in regular preschools. Such staff are frequently wary of accepting intellectually handicapped children into their preschool.

Finally, the normal developmental model (Anastasiow, 1978) which underlies the regular preschool approach in New Zealand, with its emphasis on the role of self-initiated exploration is essentially inappropriate as a primary educational approach to the cognitive development of the intellectually handicapped, who as Clarke and Clarke (1974) have noted are characterised by an inability to learn spontaneously from their environment. This fact has been used to justify the establishment of special segregated facilities on the grounds that a structured teaching input requires differing conditions from those common to regular preschools in New Zealand. This argument is clearly fallacious as several overseas studies show that existing regular facilities can be modified to accept intellectually handicapped preschoolers and a unified curriculum devised that is of equal benefit to both handicapped and non-handicapped groups (MacTurk and Neisworth, 1978).

Such arguments also ignore the probability that different conditions apply to the learning of social as compared to cognitive-academic skills. Hartup (1978) has noted the central role played by peer imitation in the promotion of social development and has stressed that insofar as social learning is concerned, adequate peer relationships contribute to the acquisition of basic communicative skills in a manner that interaction with adults cannot, or will not produce. A segregated setting is thus more likely to increase the existing difficulties faced by the intellectually handicapped preschools by simultaneously reducing their opportunities to learn appropriate social behaviour through interaction with normal peers and maximising the likelihood of their acquiring disfunctional behaviour through imitation of children with similar behavioural difficulties.

Wilton and Densem (1977) examined the social behaviour of matched groups of intellectually handicapped children in segregated and integrated settings and found that those attending integrated facilities showed substantially greater levels of social participation than those attending special facilities. This difference, they suggested, was in part due to the differential social environments the children encountered, and in particular the restricted access to suitable peer models in the segregated preschool and and larger community.

That regular peers are capable of acting as effective role and resource models for intellectually handicapped peers in such areas as Positive Verbalisation (Guralnick, 1978)

Verbal Initiation (Bad Fredricks, Baldwin, Grove, Moore, Riggs and Lyons, 1978) and Social Interaction and Participation (Apolloni, Cooker and Cooke, 1976) has been well established in a number of studies examining the integration of handicapped and non-handicapped children. Peterson, Peterson and Scriven (1977) found that the regular preschool child's social development was unlikely to be detrimentally affected by exposure to intellectually handicapped peers as both groups were more likely to imitate non-handicapped peer models. This study also examined peer preferences and it was found that normal peers accepted handicapped and non-handicapped peers equally, a result in striking contrast to the negative attitudes often displayed by regular school age peers toward intellectually handicapped class mates in mainstream school settings (Corman and Gottlieb, 1978).

While mainstreaming special educational provisions are frequently advocated for intellectually handicapped preschoolers there are conspicuously few empirical examinations of such provisions. Most studies have been undertaken overseas, and few have been concerned with New Zealand preschool settings. The present exploratory study was concerned with the social behaviour of pupils of a segregated preschool for intellectually handicapped children following their admission to regular kindergartens. Comparisons were made between three groups of intellectually handicapped children. An experimental group who attended a regular kindergarten as well as the segregated preschool, a control group who attended only the segregated preschool, and a contrast group who had been selected by school psychologists to attend regular kindergarten in addition to the segregated preschool.

#### Method

##### Subjects

The subjects (n=nine) were all known intellectually handicapped children attending a New Zealand Society for the Intellectually Handicapped special preschool in the Christchurch metropolitan area. Children were matched on social age using the Alpern and Boll Developmental Profile (1972). Three children attending regular kindergartens prior to the studies commencement, formed a contrast group. The remaining six children who had not previously attended regular kindergarten were

randomly assigned into two groups, a control and an experimental group. The control group (n=three) remained in full time attendance at the special preschool only, while the experimental group (n=three) were placed in regular kindergartens concurrent with their continued attendance at the New Zealand Society for the Intellectually Handicapped special preschool. Data was obtained on IQ (Stanford-Binet Form L-M), sex, chronological age, family position, number of siblings and socio-economic status. (Elley and Irving, 1976) for each subject. The study was undertaken during September-October 1979.

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### Behavioural Observation Scales

Four separate measures were used, three observational schedules and a sociometric measure. The aim was to sample the level and frequency of social and cognitive play, the frequency and direction of social interaction, the frequency and direction of positive social reinforcement and consequences of positive social reinforcement for all the intellectually handicapped children in both settings. And finally to examine the degree of non-handicapped peer acceptance of the handicapped children in the kindergarten setting.

Social and Cognitive Play. The degree of a child's social play was classified according to the Rubin, Maroni and Hornung (1976) revision of the Parten scale of social participation (Parten and Newhall, 1943). Rubin et al combined the Parten scale with its six developmental categories of social play (unoccupied behaviour, (low) onlooker behaviour, solitary play, parallel play, associative play, co-operative play (high)) with Smilanskys (1968) Piagetian categories of cognitive play (functional play, (low) constructive play and co-operative play (high)). Rubin et al also combined the two Parten categories of onlooker and unoccupied behaviour into one category (onlooker/unoccupied) and included the Smilansky categories of cognitive play as subsets of the remaining Parten categories. Thus for each Parten level it was possible for a child's play to be classified in terms of the level of cognitive play exhibited. A child could for example exhibit solitary functional, solitary constructive or solitary dramatic play. This scale required three observations of one minute duration (subdivided into fifteen

second segments) per week in each setting.

Social Interaction. The social interaction observation scale (Le Blanc, Etzel and Tyler, 1967) provides a means for assessing the frequency and duration of social verbal and non-verbal interaction and for noting with whom the subject interacts.

Social interaction was defined as those verbal and non-verbal behaviours which were directed towards others. These behaviours could involve either initiations or responses. For a behaviour to be considered part of a completed social interaction, one person had to initiate and another must have responded. If there was only initiation behaviour emitted this was not scored as social interaction. Standard observation sheets were used covering a three minute observation period subdivided in eighteen ten second intervals. These schedules provided coding protocols for social interactive behaviour in the following categories. Duration of each social interaction (minimum duration ten seconds, maximum one hundred and eight seconds per observation period) the type of initiation and response (ie, verbal or non-verbal or both simultaneously) and whether the subjects interacted with a peer or an adult. Who initiated social interaction according to the following categories, peer, subject, adult and group, and finally the total number of social interactions that occurred during the observation period.

Positive Social Reinforcement and the Consequences of Positive Social Reinforcement.

The observation of positive social reinforcement and the consequences of reinforcement utilised the observation method devised by Hartup (1967) who defined the occurrence of positive social reinforcement in terms of the effect the action had on the child perceiving it and the recipient's perception of the potentially reinforcing activity of the initiator of reinforcement. Consequences of social reinforcement were defined in terms of the actions made by the recipient of any potentially reinforcing event directly following the occurrence of reinforcement. A standard observational schedule covering a three minute observational period, subdivided into six thirty second intervals was used for coding social behaviour according to the following categories. Positive social reinforcement, giving positive attention and approval, giving affection and personal acceptance, submission and token giving.

Consequences of positive social reinforcement, change in recipient's behaviour,

maintenance of recipient's behaviour, rejection of reinforcement overtures and ignoring overtures. Reinforcement categories were also coded as to who initiated the occurrence of reinforcement but as no occurrence of subject initiation of social reinforcement was observed during the observational period all data contained in tables 12-16 and figures 19-25 for the positive social reinforcement categories are expressed in terms of the frequency of the subjects reception of reinforcement only.

Peer Acceptance. Six sets of ten 4" x 4" monochrome photographic prints were made, one for each kindergarten setting. Each set contained ten prints, one of which was of the intellectually handicapped subject and the remaining nine being of other non-handicapped children attending the particular kindergarten. Children were included in a set if they had commenced attendance within four weeks of the entry of the subjects into the kindergarten and if they were not moving into a different session before the end of the year. Sociometric ratings were obtained from children not included in the print set in the kindergartens only and the following procedure was followed in obtaining rankings. Four interviews were conducted at each kindergarten session while the other observations were being made. The interviewer would randomly select two non-handicapped boys and two non-handicapped girls, neither of whom were included in the print set. A note was kept of children in each kindergarten who had been interviewed on a previous occasion. No child was asked to rank the print set more than once during the four weeks of the experimental period and each interview was conducted with only the examiner and the child present in the immediate vicinity. The print set was laid face up facing the child on a low table in a quieter corner of the kindergarten activities room and the child was told that he or she was going to have a party to which he or she could invite any of the children whose photographs were in the print set. This they did by pointing to each preferred print in turn which the interviewer removed as the choice was made until all ten prints had been selected regardless of the preferred position of the intellectually handicapped child. The children were asked to make positive rather than negative choices, ie, "who would you most like to come to your party". No comment was made by the interviewer following any single selection apart from encouraging the child to



continue the selection procedure. Selections were coded according to the sex of the child being interviewed, the sex of the intellectually handicapped child included in the print set and the rank position of the intellectually handicapped child as indicated by regular peers interviewed.

#### Procedure

The children were divided into three groups as follows: A contrast group (n=three) which comprised children who were attending local kindergartens concurrent with attendance at the Society for the Intellectually Handicapped special preschool prior to the commencement of the study and who had been previously selected for kindergarten placement by psychological service staff. The remaining six children were randomly assigned to one of two treatment groups. The experimental group (n=three) were placed in local kindergartens concurrent with their continued attendance at the special preschool. Both contrast and experimental groups attended kindergarten for three sessions per week, at the Society for the Intellectually Handicapped special preschool for two days per week. The control group (n=three) attended the special preschool at least four days per week, but did not attend a regular preschool.

Observations took place over a six week period and were made on a weekly basis as follows: A Baseline for all three groups was established in the Society for the Intellectually Handicapped preschool during a two week observation period immediately prior to the commencement of the treatment period. Following establishment of the baseline the experimental and contrast children were each observed separately twice per week (once in each setting) for a total of three minutes on each scale. This procedure yielded a total of eighteen minutes observation time per child per week. The control group was observed twice per week in the special preschool setting; once when the the experimental and contrast groups were absent and once when these other groups were present. Including the baseline period, each child was observed for a total of one hundred and eight minutes during the experimental period. It should be noted that the total observation time was nine hundred and seventy-two minutes (sixteen hours, twelve minutes). During the treatment period two subjects (one each from the control and experimental groups) were absent for one week from both settings as a result of illness. In both cases the experimental period for each child was extended

for one extra week to allow for the initial absence.

No special treatment was given any of the subjects in the special preschool during the period covered by the experimental study and the children's normal educational programmes were continued as usual by the special preschool teachers without any modifications. The experimental group subjects were placed in kindergartens on the basis of the kindergarten's general proximity to the child's home and kindergarten teachers were asked not to provide any special social or cognitive direction for the subjects unless special problems arose in the regular settings. Kindergarten teachers, without exception, reported no regular occurrence of behaviour from the intellectually handicapped children which necessitated special attention being paid to them consistently in the kindergarten setting. All observations in both settings took place during free-play (ie, non-structured, or teacher directed) activities in inside and outside play areas. Two observers recorded data on prepared rating schedules. Both observers were trained previously in the use of each schedule in both settings using non-handicapped and handicapped children not included in the study. Training was considered complete when at least 80 per cent exact agreement on rating classification was achieved. The subjects were observed in small sub-groups and the following observational procedure was followed. In the Society for the Intellectually Handicapped preschool the subject to be observed was selected at random and a stopwatch started. When the stopwatch reached ten seconds it was immediately reset and observation commenced, continuing for a three minute period. At the end of each observation period the watch was allowed to continue running until two minutes had passed, at which time another subject was selected for observation and the same resetting procedure followed. In the kindergarten settings where only one subject was being observed, the stopwatch was let run for ten minutes following the completion of the observation period for the scale concerned. At the end of ten minutes a second scale was selected at random and observations commenced. This procedure was followed in each kindergarten setting for each total set of weekly observations. Data was collated separately for each group and further classified according to the settings in which observations took place. Sociometric assessments were made in the regular settings only, once a week per child, thus making a total of four assessments per child per week over the experimental period (total twenty-four assessments per child).

## Dependent Variable Measures

The dependent variables were in two categories. Social play characteristics and peer acceptance.

### Social Play Characteristics

#### 1. Social and Cognitive Play

Solitary Play. The proportion of observation time the child played alone with toys different from other children; although the child may be within speaking distance there was no attempt of verbal communication with his peer group the child was centered on its own activity.

Parallel Play. The proportion of observation time the child plays independently but the activity brings him among other children. He plays with toys that are similar to those which the children round him are using. The child plays beside rather than with other children.

Associative Play. The proportion of observation time the child plays with other children. They are not borrowing, following each other with play things. All engage in similar if not identical activity. There is no division of labour or organisation of activity.

Co-operative Play. The proportion of observation time the child plays in a group that is organised for making some material product or striving to obtain some competitive goal, of dramatising situations of adult or group life. There is a division of labour, a sense of belonging, and an organisation in which the efforts of one child are supplemented by those of another.

Onlooker/Unoccupied Behaviour. The proportion of observation time the child spends in watching activities of momentary interest, plays with his own body, gets on and off chairs, watches others play, talks to questions and offers suggestions to the children playing, but does not enter into the activity herself.

Functional Play. The proportion of observation time spent in simple muscular activities, repetitive muscular movements with or without objects. Repeats actions, initiates himself and tries new actions.

Constructive Play. The proportion of observation time spent in the manipulation of objects to construct or create something.

Dramatic Play. The proportion of observation time spent in taking roles, pretending to be someone else. The child imitates another person in his actions or speech with the aid of real or imagined objects.

## 2. Social Interaction

Social interaction is defined as those verbal and non-verbal behaviours which are directed towards others. These behaviours may involve either initiations or responses. For a behaviour to be considered part of a completed social interaction, one person must initiate and another must respond. If there is only initiation behaviour emitted this was not considered to be social interactive.

Mean Time in Social Interaction. The mean proportion of total observation time which a child spent in social interaction observed over a three minute period subdivided into ten second intervals.

Duration of Social Interaction. The mean amount of time in seconds spent by children during the observation period in each separate social interaction event (maximum possible duration one hundred and eighty seconds, minimum duration ten seconds).

Number of Social Interactions. The mean number of separate social interactive events occurring during the total observation period.

Verbal Social Interaction. The percentage of total social interaction time a child spent in verbal social interaction, ie, any speech directed toward another person or group.

Non-Verbal Social Interaction. The percentage of total social interaction time a child spent in non-verbal social interaction. Non-verbal behaviour is defined as any physical behaviour directed toward another during social interaction.

Peer Social Interaction. The percentage of total social interaction time spent in social interaction with peers, ie, any child with whom the subject interacted.

Adult Social Interaction. The percentage of total social interaction time spent in social interaction with adults.

Direction of Initiation of Social Interaction. The percentage of total social interaction time coded according to the person who initiated social interaction.

Initiation of social interaction is defined as behaviour emitted by one person and directed toward another. Initiation could be verbal or non-verbal, or both simultaneously. Initiations were coded under the following categories. Subject, child being observed. Peer, any child with whom subject interacted. Adult, Group, two or more persons in any combination of adult or peer. Two or more persons not including the subject where subject is a group member.

### 3. Positive Social Reinforcement and Consequences of Positive Social Reinforcement

Reinforcement Categories. Positive social reinforcement is deemed to occur if any subject, peer or adult initiates or receives any of the types of actions expressed below. The recipient must be observed to have perceived the potentially reinforcing activity of her peers for the behavioural event to be termed a reinforcement event. Reinforcement can be either verbal or non-verbal or both. Findings are expressed as mean proportions of the total observation period and are coded according to the following categories.

Positive Attention and Approval. Attending, offering praise and approval, offering instrumental help, smiling and laughing, verbal help, informing another of a third party's needs.

Giving Affection and Personal Acceptance. Physical and verbal behaviour, hugging, expression affectionate feelings verbally, eg, love.

Submission. Passive acceptance, imitation, sharing, accepting another idea or help, allowing another to play, compromising, co-operating with another's order.

Token Giving. The giving of tangible physical objects spontaneously.

Consequence Categories. A consequence was defined in terms of the actions of the recipient directly following the occurrence of positive social reinforcement and could be both verbal and non-verbal. Consequences were coded into four categories and are expressed as proportions of the total occurrence of reinforcement events.

Change in Behaviour. Recipient ceases current activity or amends behaviour, ie, makes room for another, shares media, starts talking or smiling.

Maintains Existing Behaviour. Recipient acknowledges the initiator but does not alter current activity or behaviour.

Rejection. Recipient refuses to accept an attempt at reinforcement, ie, refuses to share media, moves away from initiator, uses physical force to maintain a place in the current play activity, ie, painting, dough play. Verbally rejects initiator.

Ignoring. Recipient does not acknowledge initiator, although his behaviour suggests that he is aware of initiator's physical proximity, ie, flinches, turns his back.

#### Peer Acceptance

Peer acceptance is defined in terms of the subject's mean position on a ten point sociometric ranking scale. Rankings were made by non-handicapped boys and girls who were attending the same kindergartens as the experimental and contrast subjects. Scores of 1 to 10 were possible. Scores of 1 to 3 indicate relatively high acceptance by regular peers, 4-6 approximately equal acceptance with regular peers and 7-10 a

lower degree of acceptance than that of regular peers.

#### Data Analyses

The present study necessarily involved a very small number of children. In the circumstances adequate statistical analyses were not possible, and in view of the developmental focus of the study, single subject designs did not seem applicable. The data obtained from the various scales was tabulated and graphed and an attempt was made to describe any apparent trends in the data. It is realised that descriptions of this nature are not firmly based, but in view of the methodological difficulties that necessarily arise with such a small sample study, such a procedure seemed prudent.

#### Results and Discussion

The mean proportions of time spent in the Parten/Smilansky scale categories during the baseline and each week of the experimental periods (weeks 1-4) are presented in tables 2-6. These results are shown graphically across the baseline and experimental period for each of the categories and for both segregated integrated settings in figures 1-8. It can be seen that the extent of associative and co-operative play is very limited in all three groups in both locations. (Figures 3 and 4). The patterns of play for the three groups is slightly different with respect to the remaining categories. Whereas the contrast group shows rather more solitary play (figure 1) than either the experimental and control groups, the reverse is the case with the onlooker/unoccupied play categories (figure 5). The contrast group spent noticeably more time in functional play than either of the other two groups (figure 6). It is interesting to note however, that the experimental group showed a marked increase in constructive play (figure 7) during the last two weeks of the experimental period. If this level is maintained it could well be reflecting a positive effect of kindergarten attendance on the part of the children concerned.

The mean proportion of duration, frequency, type and direction of initiation of social interaction as measured by the social interaction observation scale during the baseline and each week of the experimental period are set out in tables 7-11.

These results are shown graphically across the baseline and experimental period as the mean proportions of duration, frequency type and direction of social interaction during this time. As can be seen from figures 9, 10 and 11, there is little difference between the three groups along the dimensions of the mean frequency, mean duration and mean number of interactions. Figure 12 however, suggests that in general both contrast and experimental groups showed more verbal interaction during regular kindergarten attendance than in the segregated preschool. It is also interesting to note that in general, the experimental group showed as much, if not more, verbal interaction than the contrast group in both settings. Moreover it should be noted that non-verbal interaction occurred more frequently in the segregated preschool for both experimental and control groups (figure 13). There is thus a suggestion that the regular preschool setting is more conducive to verbal interaction and this was reflected in the increase of verbal interaction in the experimental group.

In general the contrast and experimental groups showed a slightly greater proportion of time involved in peer interaction than did the control subjects (figure 14) and the preponderance of interaction with adults on the part of the control subjects is also appreciable (figure 15). Figures 16, 17 and 18 show the proportions of time in which interactions were initiated by the subjects, peers and adults. An interesting trend is apparent in this data, as it can be seen that children attending the integrated preschool settings show a higher proportion of interactions initiated by peers and adults in the integrated settings than they did in the segregated preschool.

The mean proportions of the time spent receiving and initiating positive reinforcement as measured by the Charlesworth and Hartup Categories during the baseline and experimental periods are provided in tables 12-16. These results are shown graphically for both baseline and experimental weeks one to four for each of the categories in both settings. It is noticeable that none of the intellectually handicapped children were observed to initiate social reinforcement. If reinforcement occurred during social interaction the intellectually handicapped subjects were invariably recipients. Otherwise no clear inter-group differences were apparent. (figures 19-22). With regard to the consequences of social reinforcement (figures 23-25)

it can be seen that most reinforcement protocols were followed by a maintenance of existing behaviour rather than a change in behaviour.

The mean sociometric ranking of the contrast and experimental subjects given by non-handicapped boys and girls in the kindergarten classes are presented in table 17. The pattern of rankings by both boys and girls for both of the groups seems very similar, as do the means for same sex and cross sex rankings. It is noticeable that in general, rankings of the intellectually handicapped subjects are close to the middle of the total group, indicating a reasonable level of social acceptance of the intellectually handicapped children by their regular classmates.

### Conclusions

It must be stressed that the present results were obtained over a six week period only, and that a different pattern could well emerge in the long term. A further point that needs to be emphasised is that the experimental group met the social demands of the kindergarten setting throughout the duration of the study and no major organisational or adjustment problems were reported by kindergarten teachers or the parents of the children concerned. Indeed the experimental group could not be differentiated from the contrast group, (a group, it should be remembered, who were specially selected by school psychologists for integrated placement), on the various measures of social development that were used. All kindergarten teachers and parents of both intellectually handicapped and non-handicapped children seemed to display very favourable attitudes toward the continued integration of the children and all felt that both the intellectually handicapped and the non-handicapped children were benefitting from their attendance at kindergarten.

All three groups of handicapped children showed very low levels of associative and co-operative play in both locations. While this result is consistent with that obtained by Wilton and Densem (1977) continued observation of the experimental group would be of considerable interest in this respect.

It is interesting to note that the contrast (specially selected) group showed more solitary play than either of the remaining groups both of whom spent more time in onlooker/unoccupied behaviour than in other activities. An interesting increase in



constructive play during the last two weeks of the experimental period was observed with the experimental group. It is to be hoped that this level will be sustained during the remainder of the year, and that it is indicative of a positive change in the cognitive aspects of play of the children concerned. A somewhat higher level of verbal interaction was evident in the kindergartens than in the segregated preschool for both the contrast and the experimental group, and interestingly a slightly higher level of verbal interaction was apparent in the experimental group compared to the contrast group. The higher level of verbal interaction could be reflecting better opportunities for the development of language skills in the integrated settings. It is also interesting to note that the experimental and contrast groups interacted more with peers in both settings, whereas the control group tended to interact more with adults, regardless of the presence or absence of the experimental and contrast group in the special preschool. In the integrated setting it was noticeable that most interaction was initiated by others, (either non-retarded peers or adults) and that the intellectually handicapped children showed a relatively low level of initiation of social interaction. In the segregated preschool, on the other hand, both the experimental and contrast groups showed more initiation of social interaction than they did in the integrated setting. This result is scarcely surprising, the children would be expected to initiate interaction more frequently in a situation to which they were more accustomed. Alternatively, it could well be the case that social learning is actually being fostered by non-retarded peers in the integrated setting, although the length of time covered by this study is too short to draw any firm conclusions. However, the fact that the experimental and control children in the integrated settings were invariably the recipients rather than the initiators of positive social reinforcement tends to reinforce the suggestion that the non-handicapped children are acting as resource models for the handicapped groups by initiating social behaviour. It is interesting to note however that the overwhelmingly predominant consequence of social reinforcement was maintenance of existing behaviour and that changes in behaviour following peer reinforcement rarely occurred in either setting.

Sociometric data indicated that the intellectually handicapped children were

reasonable well accepted by their non-retarded classmates, a finding similar to that reported by Peterson et al (1977) and no evidence in cross sex difference was obtained.

This study seems consistent with the impressions of the teachers and parents of the handicapped children. While it would be premature to draw firm conclusions regarding the desirability of kindergarten attendance for intellectually handicapped children from this study, the results to date indicate that the handicapped children were meeting the social demands of the kindergarten environment (or at least were not significantly rejected by their non-handicapped peers) and did not appear to be disadvantaged by their attendance in an integrated setting. Assessment of the development of the children over a reasonable period of time in the kindergarten setting should prove to be of considerable interest.

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TABLES 1-17

TABLE NO. 1

Descriptive data on subjects

Group	Sex	Chronological age in months	Social age in months	IQ	SES	Number of siblings	Family position
Contrast (n=3)	$\bar{x}$ (3 females)	57.61	40.00	52.61	3.66	1.60	1.33
	SD	6.12	7.13	8.08	0.47	0.20	.47
Experi- mental (n=3)	$\bar{x}$ (1 female)	46.80	32.00	59.33	3.69	0.94	1.00
	SD (2 males)	3.84	5.72	13.51	1.24	0.66	00.00
Control (n=3)	$\bar{x}$ (3 females)	63.72	32.60	32.60	3.69	2.00	1.60
	SD	21.20	3.05	3.05	0.94	1.63	.94

TABLE NO. 2

Mean proportion of time spent in specific types of social and cognitive play by week and location

Group  $\bar{x}$  Week No. Baseline

Play Categories	<u>Contrast</u>	<u>Experimental</u>	<u>Control</u>
	Attending PSSC	Attending PSSC	Experimental and contrast groups present
<u>Social Play</u>			
Solitary	23.51	29.00	27.00
Parallel	16.25	00.00	10.30
Associative	6.25	27.00	00.00
Co-operative	6.52		00.00
Unoccupied onlooker	46.75	42.00	62.31
<u>Cognitive Play</u>			
Functional	29.30	37.15	31.34
Constructive	21.57	4.37	4.65
Dramatic	00.00	16.60	00.00

Note

Groups observed in PSSC setting only





TABLE NO. 4

Mean proportion of time spent in specific types  
of social and cognitive play by week and location

Group  $\bar{x}$  Week No. 2

Play Categories	<u>Contrast</u>		<u>Experimental</u>		<u>Control</u>	
	Attending PSSC	Attending Kindergarten	Attending PSSC	Attending Kindergarten	Experimental and contrast groups absent	Experimen and contr groups present
<u>Social Play</u>						
Solitary	37.46	32.15	27.80	00.00	3.30	16.61
Parallel	30.90	22.30	00.00	8.30	18.80	8.30
Associative	27.03	31.64	11.12	00.00	3.31	25.01
Co-operative	00.00	00.00	00.00	00.00	3.30	00.00
Unoccupied onlooker	19.01	13.80	61.15	91.60	75.00	50.00
<u>Cognitive Play</u>						
Functional	72.00	54.45	27.80	8.31	23.70	16.61
Constructive	8.31	25.00	00.00	00.00	00.00	00.00
Dramatic	00.00	6.66	00.00	00.00	00.00	00.00

TABLE NO. 5

Mean proportion of time spent in specific types  
of social and cognitive play by week and location

Group  $\bar{x}$  Week No. 3

Play Categories	<u>Contrast</u>		<u>Experimental</u>		<u>Control</u>	
	Attending PSSC	Attending Kindergarten	Attending PSSC	Attending Kindergarten	Experimental and contrast groups absent	Experimen and contr groups present
<u>Social Play</u>						
Solitary	25.37	74.51	41.60	25.00	26.70	8.33
Parallel	50.00	14.27	00.00	62.50	20.00	15.20
Associative	12.53	5.10	8.30	00.00	4.15	8.34
Co-operative	00.00	00.00	00.00	00.00	00.00	00.00
Unoccupied onlooker	12.51	5.01	50.70	12.50	48.00	68.15
<u>Cognitive Play</u>						
Functional	75.00	81.25	25.03	25.14	43.41	31.95
Constructive	00.00	00.00	00.00	62.50	00.00	00.00
Dramatic	12.50	00.00	00.00	00.00	00.00	00.00

TABLE NO. 6

Mean proportion of time spent in specific types of social and cognitive play by week and location

Group  $\bar{x}$  Week No. 4

Play Categories	<u>Contrast</u>		<u>Experimental</u>		<u>Control</u>	
	Attending PSSC	Attending Kindergarten	Attending PSSC	Attending Kindergarten	Experimental and contrast groups absent	Experimen and contr groups present
<u>Social Play</u>						
Solitary	50.00	50.00	50.01	41.60	27.70	12.51
Parallel	25.00	8.30	8.33	33.33	13.61	4.10
Associative	00.00	16.61	16.61	00.00	4.10	00.00
Co-operative	00.00	2.00	00.00	00.00	00.00	00.00
Unoccupied onlooker	25.00	25.21	25.00	33.33	54.14	83.33
<u>Cognitive Play</u>						
Functional	37.55	25.00	33.33	25.00	33.33	16.60
Constructive	37.50	41.60	41.66	41.63	8.33	00.00
Dramatic	00.00	8.37	00.00	00.00	00.00	00.00

TABLE NO. 7

Mean proportion of duration, frequency, category and initiation of interaction of social interaction

Baseline

Group	$\bar{x}$ proportion of total observation time during which interaction occurred	$\bar{x}$ duration of interaction in seconds	$\bar{x}$ number of interactions per child	% verbal	% non-verbal	% peer	% adult	$\bar{x}$ for direction of initiation of interaction			
								subject	peer	adult	group
<u>Contrast</u>											
Attending PSSC	35.89	10.80	21.00	46.40	53.40	57.60	42.30	63.38	19.70	16.91	00.00
<u>Experimental</u>											
Attending PSSC	35.15	10.91	38.00	46.49	53.50	65.60	34.35	39.23	38.51	29.20	00.00
<u>Control</u>											
Attending PSSC	19.04	10.31	8.00	54.12	45.77	58.30	41.61	65.20	21.71	13.00	00.00

TABLE NO. 8

Mean proportion of duration, frequency, category and initiation of interaction of social interaction

Group	$\bar{x}$ proportion of total observation time during which interaction occurred	$\bar{x}$ duration of interaction in seconds	$\bar{x}$ number of interactions per child	<u>Week One</u>				$\bar{x}$ for direction of initiation of interaction			
				% verbal	% non-verbal	% peer	% adult	subject	peer	adult	group
<u>Contrast</u>											
Attending PSSC	36.10	10.17	7.53	26.61	73.31	81.41	18.50	75.00	17.80	7.10	00.00
Attending Kindergarten	55.50	10.01	19.51	58.93	41.02	23.50	76.40	14.80	23.60	60.80	00.00
<u>Experimental</u>											
Attending PSSC	21.12	10.00	14.00	57.10	42.81	54.00	45.90	51.35	18.90	29.70	00.00
Attending Kindergarten	38.81	10.00	6.31	52.60	47.10	50.00	50.01	10.81	44.40	44.40	00.00
<u>Control</u>											
Experimental and contrast groups absent	31.48	11.03	12.00	52.90	47.01	26.31	73.60	71.42	14.21	14.20	00.00
Experimental and contrast groups present	50.00	10.00	5.60	41.60	56.75	37.50	77.50	69.50	13.10	17.39	00.00

TABLE NO. 9

Mean proportion of duration, frequency, category and initiation of interaction of social interaction

Week Two

$\bar{x}$  for direction of initiation of interaction

Group	$\bar{x}$ proportion of total observation time during which interaction occurred	$\bar{x}$ duration of interaction in seconds	$\bar{x}$ number of interactions per child	% verbal	% non-verbal	% peer	% adult	subject	peer	adult	group
<u>Contrast</u>											
Attending PSSC	33.30	10.76	8.25	33.30	66.60	93.90	6.06	42.80	64.80	2.70	00.00
Attending Kindergarten	33.30	10.40	10.75	41.86	58.10	76.30	23.61	27.02	68.50	8.10	00.00
<u>Experimental</u>											
Attending PSSC	20.21	10.80	3.25	65.01	35.02	100.00	00.00	80.00	20.00	00.00	00.00
Attending Kindergarten	23.60	10.40	5.60	70.50	29.40	58.80	41.12	17.60	47.10	35.21	00.00
<u>Control</u>											
Experimental and contrast groups absent	47.41	10.50	15.60	53.10	46.10	41.80	58.10	63.60	36.30	00.00	00.00
Experimental and contrast groups present	23.42	10.36	11.60	60.51	39.41	60.20	40.00	86.31	4.50	9.09	00.00

TABLE NO. 10

Mean proportion of duration, frequency, category and  
initiation of interaction of social interaction

Group	$\bar{x}$ proportion of total observation time during which interaction occured	$\bar{x}$ duration of interaction in seconds	$\bar{x}$ number of interactions per child	% verbal	% non- verbal	% peer	% adult	$\bar{x}$ for direction of initiation of interaction			
								subject	peer	adult	group
<u>Contrast</u>											
Attending PSSC	11.10	10.10	2.60	37.50	62.50	75.00	25.00	75.00	12.50	12.50	00.00
Attending Kindergarten	16.60	10.01	1.50	50.00	50.00	100.00	00.00	100.00	00.00	00.00	00.00
<u>Experimental</u>											
Attending PSSC	36.12	10.70	8.60	00.00	100.00	28.50	71.42	33.30	33.33	33.33	00.02
Attending Kindergarten	20.80	13.28	5.12	31.61	68.42	80.00	20.00	22.80	74.28	2.85	00.00
<u>Control</u>											
Experimental and contrast groups absent	35.51	10.35	10.60	34.30	65.51	59.30	40.61	74.10	6.40	19.31	00.00
Experimental and contrast groups present	41.00	10.28	12.30	37.80	62.16	60.50	39.40	97.29	2.30	00.00	00.00

TABLE NO. 11

Mean proportion of duration, frequency, category and initiation of interaction of social interaction

Group	$\bar{x}$ proportion of total observation time during which interaction occurred	$\bar{x}$ duration of interaction in seconds	$\bar{x}$ number of interactions per child	% verbal	% non-verbal	% peer	% adult	$\bar{x}$ for direction of initiation of interaction			
								subject	peer	adult	group
<u>Contrast</u>											
Attending PSSC	22.20	17.86	3.00	25.30	74.50	75.00	25.10	69.20	15.30	15.30	00.00
Attending Kindergarten	54.16	10.60	9.75	48.70	51.20	67.56	32.40	8.12	59.41	32.40	00.00
<u>Experimental</u>											
Attending PSSC	42.59	10.51	14.02	78.30	21.70	95.71	4.16	57.60	38.46	3.85	00.00
Attending Kindergarten	58.31	11.22	10.50	61.90	38.09	73.32	26.62	7.14	83.33	9.51	00.00
<u>Control</u>											
Experimental and contrast groups absent	16.60	10.23	4.10	33.30	66.60	58.30	41.60	50.00	16.60	33.30	00.00
Experimental and contrast groups present	47.20	12.60	11.30	47.05	52.90	47.05	52.90	73.50	2.90	23.50	00.00



TABLE NO. 12

$\bar{x}$  proportion of time by group spent receiving and giving positive reinforcement

Baseline

Group	<u>Reinforcement Categories</u>				<u>Consequences of receiving reinforcement</u>			
	Category 1 positive attention	Category 2 affection and acceptance	Category 3 submission	Category 4 token giving	Category 1 change	Category 2 maintenance	Category 3 rejection	Category 4 ignoring
<u>Contrast</u>								
Attending PSSC	14.21	23.63	11.05	00.00	58.06	35.48	00.00	00.00
<u>Experimental</u>								
Attending PSSC	33.33	2.08	8.31	00.00	19.00	38.00	00.00	00.00
<u>Control</u>								
Experimental and contrast groups present	15.00	6.60	8.34	00.00	44.00	55.00	5.50	00.00

TABLE NO. 13

$\bar{x}$  proportion of time by group spent receiving and giving positive reinforcement

Week One

Group	<u>Reinforcement Categories</u>				<u>Consequences of receiving reinforcement</u>			
	Category 1 positive attention	Category 2 approval acceptance	Category 3 submission	Category 4 token giving	Category 1 change	Category 2 maintenance	Category 3 rejection	Category 4 ignoring
<u>Contrast</u>								
Attending PSSC	10.00	20.00	20.00	10.01	22.20	27.71	11.13	00.00
Attending kindergarten	25.00	00.00	12.50	12.52	00.00	66.67	00.00	00.00
<u>Experimental</u>								
Attending PSSC	19.40	8.33	2.77	2.77	12.00	8.30	8.31	00.00
Attending kindergarten	6.63	13.30	10.00	3.33	30.00	50.00	00.00	00.00
<u>Control</u>								
Experimental and control groups absent	50.02	12.50	8.33	00.00	35.14	47.05	00.00	00.00
Experimental and contrast groups present	00.00	00.00	00.00	91.61	00.00	54.52	00.00	00.00

TABLE NO. 14

$\bar{x}$  proportion of time by group spent receiving and giving positive reinforcement

Week Two

Group	<u>Reinforcement Categories</u>				<u>Consequences of receiving reinforcement</u>			
	Category 1 positive attention	Category 2 approval and acceptance	Category 3 submission	Category 4 token giving	Category 1 change	Category 2 maintenance	Category 3 rejection	Category 4 ignoring
<u>Contrast</u>								
Attending PSSC	13.34	10.00	10.01	11.00	54.54	27.20	9.09	00.00
Attending kindergarten	14.81	9.25	16.60	00.00	13.62	45.45	18.18	00.00
<u>Experimental</u>								
Attending PSSC	16.60	6.61	16.67	00.00	58.31	4.60	00.00	00.00
Attending kindergarten	12.90	3.74	12.91	6.63	23.80	28.12	4.76	00.00
<u>Control</u>								
Experimental and contrast groups absent	14.28	9.52	11.93	00.00	26.61	63.31	3.31	00.00
Experimental and contrast groups present	25.00	00.00	16.62	00.00	40.00	60.00	00.00	00.00

TABLE NO. 15

$\bar{x}$  proportion of time by group spent receiving and giving positive reinforcement

Week Three

Group	Category 1 positive attention	Category 2 affection and approval	Category 3 submission	Category 4 token giving	Category 1 change	Category 2 maintenance	Category 3 rejection	Category 4 ignoring
<u>Contrast</u>								
Attending PSSC	66.61	00.00	00.00	00.00	6.25	93.52	00.00	00.00
Attending kindergarten	20.00	9.52	00.00	2.38	37.51	62.53	00.00	00.00
<u>Experimental</u>								
Attending PSSC	4.16	4.16	00.00	00.00	50.00	50.00	00.00	00.00
Attending kindergarten	20.00	6.67	3.35	13.31	15.38	76.95	00.00	00.00
<u>Control</u>								
Experimental and contrast groups absent	34.61	5.12	6.45	00.00	19.41	77.75	00.00	00.00
Experimental and contrast groups present	8.33	8.33	12.51	00.00	40.00	60.00	00.00	00.00

TABLE NO. 16

$\bar{x}$  proportion of time by group spent receiving and giving  
positive reinforcement

Week Four

Group	<u>Reinforcement Categories</u>				<u>Consequences of receiving reinforcement</u>			
	Category 1 positive attention	Category 2 affection and approval	Category 3 submission	Category 4 token giving	Category 1 change	Category 2 maintenance	Category 3 rejection	Category 4 ignoring
<u>Contrast</u>								
Attending PSSC	16.65	16.66	16.60	00.00	55.51	15.10	00.00	00.00
Attending kindergarten	26.62	3.31	6.60	3.30	33.30	58.32	8.30	00.00
<u>Experimental</u>								
Attending - PSSC	33.30	11.10	00.00	00.00	36.52	62.59	00.00	00.00
Attending kindergarten	27.70	5.50	00.00	00.00	16.57	83.31	00.00	00.00
<u>Control</u>								
Experimental and contrast groups absent	12.52	10.42	6.25	00.00	7.10	85.72	00.00	00.00
Experimental and contrast groups present	33.31	8.33	12.51	00.00	36.10	52.63	00.00	00.00

TABLE NO. 17

$\bar{x}$  rank position of IH children ranked by non-handicapped peers  
in the regular preschool setting

	Week 1	Week 2	Week 3	Week 4	$\bar{x}$ ranking for girls		$\bar{x}$ ranking for boys	
					by girls	by boys	by girls	by boys
Contrast subjects ranked by girls	5.50	5.30	5.61	7.00	5.85		*	*
Contrast subjects ranked by boys	6.00	4.80	5.62	5.50		5.50	*	*
Experimental subjects ranked by girls	6.50	4.81	5.16	4.10	4.50		6.30	
Experimental subjects ranked by boys	4.25	7.61	7.00	4.53		5.25		5.10

\* these ratings were made for female subjects only thus no entries are  
listed in the  $\bar{x}$  ranking for boys columns

FIGURES 1-25

Note: There are no figures presented for the following categories of social behaviour:

Social interaction, observational scale, initiation of interaction, by group

Consequences of positive social reinforcement no. 4 ignoring reinforcement, as

in both cases no incidence of social behaviour which fitted either of these

categories.

Figure One

Mean proportion of time spent in play categories by group

Play Category Solitary Play

Key

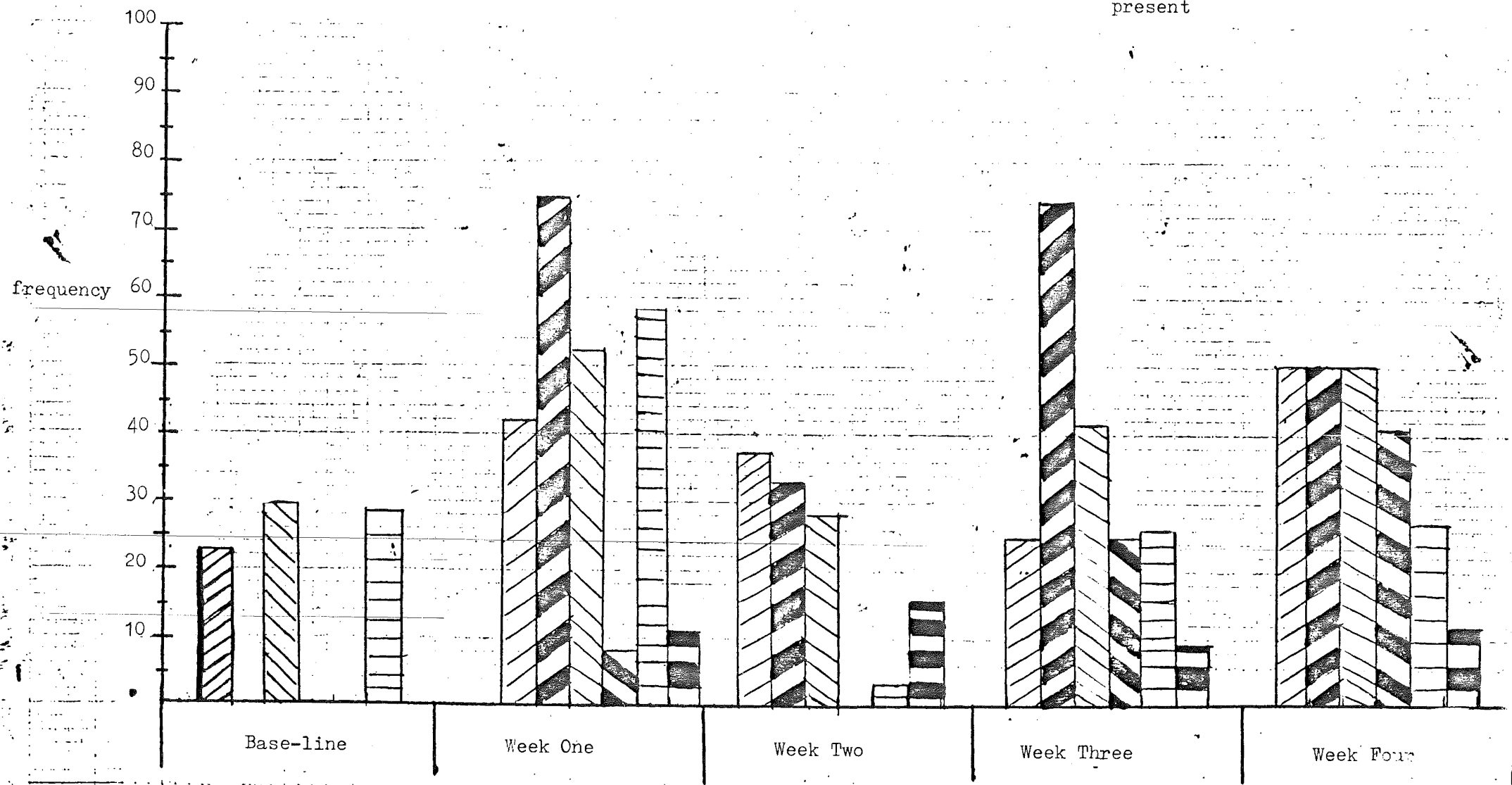
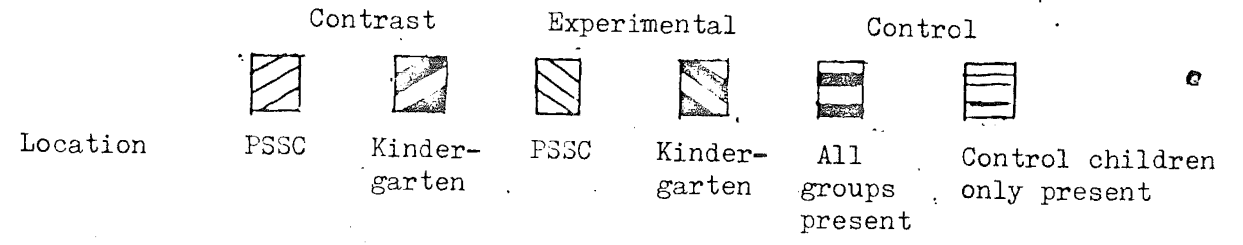




Figure Two

Mean proportion of time spent  
in play categories by group

Play Category Parallel

Key

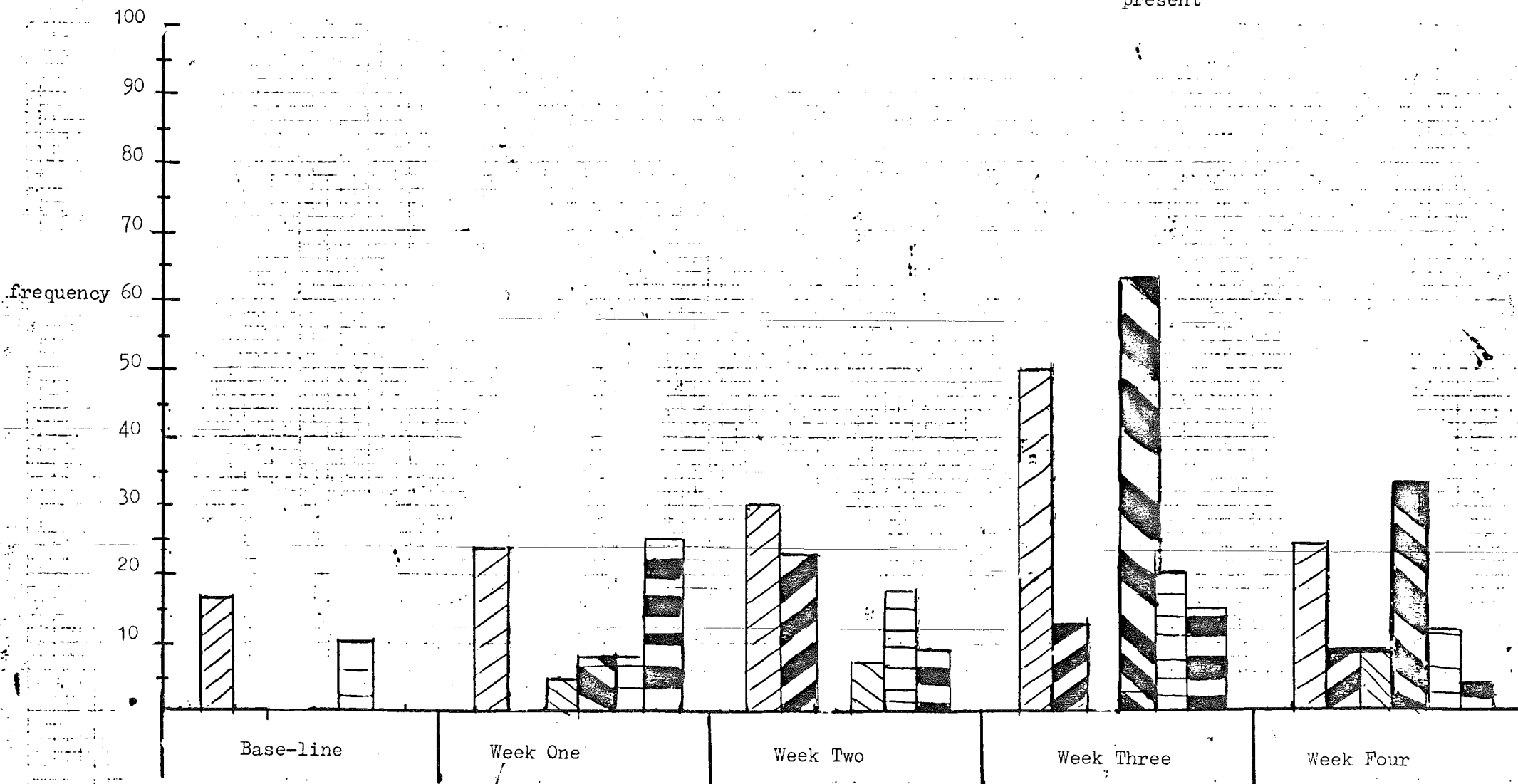
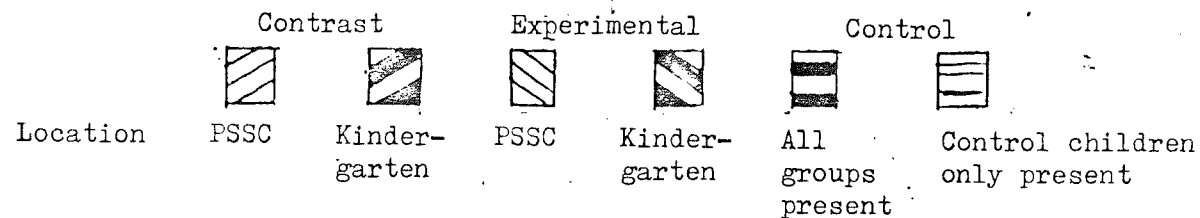


Figure Three

Mean proportion of time spent  
in play categories by group

Play Category Associative

Key

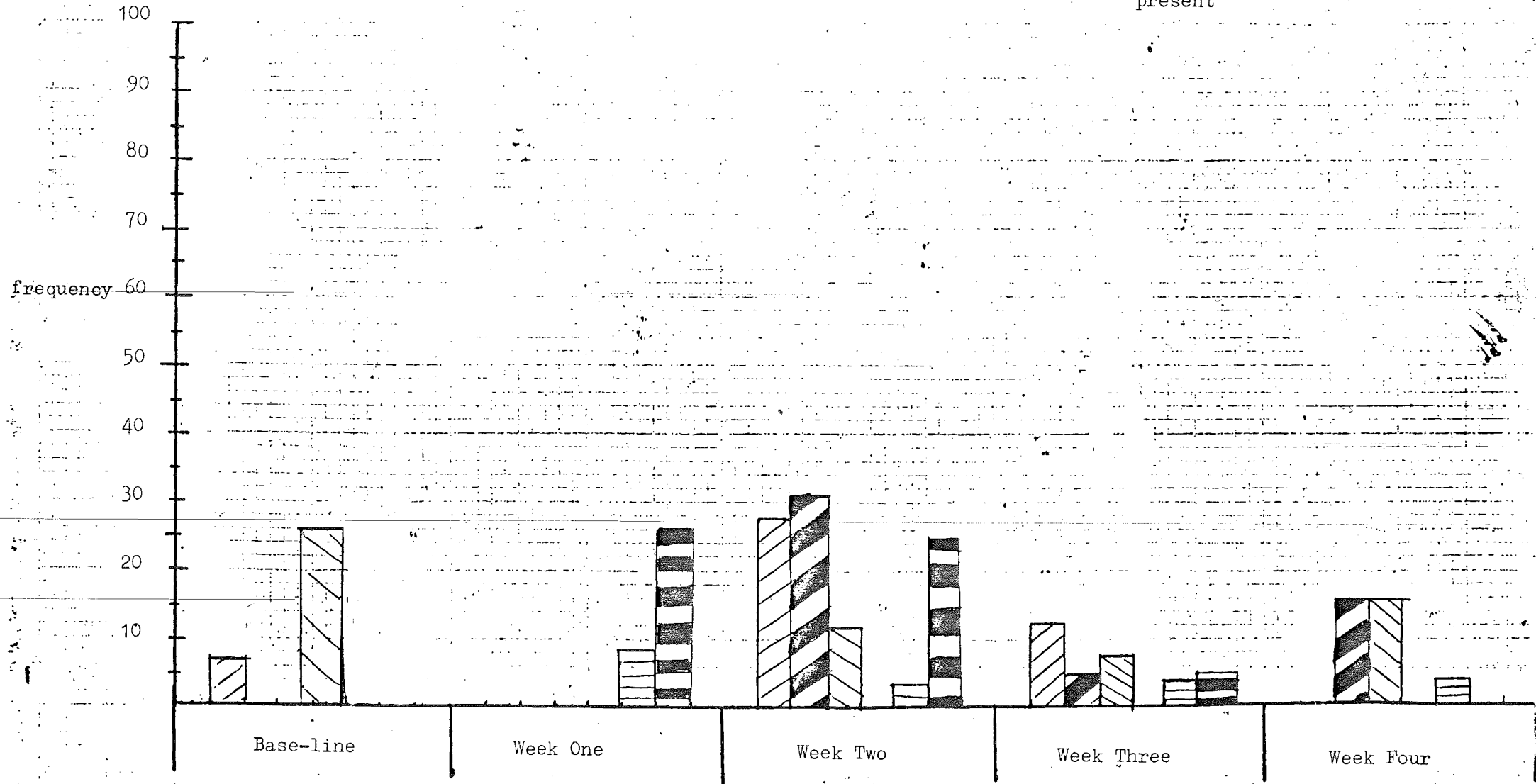
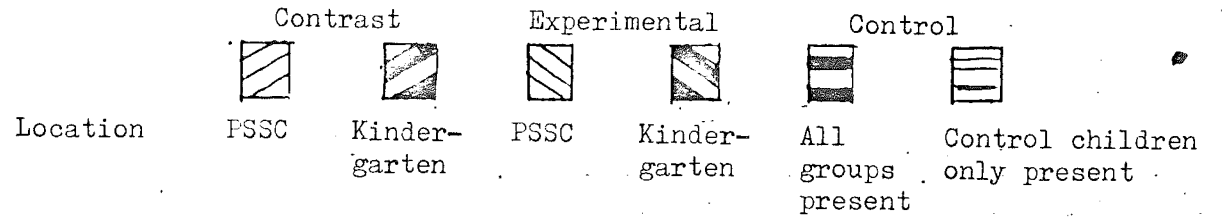


Figure Four

Mean proportion of time spent  
in play categories by group

Play Category Co-operative

Key

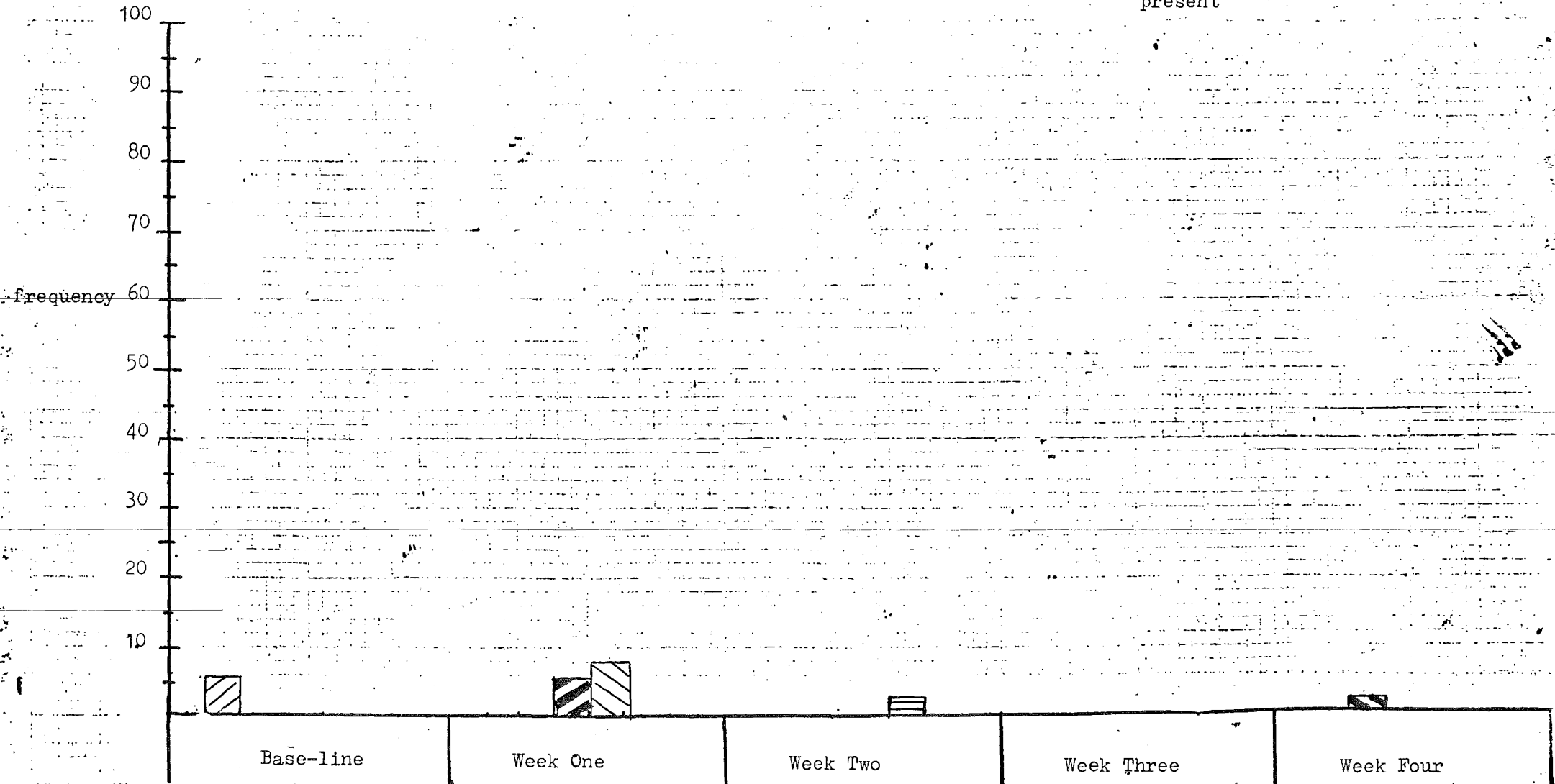
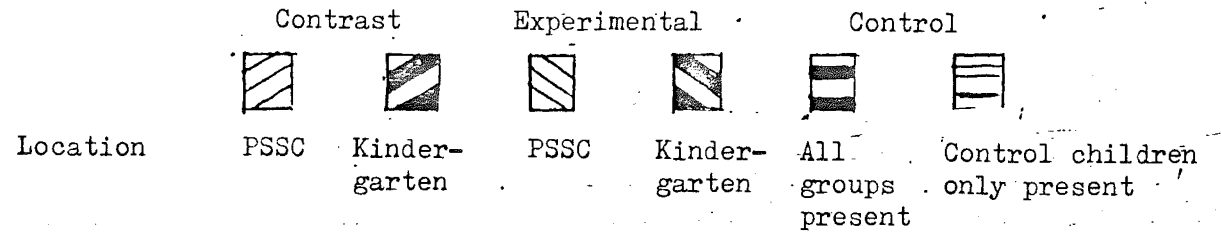


Figure Five

Mean porportion of time spent  
in play categories by group

Play Category Onlooker/Unoccupied

Key

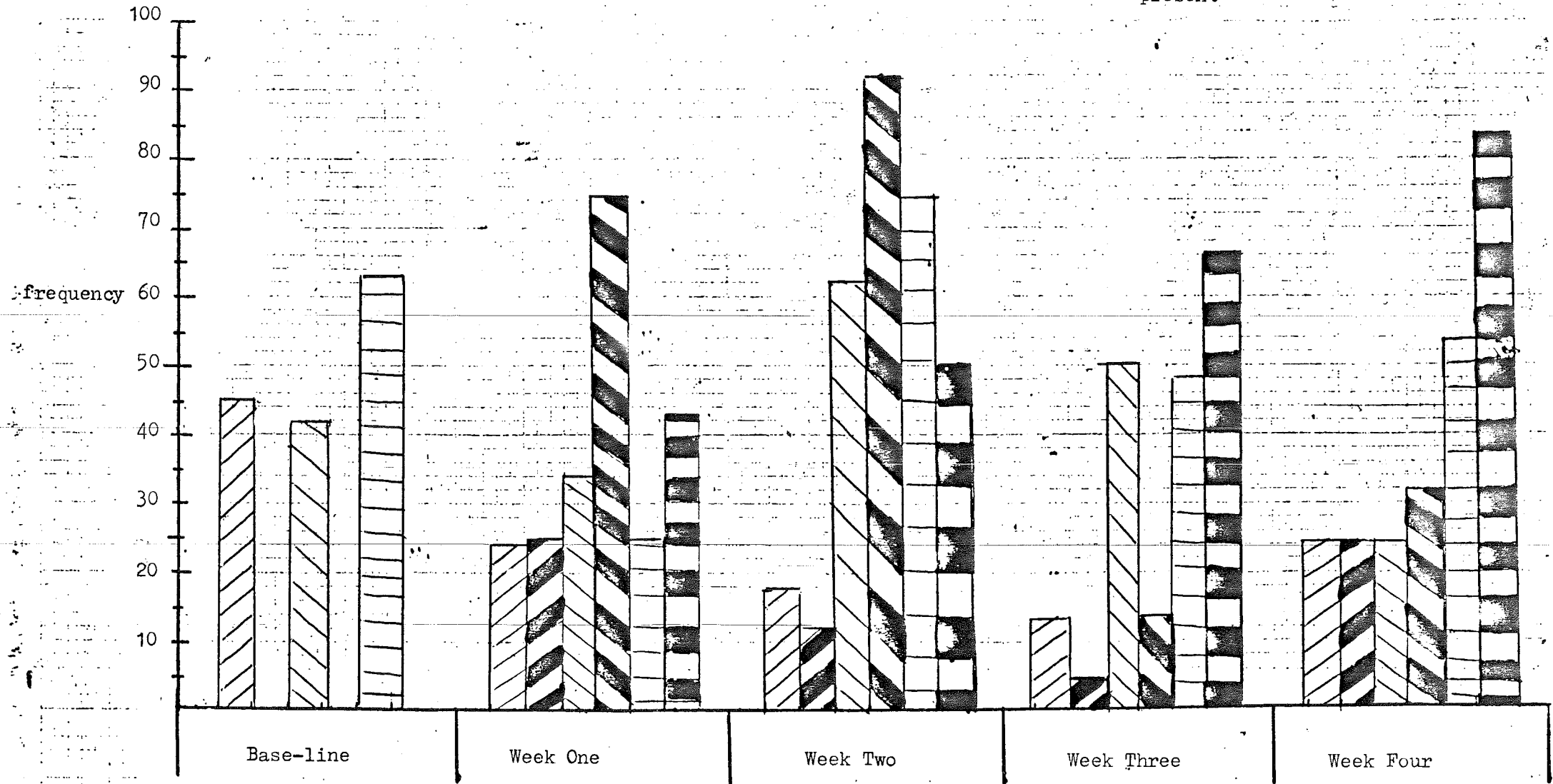
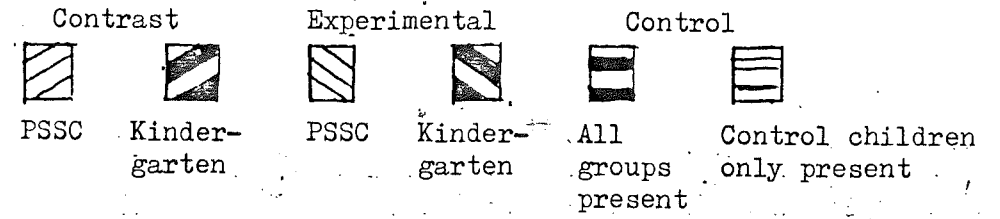


Figure Six

Mean proportion of time spent  
in play categories by group

Play Category    Functional

Key

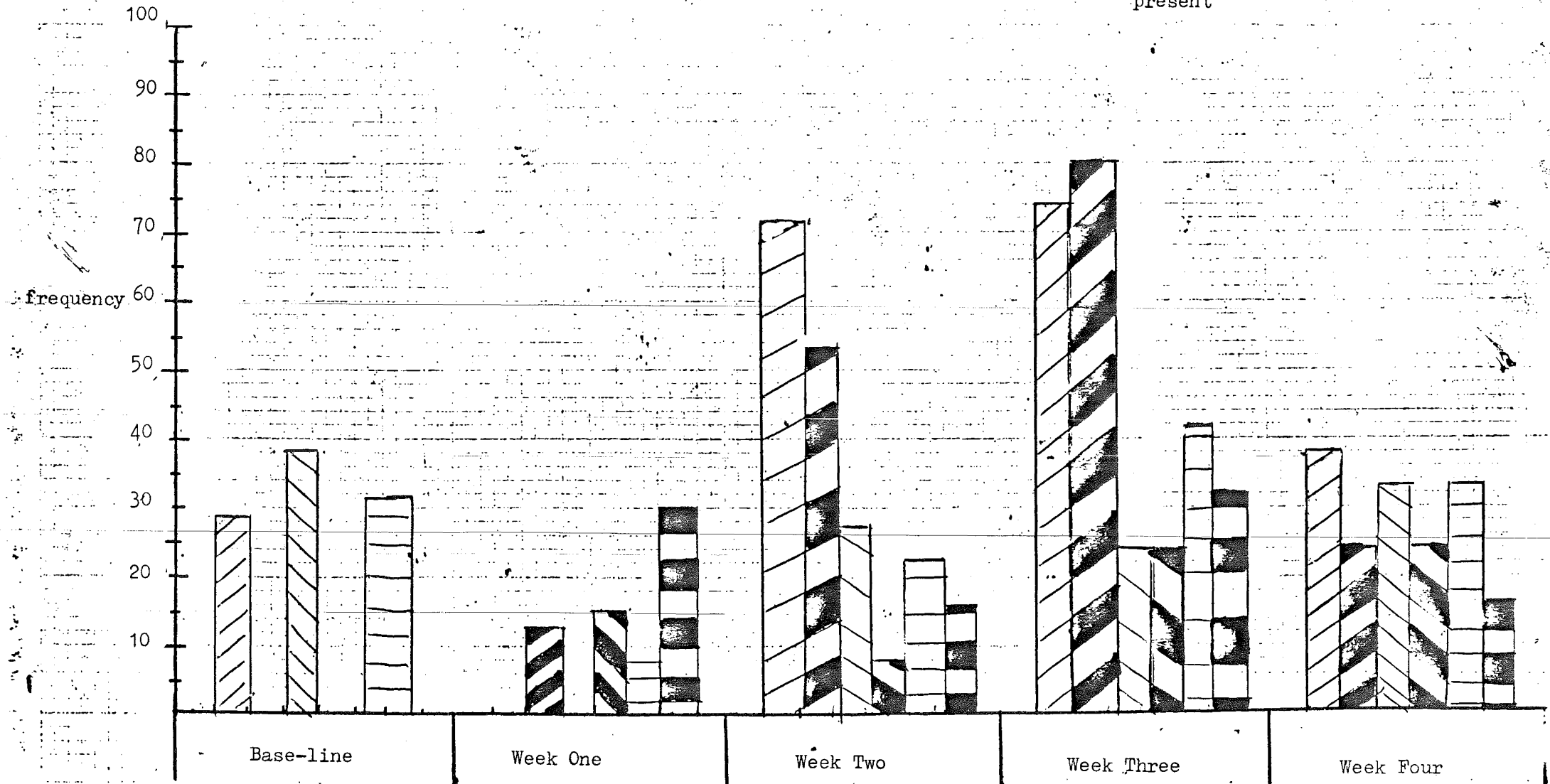
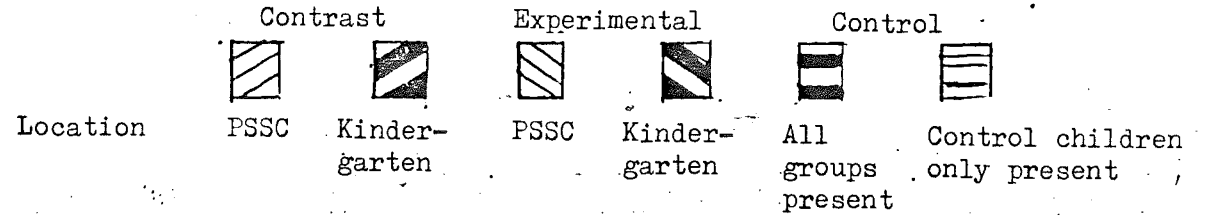


Figure Seven

Mean proportion of time spent  
in play categories by group

Play Category Constructive

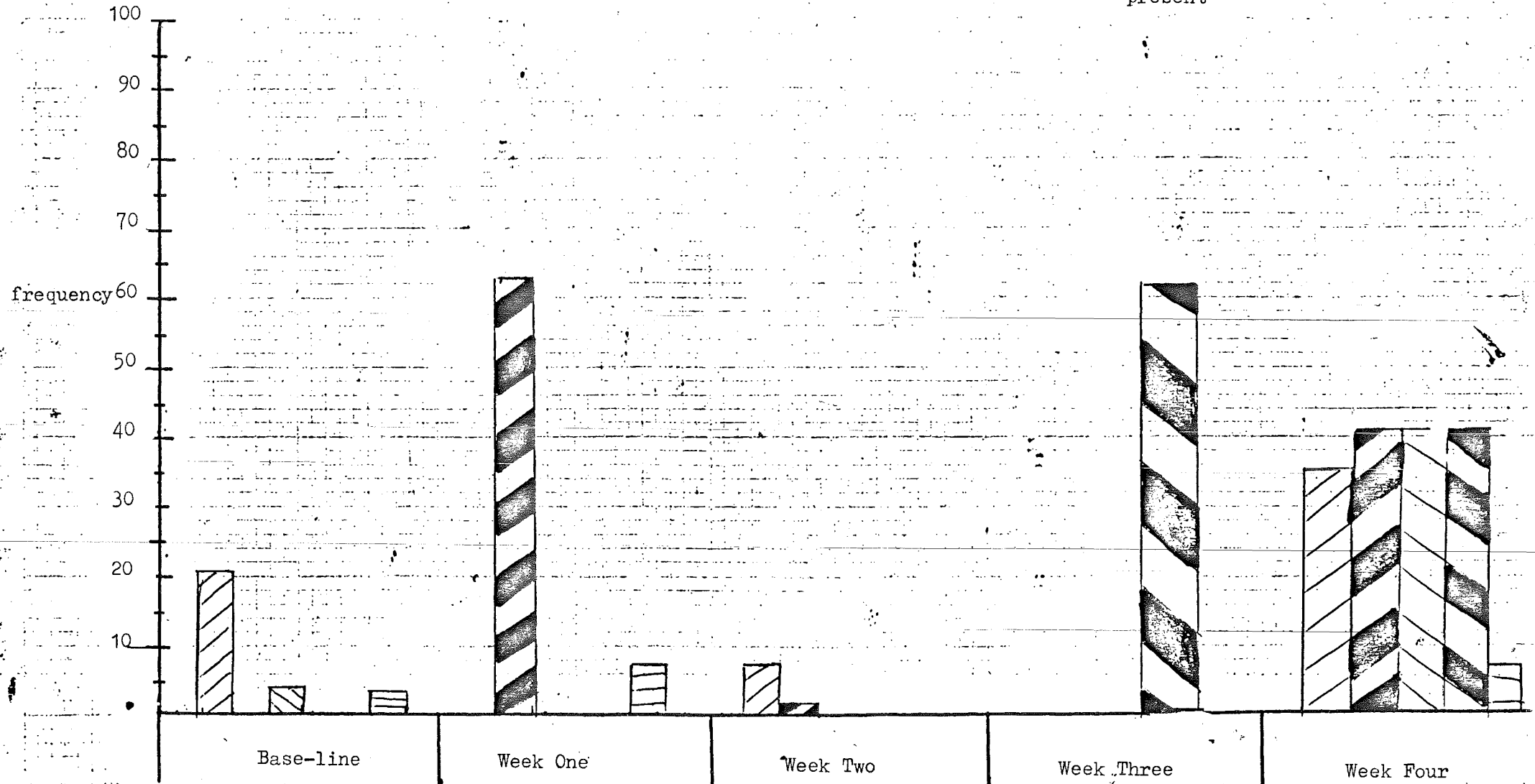
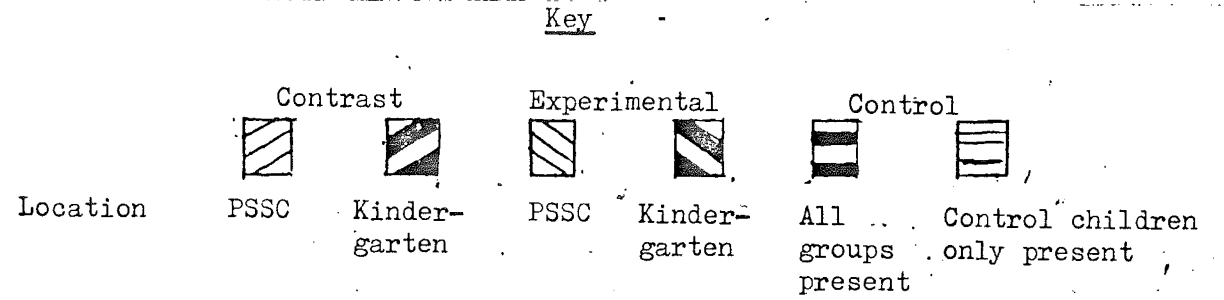


Figure Eight

Mean proportion of time spent  
in play categories by group

Play Category Dramatic

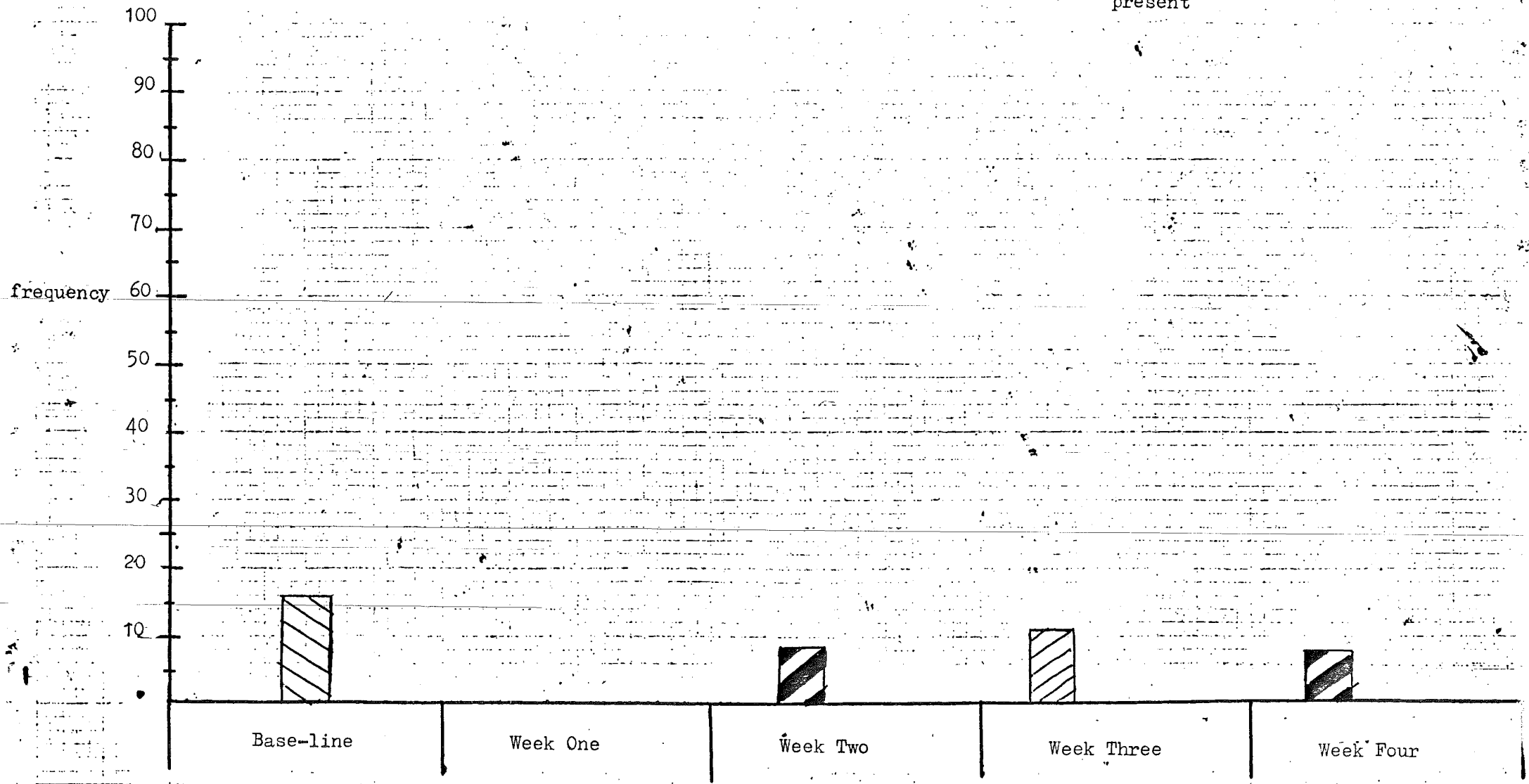
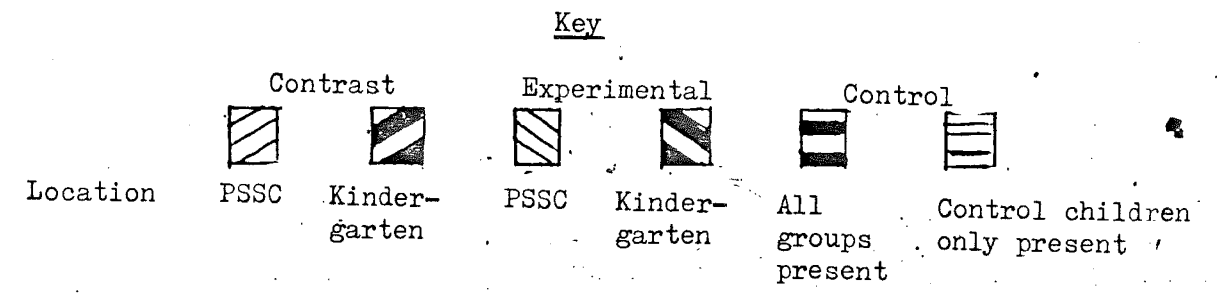


Figure Nine

$\bar{x}$  proportion of total observation time during which interaction occurred

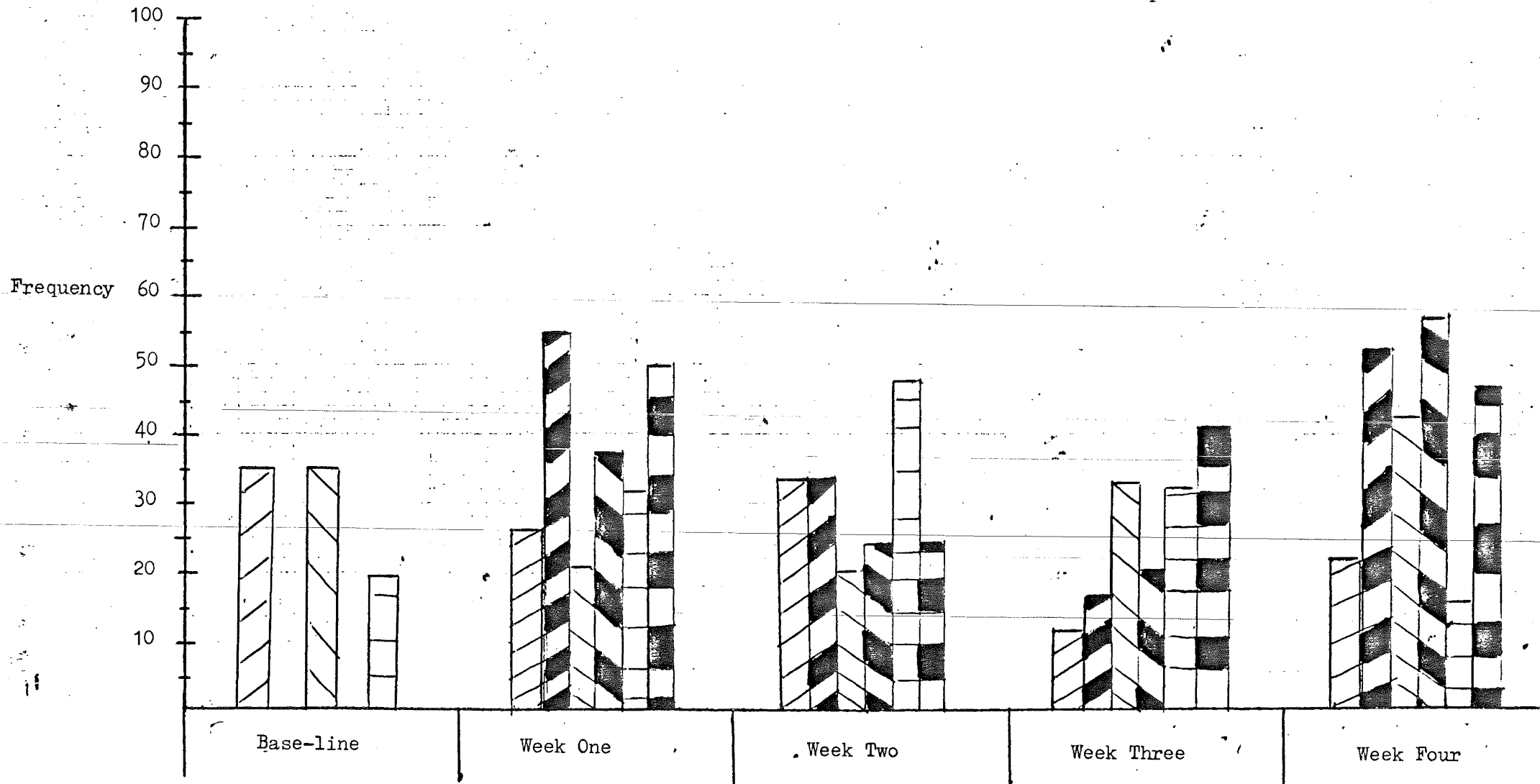
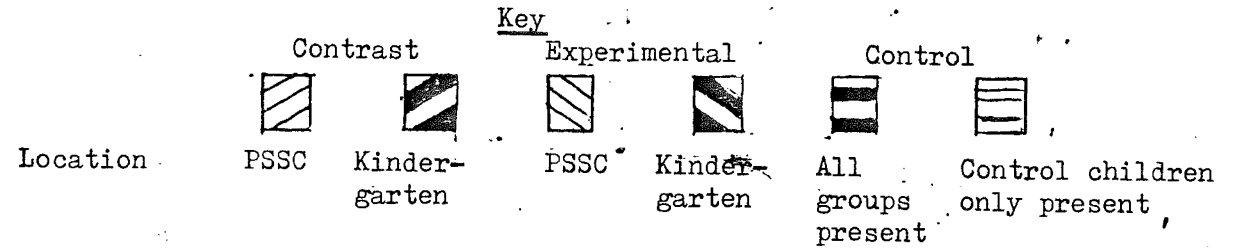




Figure Ten

$\bar{x}$  duration of interaction expressed in seconds

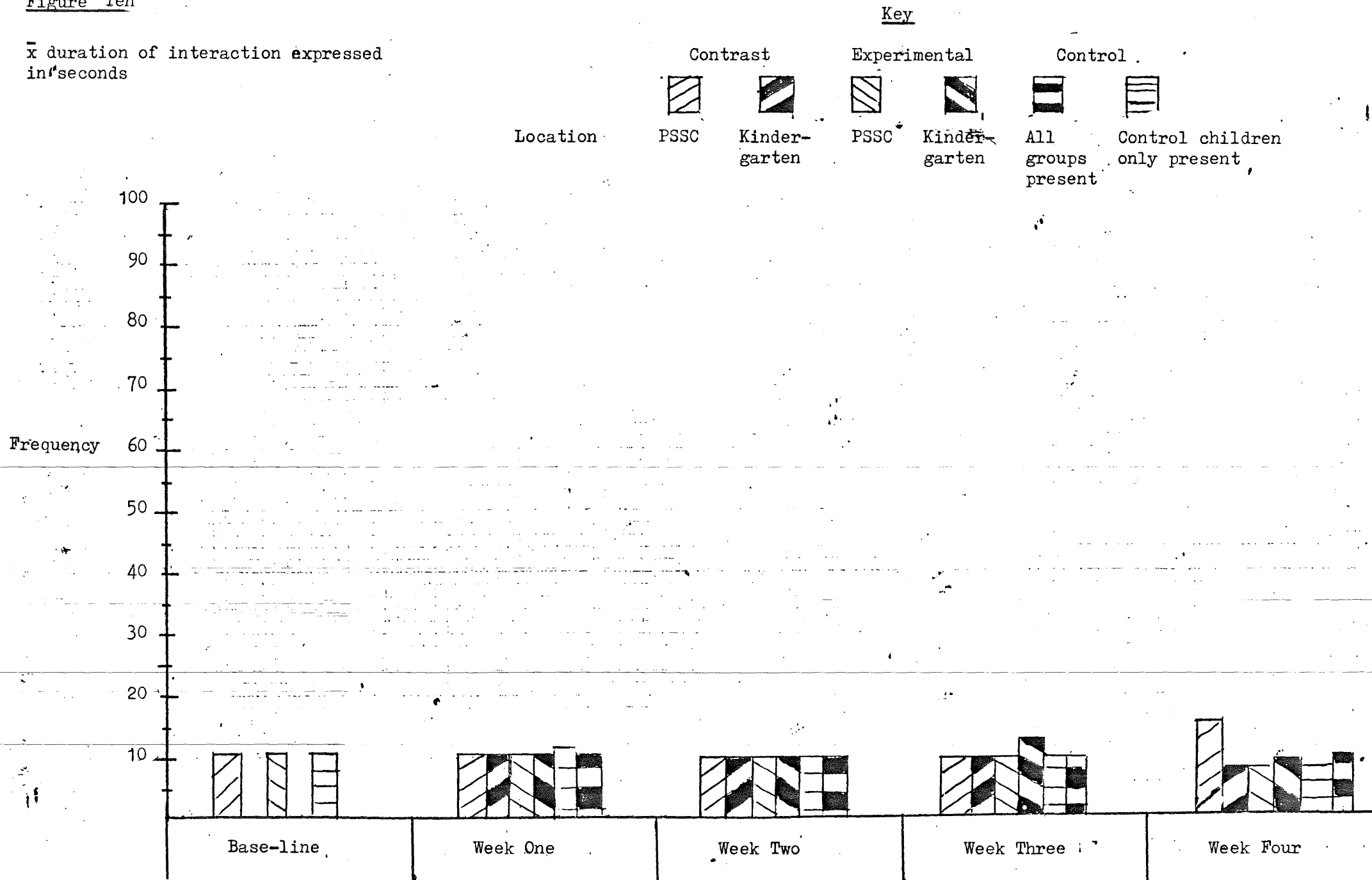


Figure Eleven

$\bar{x}$ , number of interactions per child by groups

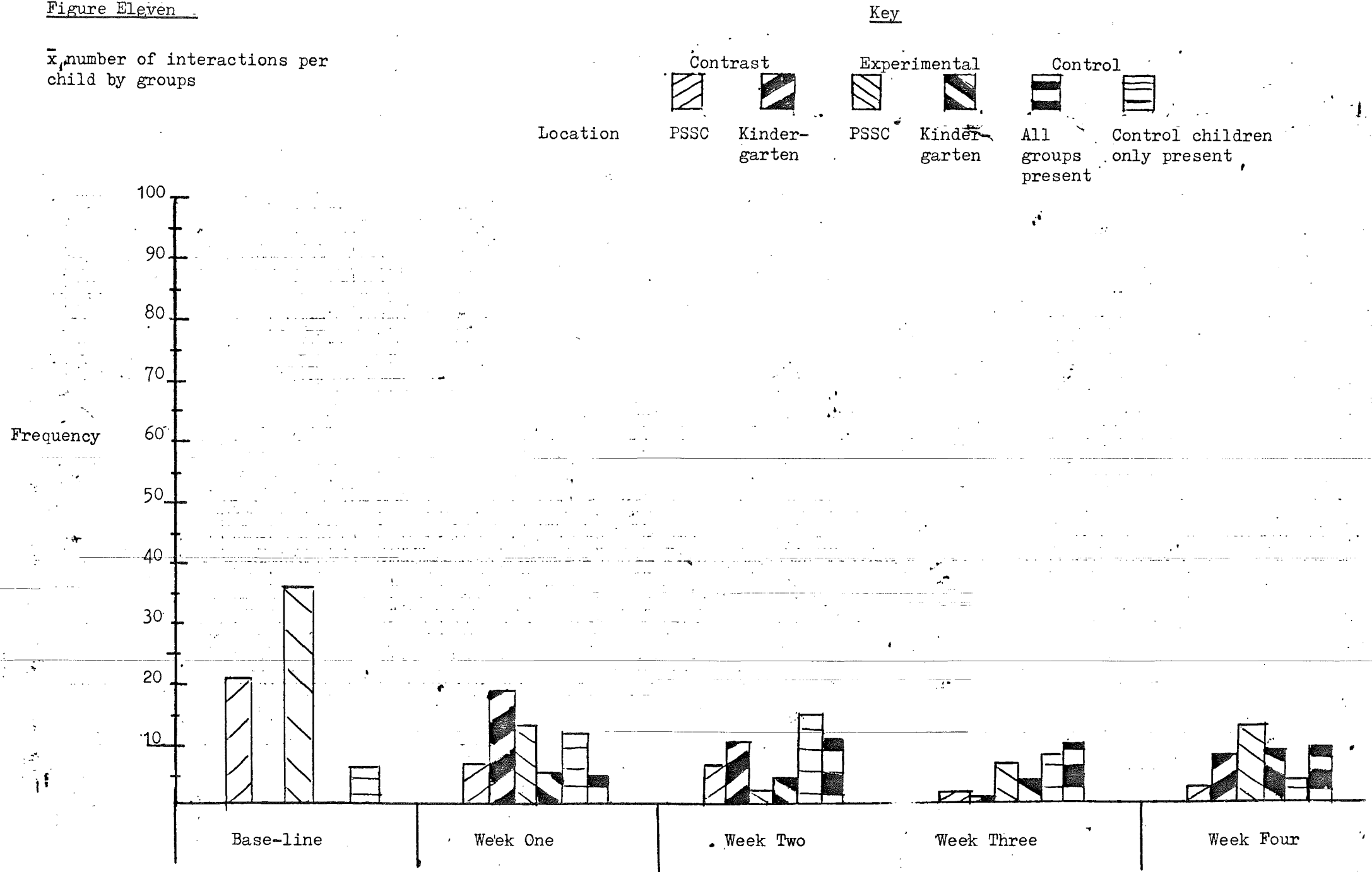








Figure Twelve

$\bar{x}$  % of total interaction time spent  
in verbal interaction

Key

	Contrast		Experimental		Control	
						
Location	PSSC	Kindergarten	PSSC	Kindergarten	All groups present	Control children only present

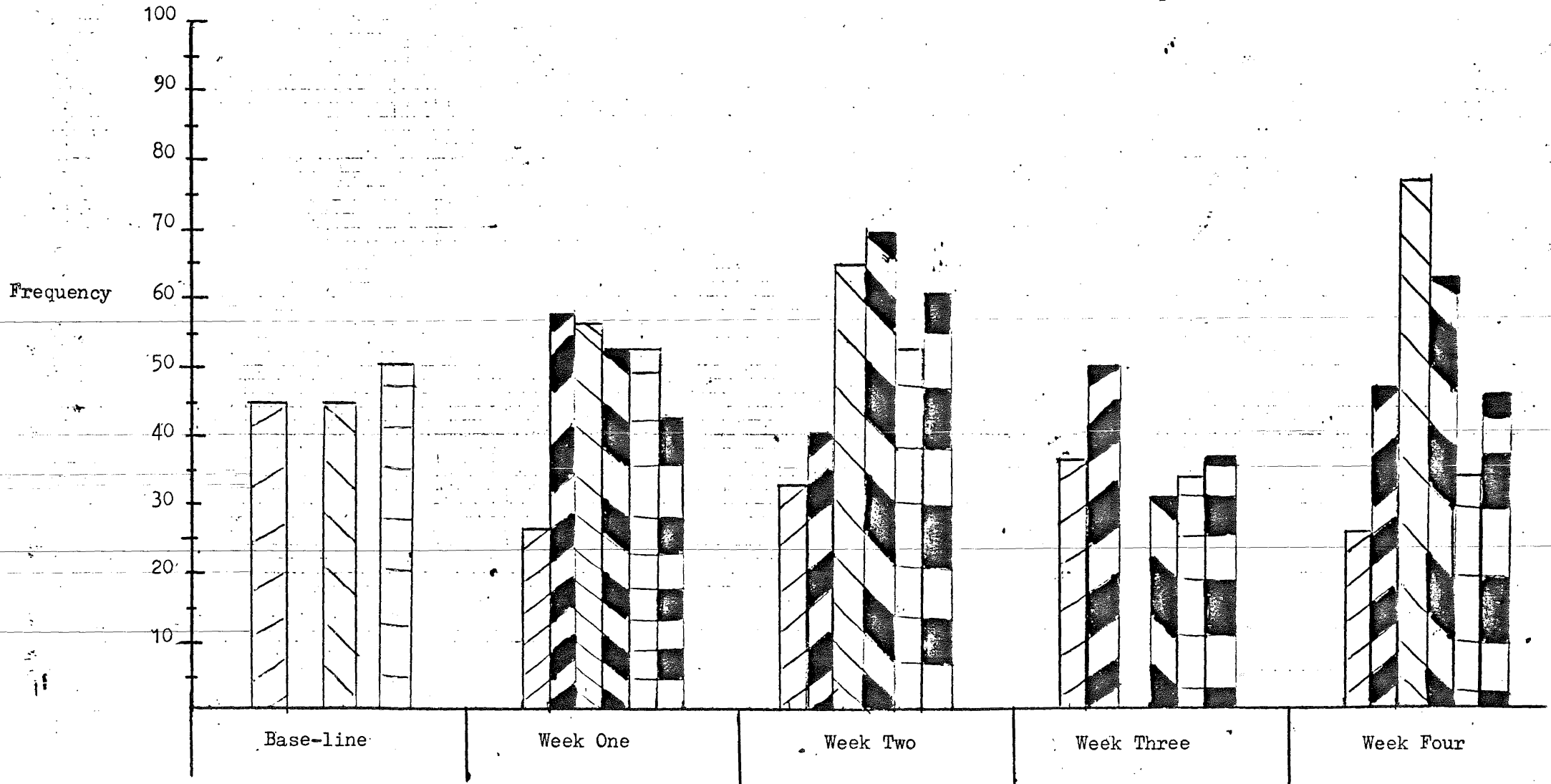


Figure Thirteen

$\bar{x}$  % of total interaction time spent in non-verbal interaction

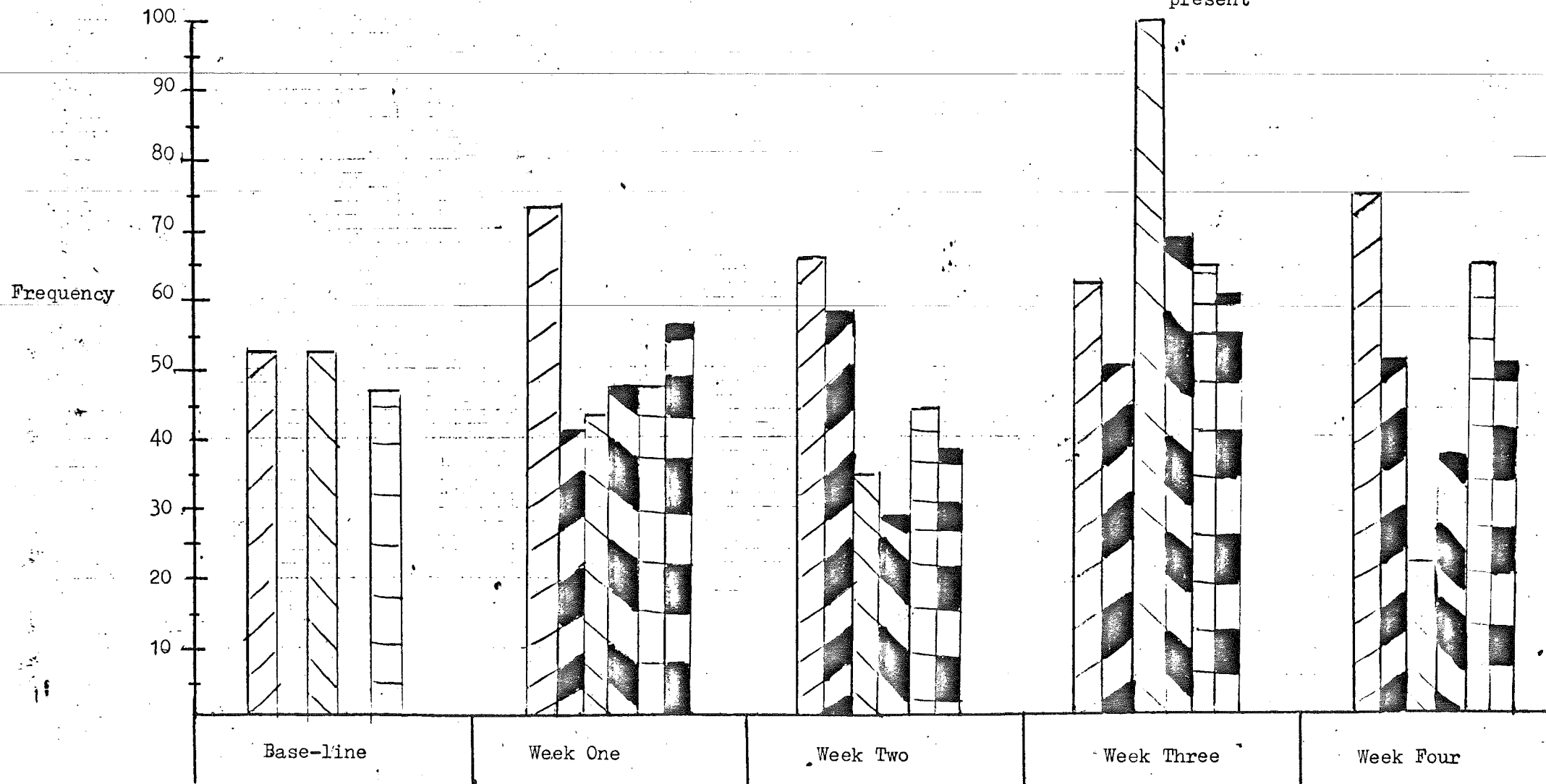
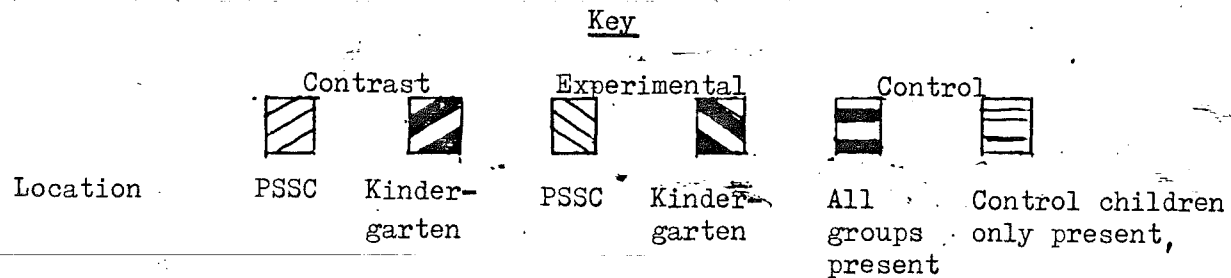


Figure Fourteen

$\bar{x}$  % of total interaction time spent  
in peer interaction

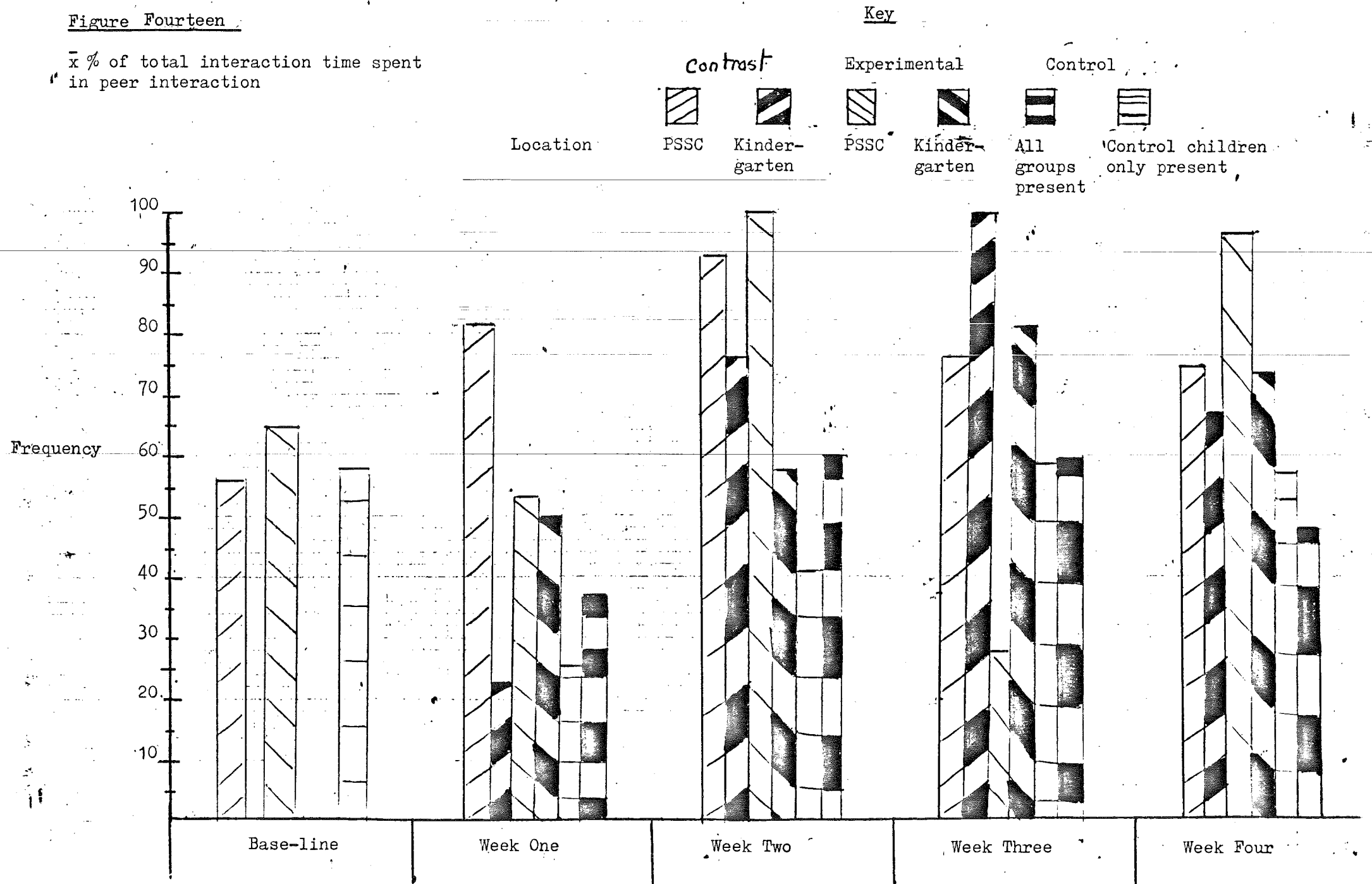


Figure Fifteen

$\bar{x}$  % of total interaction time spent in adult interaction

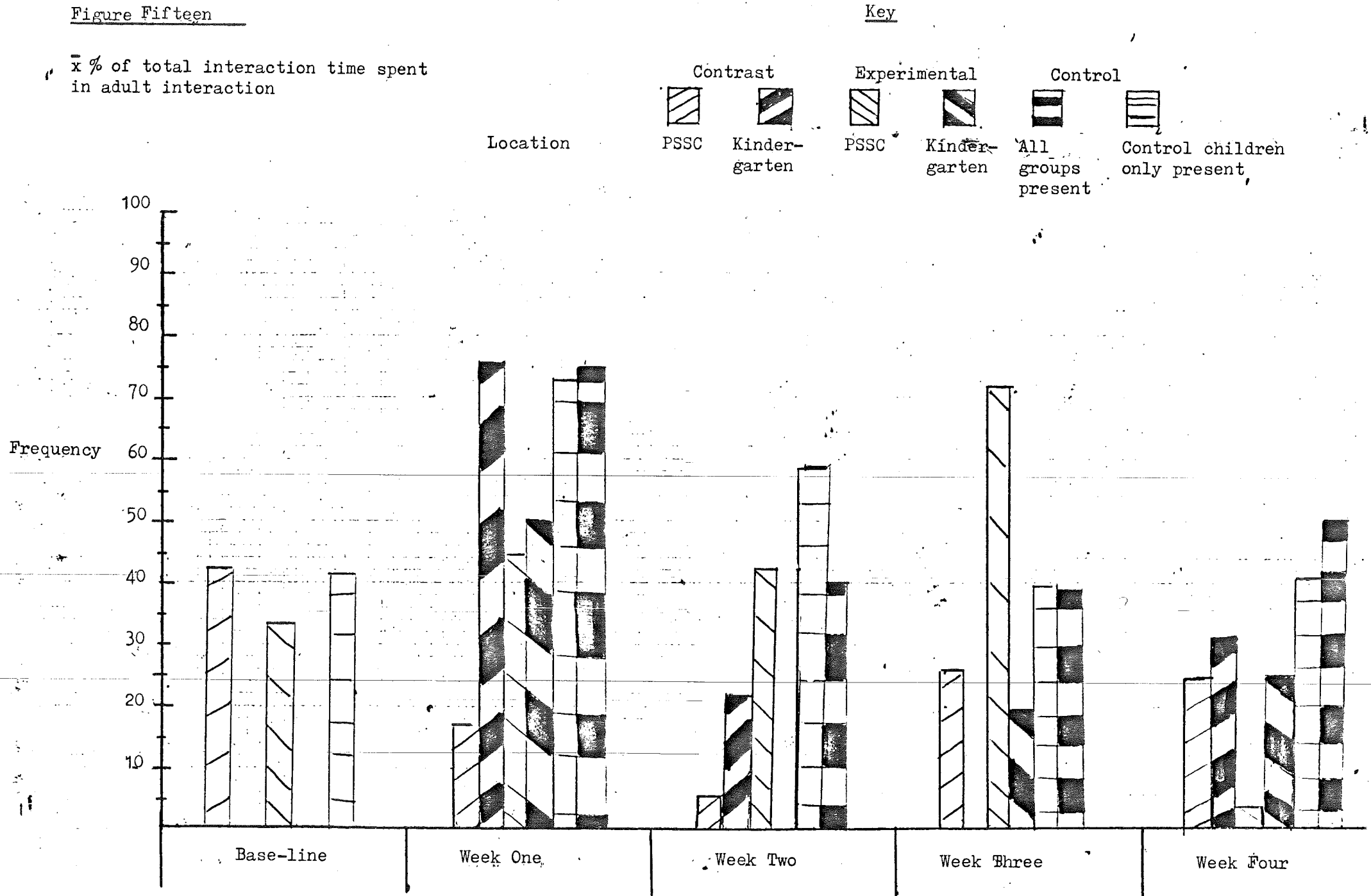


Figure Sixteen

$\bar{x}$  % of total interaction time where interaction was initiated by the subjects

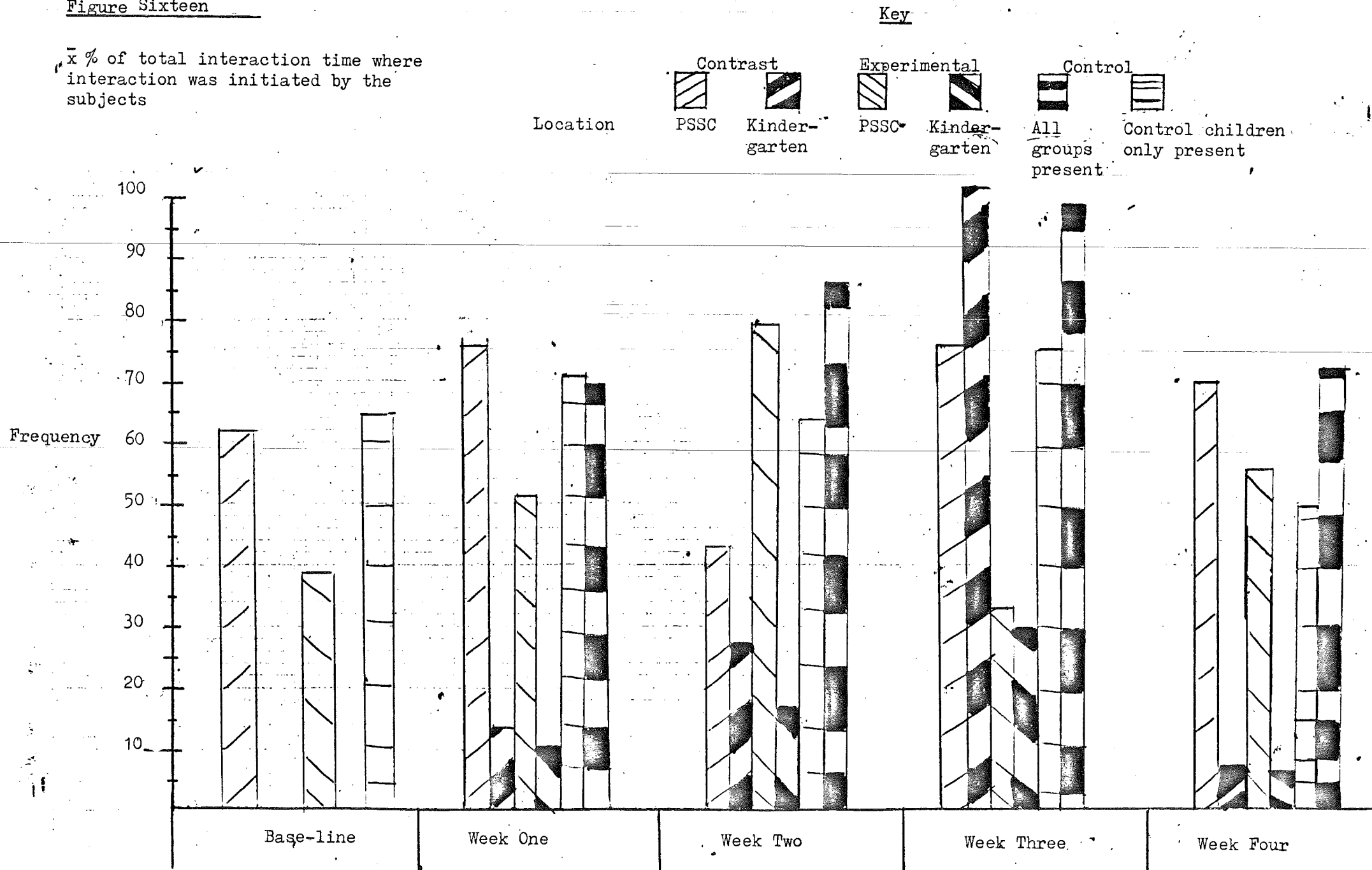


Figure Seventeen

$\bar{x}$  % of total interaction time where interaction was initiated by peers

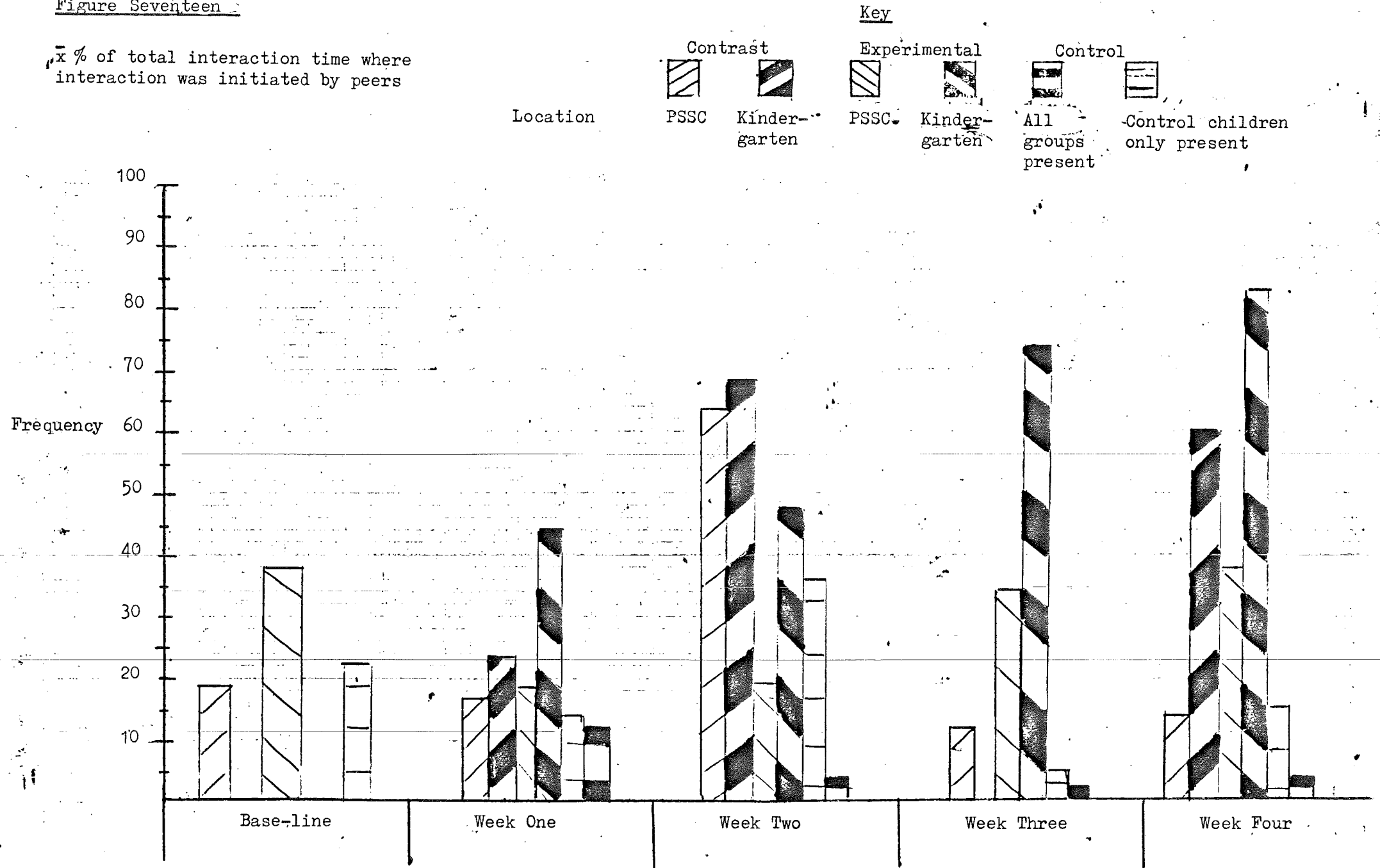




Figure Eighteen

$\bar{x}$  % of total interaction time where interaction was initiated by an adult

Key

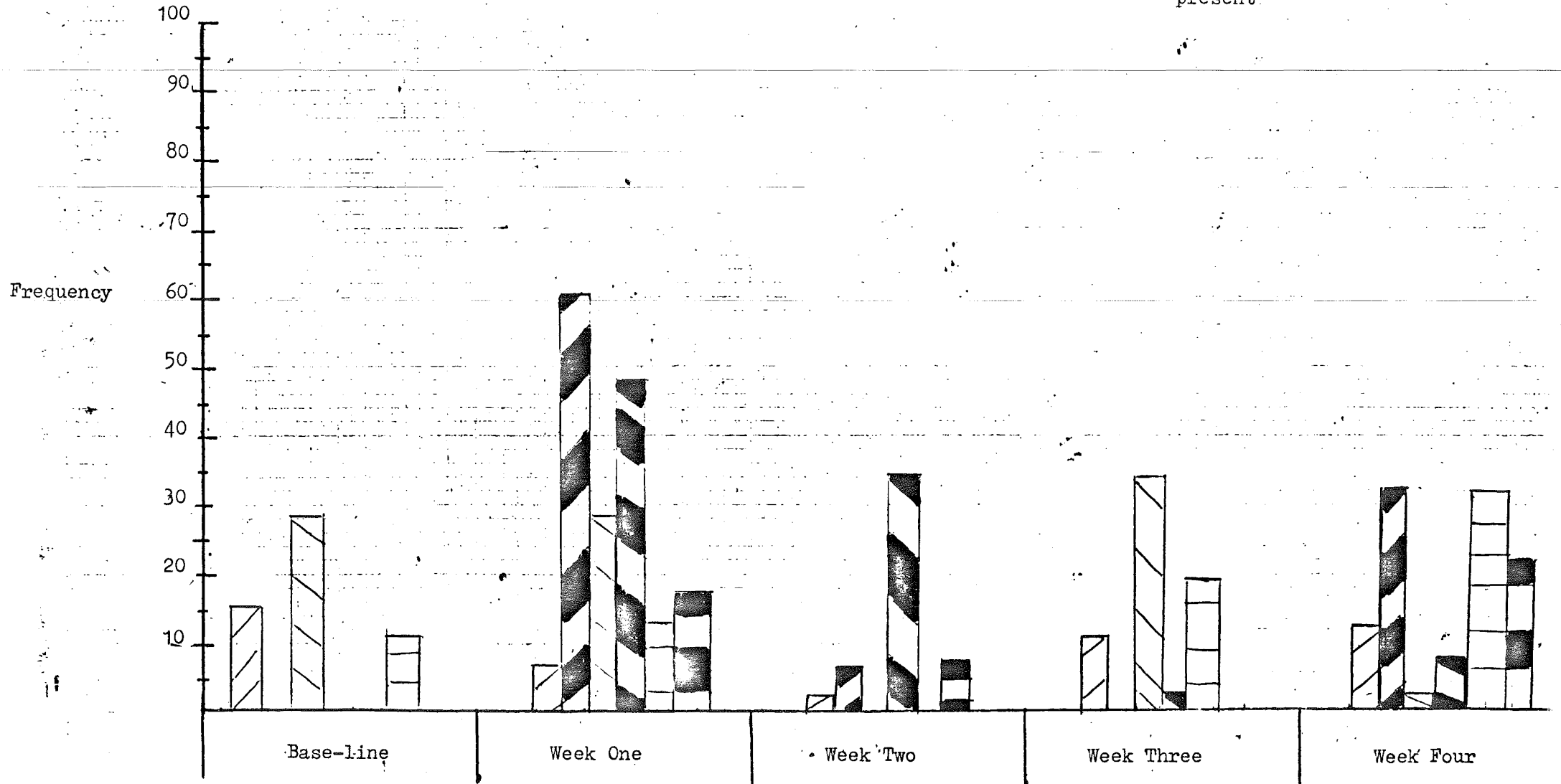
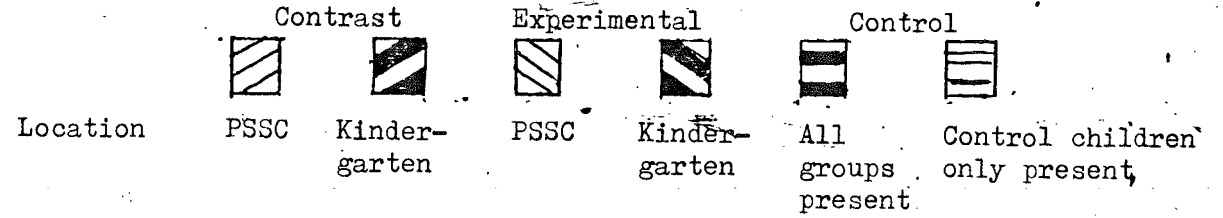
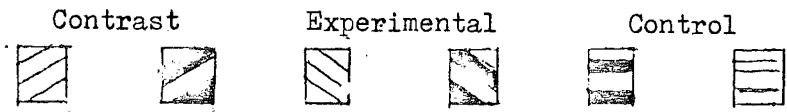


Figure Nineteen

$\bar{x}$  proportion of time by group spent giving and receiving positive reinforcement and consequences

Reinforcement Category 1. Positive attention and approval

Key



Location	PSSC	Kinder- garten	PSSC	Kinder- garten	All groups present	Control children only present
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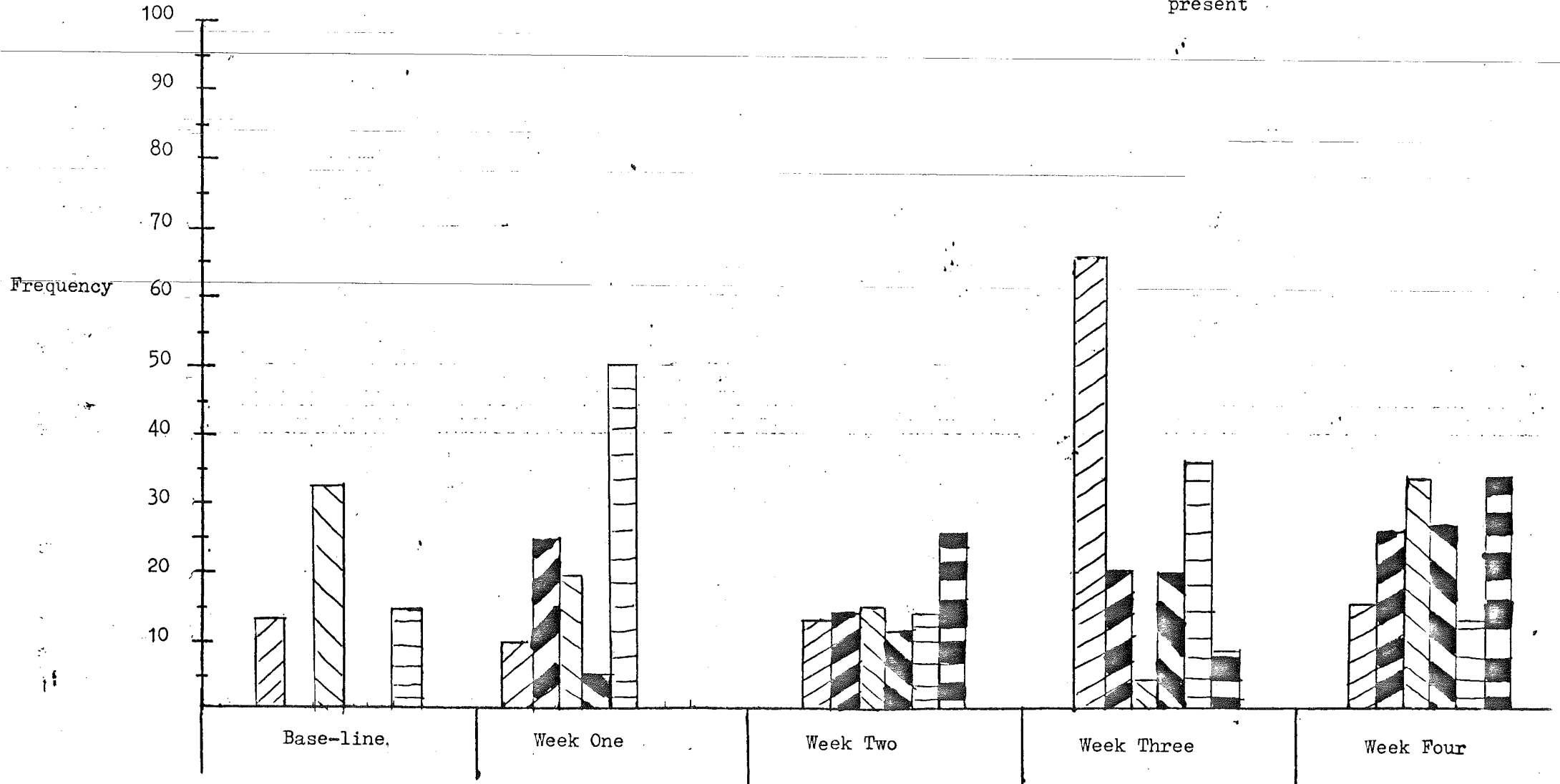


Figure Twenty

$\bar{x}$  proportion of time by group spent receiving and giving positive reinforcement and consequences  
Reinforcement Category 2 Affection and Acceptance

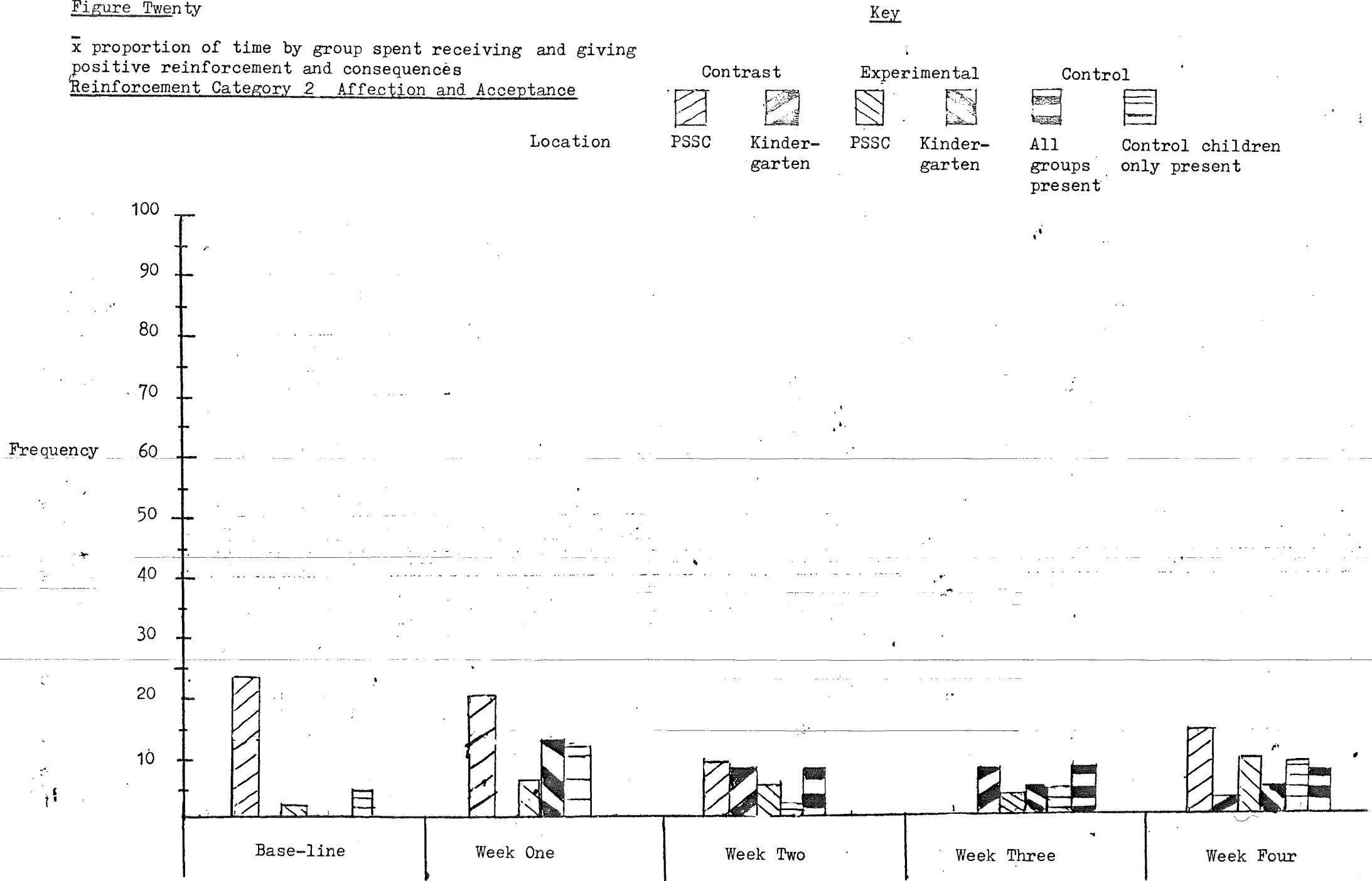


Figure Twenty-one

$\bar{x}$  proportion of time by group spent receiving and giving positive reinforcement and consequences  
Reinforcement Category 3 Submission

Key

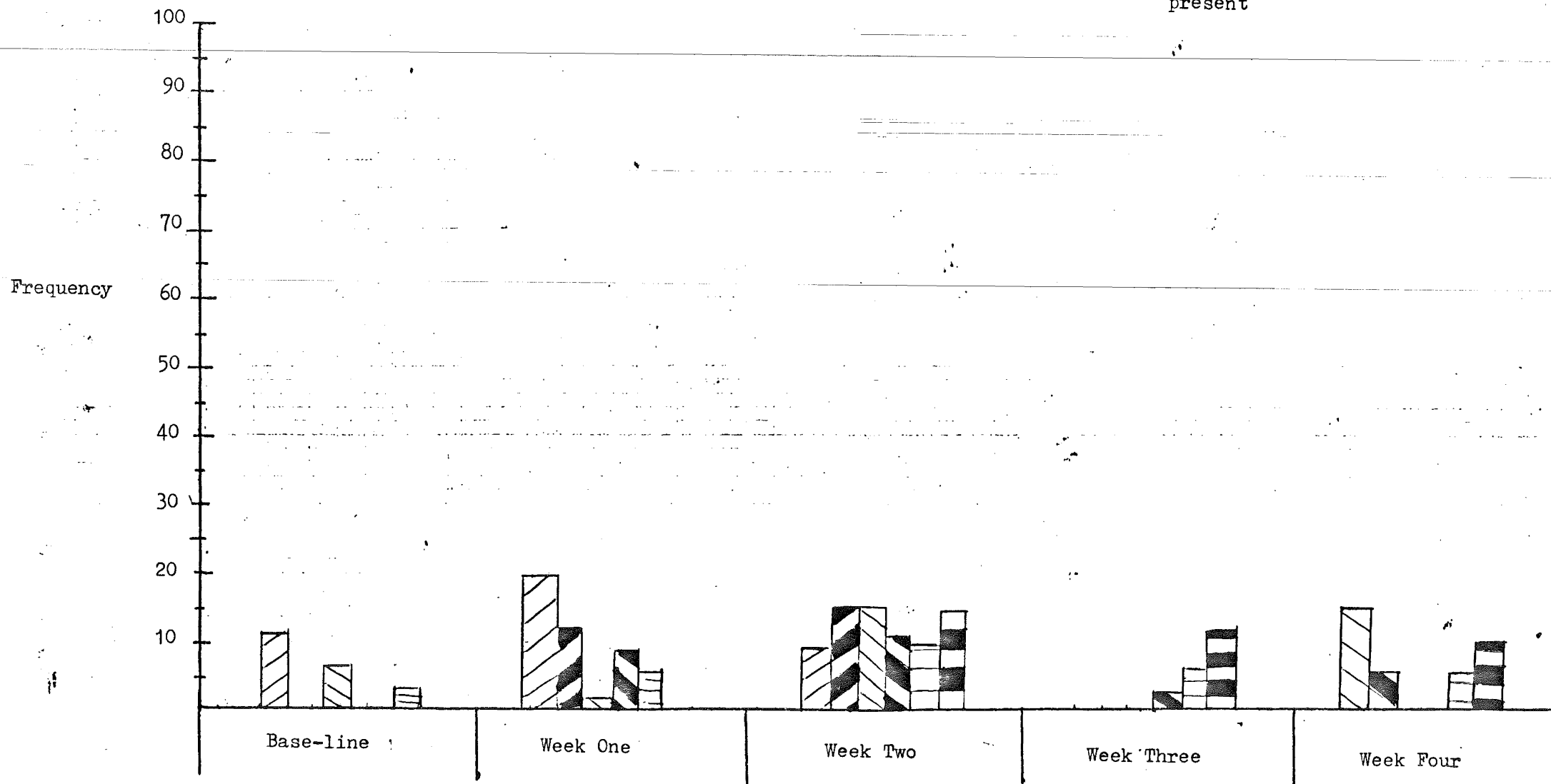
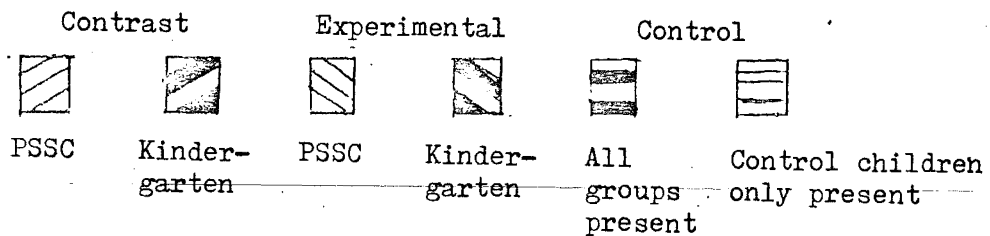


Figure Twenty-two

$\bar{x}$  proportion of time by groups spent receiving and giving positive reinforcement and consequences  
Reinforcement Category 4 Token giving

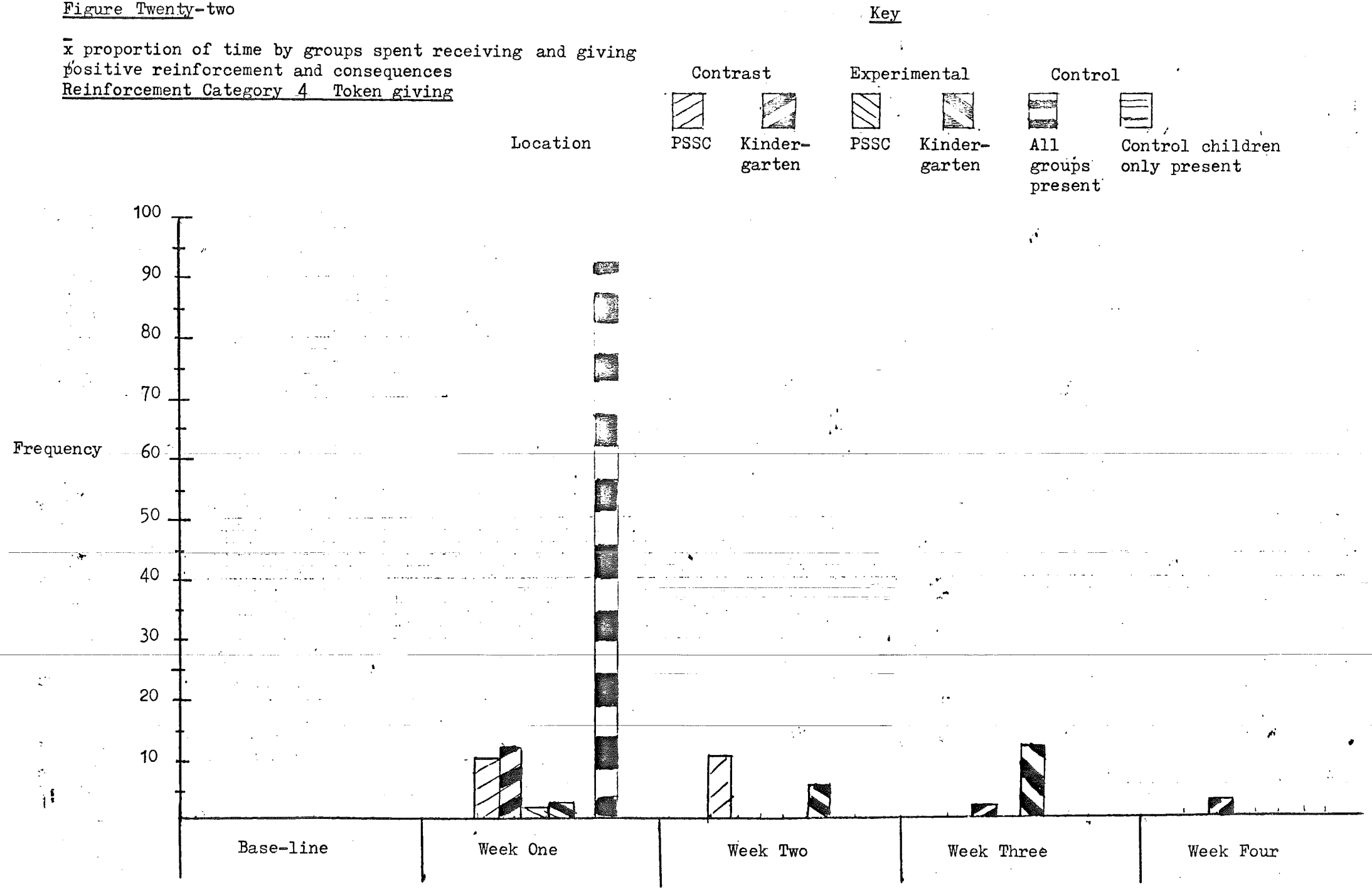


Figure Twenty-three

$\bar{x}$  proportion by groups of time spent receiving and giving positive reinforcement and consequences  
Consequence Category 1 Change of behaviour

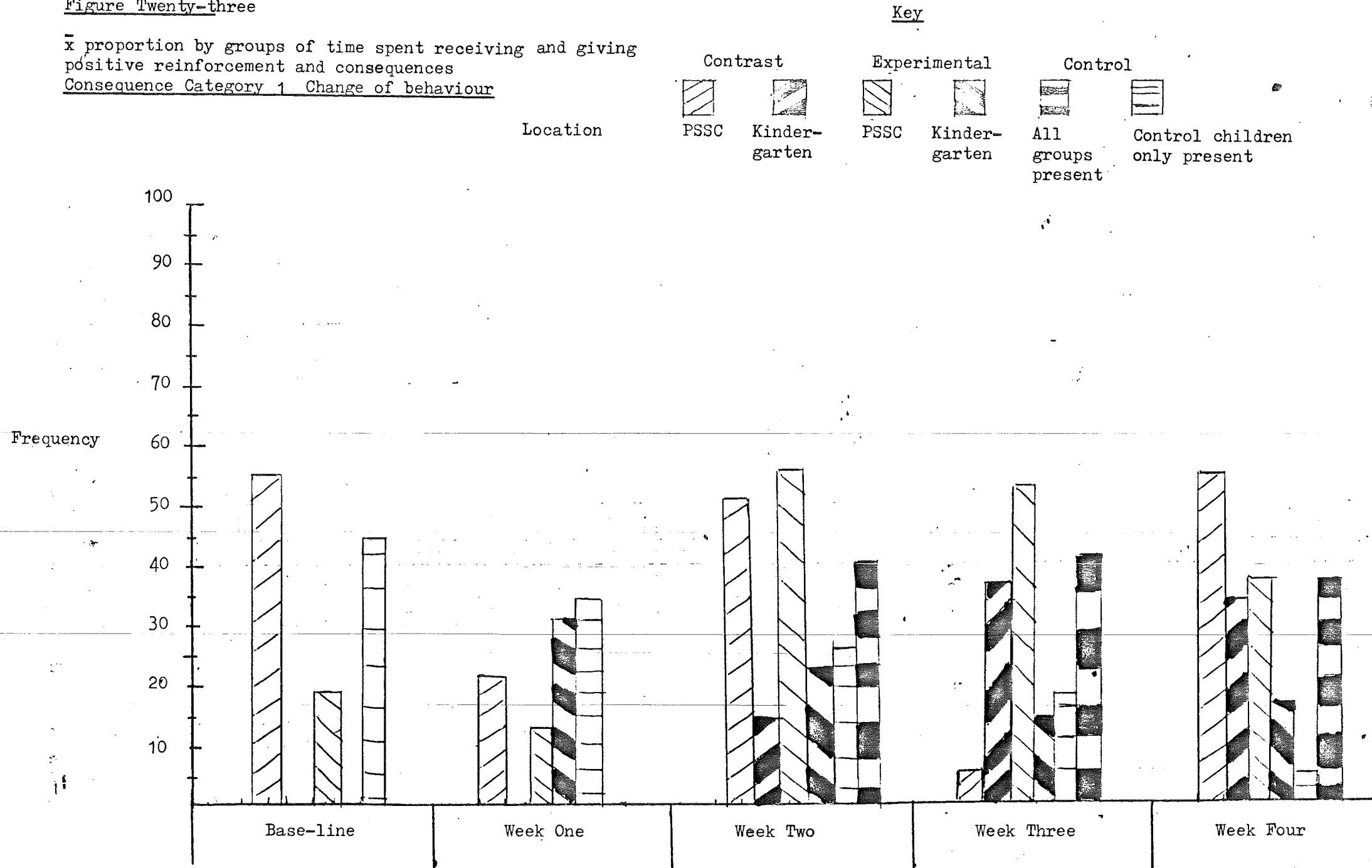


Figure Twenty-four

$\bar{x}$  proportion by groups of time spent receiving and giving positive reinforcement and consequences  
Consequence Category 2 Maintenance of behaviour

Key

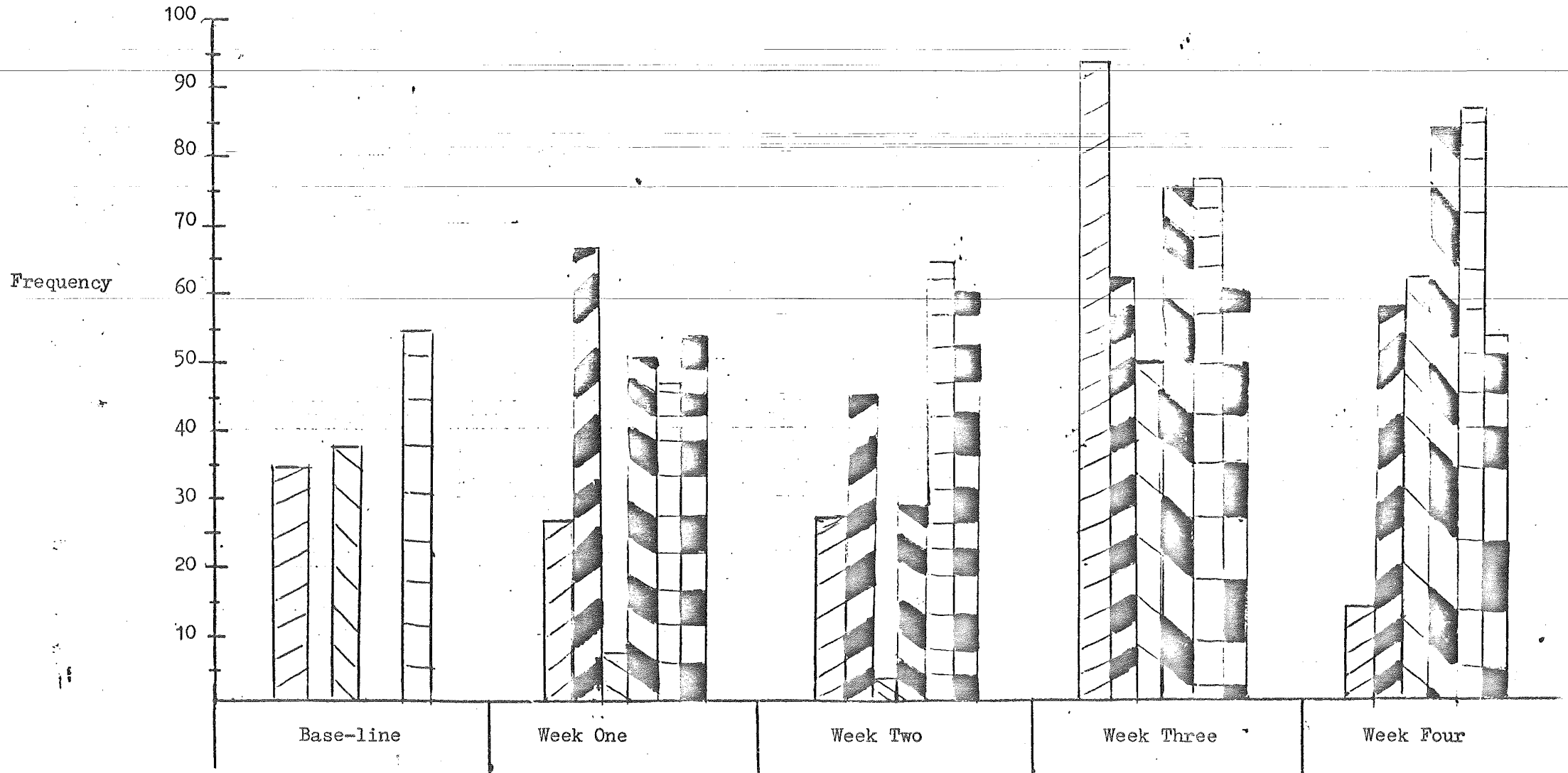
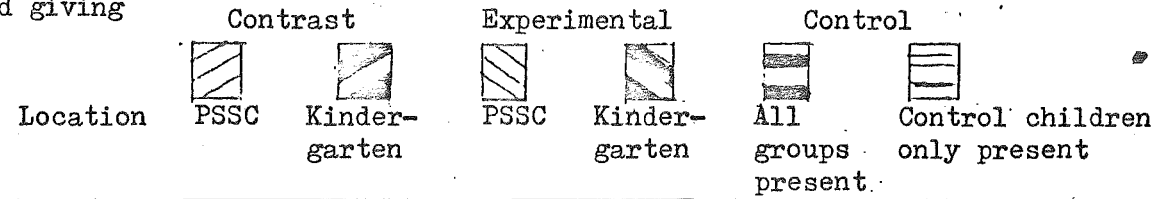


Figure Twenty-five

$\bar{x}$  proportion by groups of time spent receiving and giving positive reinforcement and consequences  
Consequence Category -3- Rejection overtures

