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UNIVERSITY OF KEELE

**The Evaluation of Children's Development  
in the Nursery**

by

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of Doctor of Philosophy in Psychology  
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ABSTRACT

1. The nursery tradition and its influence on current practice within pre-school provision is described. Recent criticisms of nursery practice are discussed and alternative forms considered. The introduction into the pre-school of a system of assessment and recording is proposed and the possible benefits that such an introduction might bring described.
2. The attitudes of nursery staff towards nursery practice and their role within it are investigated in a questionnaire study. An emphasis on the provision of a child-centred environment is found.
3. Nursery staff's perceptions of their pupils are examined by means of a repertory grid study. Conclusions for a system of assessment in the nursery are drawn.
4. The assessment of child's play within the nursery is considered. It is concluded that a system of assessment appropriate for use by nursery staff must be based on direct observation and testing in a semi-structured situation.
5. Constraints upon the design of systems of assessment for the nursery are discussed. The initial development of the Keele Pre-School Assessment Guide (KPAG) is described and the findings of a pilot project involving the assessment by nursery teachers of 50 children are presented.

6. A description of the revised KPAG is given. A study involving the assessment of 145 children by teachers in nurseries is described and the results presented in terms of simple frequency distributions.
7. The reliability and validity of the KPAG is investigated.
8. An alternative means of assessment of the nursery child involving the analysis and evaluation of his human figure drawings is discussed and the results of empirical studies presented. It is concluded that such a system of assessment is complementary to the KPAG.
9. A multifactorial analysis of the data obtained from previous studies using the KPAG is presented. The relationship between the findings of this analysis and other factors influencing staff perceptions of nursery children is investigated empirically.
10. The results of a longitudinal study of progress in the nursery are presented. It is suggested that the nursery environment may not be optimal for all groups of children.
11. The implications of the studies for nursery practice are discussed.



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CONTENTS

	<u>Page</u>
Abstract	i
Acknowledgements	iii
Contents	vi
Tables	xi
Figures	xvii
1. A perspective on nursery theory and practice	1
Introduction	1
The nursery tradition	7
Current nursery practice	16
Nursery provision and recent research	20
Possible benefits of assessment in the nursery	26
2. The aims and attitudes of staff in pre-school provision.	31
Introduction	31
Study 2.1. A questionnaire study of the aims and attitudes of staff in the pre-school.	31
The design of the questionnaire	37
Areas of study	39
The subjects	41
Results	43
Discussion	56
3. Staff perceptions of pupils in nursery education.	61
Introduction	61
Study 3.1. Nursery staff's perceptions of their pupils.	64
Subjects	65
Procedure	65
Discussion	69
Conclusions for assessment in Nursery Education	82

CONTENTS (continued)Page

4. The assessment of play	85
Introduction	85
Types of play	85
The quality of play	96
The duration of the play episode	100
The sequence of elements	101
Social participation in play	102
Symbolic play	105
Language in play	107
Assessment and the Teacher	109
5. The development of the KPAG: the pilot project	113
Constraints upon a system of assessment	113
1. General means of assessment	118
2. Systems of assessment designed for use in the nursery.	121
Development of the Keele Pre-School Assessment Guide	123
Assessment of a child's typical performance	124
Assessment of the child's abilities	127
Cognition	128
Physical skills	129
Socialization	129
Language	130
Study 5.1 Pilot project to investigate the usefulness of the Keele Pre-School Assessment Guide.	132
Subjects	132
Procedure	132
Results	132
Discussion	134
6. The development of the KPAG (ii) The revised form	139
Revision of the KPAG	139
Study 6.1. An evaluation of the revised form of the KPAG.	141
Subjects	141

<u>CONTENTS</u> (continued)	<u>Page</u>
Procedure	141
Results	143
Discussion	156
 7. The reliability and validity of the KPAG	 164
Study 7.1. Section I: Inter-rater reliability	172
Subjects	172
Results	173
Discussion	175
Study 7.2 Section I: Intra-rater reliability	181
Subjects	181
Procedure	182
Results	182
Discussion	184
Study 7.3 Section II: The internal consistency of the items	186
Subjects	186
Procedure	186
Discussion	190
Study 7.4. Section II: The validity of the items	190
Subjects	190
Procedure	190
Results	190
Discussion	193
Conclusions	193
 8. The Assessment of Children's Drawings	 196
Introduction	196
Developmental Stages in Children's Drawings	197
Children's drawings of human figures	203
Systems of analysing human figure drawings	209
Children's drawings and the medium employed	218
Study 8.1: The human figure drawings of children receiving nursery education	219
Subjects	220

<u>CONTENTS</u> (continued)	<u>Page</u>
Reliability of scoring procedures	222
Results	226
Study 8.2: The stability of pre-school children's human figure drawings	238
Subjects	239
Procedure	239
Results	239
Discussion	239
Study 8.3: The relationship between the scoring of children's human figure drawings and the child's performance on the KPAG.	242
Subjects	242
Procedure	242
Results	243
Discussion	243
Conclusions	245
9. A Multifactorial analysis of the KPAG	247
Study 9.1: Multifactorial analysis of the KPAG.	247
Subjects and method	247
Results	248
Discussion	264
Study 9.2: The relationship between factors of physical attractiveness and likeability and nursery staff's ratings of children.	271
Subjects	271
Method	272
Results	272
Discussion	274
10. A Longitudinal study of progress in the nursery	279
Study 10.1: Assessment of the progress made by children in a nursery school	279
Subjects	279
Procedure	279
Results	279
Discussion	284

CONTENTS (continued)Page

11. Summary and Conclusions	287
Appendix A : Pre-School Questionnaire	297
Appendix B : Repertory Grid Analysis: Procedure and Definitions	303
Appendix C : Items used in pilot study of assessment guide, Section II.	310
Appendix D : Final form of assessment guide. (Manual and record form)	340
Appendix E : Form for Study 7.1	386
Appendix F : Summary of items scored in analysis of human figure drawings.	387
System A (after McCarthy, 1972)	387
System B (after Koppitz, 1968)	390
System C	392
References	393



TABLES

<u>Table</u>		<u>Page</u>
2.1	Distribution and return of Questionnaires in Area A.	42
2.2	Proportion of Staff in each form of Nursery having children of their own.	44
2.3	Proportion of staff responses emphasising particular motives for working in nurseries for different forms of Nursery in Area A.	46
2.4	Proportion of staff responses emphasising particular benefits derived by the children from particular forms of provision.	48
2.5	Proportion of staff responses emphasising general areas of benefit derived by the children from particular forms of provision.	50
2.6	Order of priority given to alternative programmes by staff in different types of nursery.	51
2.7	Planning of activities in the pre-school. Numbers and proportions of staff admitting to different forms of planning in the nursery environment.	53
2.8	Number and proportion of staff endorsements of differing forms of role for staff in the pre-school.	54
3.1	Categorisation of constructs elicited by repertory grid techniques,	71
3.2	Frequency and proportion of superordinate constructs elicited by type of staff.	73
3.3	Rank order of superordinate construct categories by frequency of elicitation.	74
3.4	Frequency and proportion of the most frequently elicited subordinate categories of constructs by type of staff.	75

TABLES (continued)

<u>Table</u>		<u>Page</u>
3.5	Rank Ordering by importance of elicited constructs by teachers and nursery nurses.	77
4.1	Characteristics of Investigation and Play (from Hutt,1970).	88
4.2	Characteristics of Epistemic and Ludic behaviours (after Hutt,1980).	91
4.3	Criteria cited for the assessment of quality in Play.	98
4.4	Categorisation of Play by degree of participation (after Parten,1932).	103
5.1	Distribution of subjects by items of Section I in pilot study of KPAG.	133
5.2(i)	Distribution of subjects passing items of Section II by age in pilot study of KPAG.	135
5.2(ii)	Distribution of subjects passing items of Section II by age in pilot study of KPAG (continued).	136
5.2(iii)	Distribution of subjects passing items of Section II by age in pilot study of KPAG (continued).	137
6.1	Distribution of subjects in study of revised version of KPAG by sex and age.	142
6.2	Distribution of subjects in study of KPAG by sex and by handedness. (frequency and percentage).	144
6.3	Distribution of subjects by items of Section I in study of KPAG. (frequency and percentage).	146
6.4	Correlation Coefficients for items on Section I with age.	148
6.5(i)	Distribution of subjects passing items of Section II by age and by sex.	150

TABLES (continued)

<u>Table</u>		<u>Page</u>
6.5(ii)	Distribution of subjects passing items of Section II by age and by sex. (continued).	151
6.5(iii)	Distribution of subjects passing items of Section II by age and by sex. (continued).	152
6.5(iv)	Distribution of subjects passing items of Section II by age and by sex. (continued).	153
6.5(v)	Distribution of subjects passing items of Section II by age and by sex. (continued).	154
6.6	Correlation of items on Section I with Total Scores on Section II.	157
6.7	Correlation of items on Section I with total scores on Section II.	158
7.1	Mean values and measures of inter-rater reliability for the six KPAG rating scales.	174
7.2(i)	Inter-rater reliability measures for the six KPAG rating scales by sex of child. (Boys)	176
7.2(ii)	Inter-rater reliability measures for the six KPAG rating scales by sex of child. (girls)	177
7.3(i)	Inter-rater reliability measures for the six KPAG rating scales by age of child. (3 years)	178
7.3(ii)	Inter-rater reliability measures for the six KPAG rating scales by age of child. (4 years)	179
7.4	Mean values and measures of within-rater reliability for the six KPAG rating scores.	183
7.5	Reliability coefficients (corrected by Spearman-Brown formula) and standard errors of measurement of the four scales of the KPAG Section II by age.	188

TABLES (continued)

<u>Table</u>		<u>Page</u>
7.6	Reliability coefficients for the four scales of KPAG Section II and total score.	189
7.7.	Correlation between McCarthy Scales and KPAG scales.	192
8.1	Age and sex distribution of subjects in Study 8.1.	221
8.2	Intra- and Inter-scorer reliabilities; correlations between scores awarded by three scorers of children's Human Figure Drawings for systems A and B.	224
8.3(i)	Percentage of children obtaining scores on items of System A, and mean scores by sex and age.	227
8.3(ii)	Percentage of children obtaining scores on items of System A, and mean scores by sex and age. (continued).	228
8.4.	Comparison between mean scores on System A and those quoted in normative study of McCarthy scales of children's abilities (McCarthy, 1972).	229
8.5(i)	Percentage of children scoring on particular items of System B, By sex and age.	230
8.5(ii)	Percentage of children scoring on particular items of System B, By sex and age, (continued).	231
8.6	Percentage of children obtaining score on System C, by age and sex.	233

TABLES (continued)

<u>Table</u>		<u>Page</u>
8.7	Analysis of variance of scores on human figure drawings (System A) by age and sex.	234
8.8	Analysis of variance of scores on human figure drawings (System B) by age and sex.	235
8.9	Analysis of variance of scores on human figure drawings (System C) by age and sex.	236
8.10	Comparison of scores of drawings from nursery and clinical samples by Systems A and B.	237
8.11	Stability coefficients for each system of scoring by sex and age.	240
8.12	Some stability coefficients reported from recent studies of the Draw-A-Man Test.	241
8.13	Correlation of Human figure drawing scores with scores on relevant sections of the Keele Pre-School Assessment Guide.	244
9.1	Correlation matrix for variables from Section I of KPAG.	249
9.2	Results of principal component analysis of Section I of the KPAG.	250
9.3	Results of classical factor analysis of Section I of the KPAG.(unrotated solution with iterations).	252
9.4	Characteristics of the four cluster groups.	255
9.5(i)	Mean Scores for each Group on each item of Section II of the KPAG.	262
9.5(ii)	Mean Scores for each Group on each item of Section II of the KPAG. (continued).	263

TABLES (continued)

<u>Table</u>		<u>Page</u>
9.6	Comparison of Nursery Teachers and Nursery Nurses Allocation of Children to Cluster Groups.	265
9.7	Nursery Teachers and Nursery Nurses ratings of Boys and Girls for physical attractiveness and 'likeability'.	273
9.8	Comparisons between Nursery Staff's perceptions of Children and their ratings for physical attractiveness and likeability.	275
10.1	Distribution of children by cluster group at commencement of longitudinal study.	281
10.2	Results on Section II of the KPAG in a longitudinal study of children's progress in the nursery school.	283

FIGURES

<u>Figure</u>		<u>Page</u>
1.1	Proportion of time spent by children in different play activities in four forms of pre-school provision. (from Hutt <u>et al.</u> , in preparation)	18
4.1	A Taxonomy of Play (from Hutt, 1979)	90
6.1	Changes in mean ratings on Section I of the KPAG with age.	147
8.1	Example of Child's human figure drawing (1)	212
8.2	Example of Child's human figure drawing (2)	213
8.3	Example of Child's human figure drawing (3)	214
8.4	Example of Child's human figure drawing (4)	215
8.5	Example of Child's human figure drawing (5)	216
8.6	Example of Child's human figure drawing (6)	217
9.1.	Scattergram showing distribution of cluster groups with first two principal components as axes.	254
9.2.	Distribution of cluster group members on first scale, ability to mix.	256
9.3.	Distribution of cluster group members on second scale, aggressiveness.	257
9.4.	Distribution of cluster group members on third scale, confidence.	258
9.5.	Distribution of cluster group members on fourth scale, leadership.	259
9.6	Distribution of cluster group members on fifth scale, concentration.	260

FIGURES (continued)

<u>Figure</u>		<u>Page</u>
9.7.	Distribution of cluster group members on sixth scale, imagination.	261



## CHAPTER 1

### A PERSPECTIVE ON NURSERY THEORY AND PRACTICE

#### Introduction

The past fifteen years has seen an unprecedented growth of interest in children below the age of five and in the provision of education and day care services to meet their needs. In England and Wales this interest may be witnessed in Government reports (cf. Plowden Report, 1967; Seebohm Report, 1968; D.E.S., 1972), in the initiation of a substantial number of research projects (Tizard, 1975), in the expansion of nursery education and in the rapid rise of the Preschool Playgroups Association. The present study is evidence of the same concern since it formed part of a larger project (Hutt et al., in preparation) whose foundation followed the publication of the government White Paper "Education: a Framework for Expansion" (D.E.S., 1972). The White Paper proposed a major expansion in nursery education, since, it was pointed out, educational provision for the under-5's in this country lags behind that of similar industrialised nations. As a result of the proposed expansion it was envisaged that by 1982 places would be available, without charge, for all those children whose parents wished them to benefit from nursery education. However, since the publication of the White Paper changes in the economic climate of the country have reduced the rate of expansion in nursery provision, and in some areas supply is

still inadequate to meet the demand. The White Paper stated a clear preference for nursery provision to take the form of classes for the under-5's forming part of primary schools. Yet it also recognised a need for variety in provision and such variety is found in the country today.

Administratively there are two groups of provision for the under-5's in England and Wales; those which are the responsibility of the Department of Education and Science (D.E.S.) and those which come under the auspices of the Department of Health and Social Security (D.H.S.S.). Within these two groups several forms of provision may be identified. These forms are distinguished by both functional and organisational criteria.

The Department of Education and Science are responsible for nursery schools and nursery classes, whose purpose is to provide educational experiences for children below school age. The provision is made by Local Education Authorities and is usually available to all families within a given catchment area.

Nursery schools are autonomous, specially equipped schools catering for the educational needs of children between the ages of three and five years. Exceptionally, two year old children may be admitted or five year olds retained where the child or family has a special need. Nursery schools operate a normal school day from approximately 9.00 a.m. to 3.30 p.m. In the main, children attend for either the morning or afternoon sessions but for some children attendance is full-time, and the option

is considered important.

"The majority of educationists regard part-time attendance at school as sufficient, indeed preferable, for most children until they reach compulsory school age.....There will, however, continue to be some children who have a special need to attend full-time, either for educational reasons or because of home circumstances."

(D.E.S., 1972, para 25)

Nursery schools are under the direction of a head teacher, and the qualified teaching staff are usually assisted by trained nursery nurses and assistants. Nationally the ratio of qualified teaching staff to pupils is 1 : 23 (Tizard et al., 1976) and the overall staff : child ratio is superior to this. The D.E.S. suggest that a ratio of 1 : 13 is acceptable and most local authorities attempt to maintain such a ratio. Places in nursery schools are free to parents except for a charge for meals where the child is provided with a dinner.

Nursery classes are similar to nursery schools in most functional and organisational aspects, but are differentiated by their incorporation into a primary or infant school. As with nursery schools, the majority of children attend on a part-time basis for five sessions each week. However, admission into nursery classes tends to be at a rather later age and as a consequence the average age of the children within them is usually slightly higher. Staffing of nursery classes varies but generally includes both teachers and nursery nurses.

Day nurseries and Playgroups are the responsibility of the Department of Health and Social Security. The

principal purpose of the day nursery is to provide care for children as a substitute for that of the home, where they or their parents are considered to be in special need of such help. The categories of children eligible for admission are given in Ministry of Health circular 37/68, which states that "priority will normally need to be given to children with only one parent who has no option but to go out to work." Handicapped children, children with sick or handicapped parents and children of socially impoverished or strained home environments are also given priority status and families are often referred by health or welfare services. Day nurseries cater for children between the ages of six weeks and five years (although in some cases very young children may be excluded) and operate an 'extended' day (usually 8.30 a.m. to 5.30 or 6.00 p.m.). Most children attend full-time for five sessions a week. The day nursery is open all the year and is staffed by qualified nursery nurses under the direction of a senior nursery officer (formerly designated 'matron'). Qualified teachers are not normally members of day nursery staff, although some local authorities now employ peripatetic teachers who work in co-operation with several nurseries. A staff : child ratio of 1 : 5 is recommended but the ratio may be increased if there is a high proportion of children below two years. A charge for the provision is made to parents according to means.

Playgroups, although usually run privately or by a voluntary body, are covered by the Nurseries and Child

Minders Regulation Act (1948) as amended by Section 60 of the Health Services and Public Health Act (1968). The guidance on the standards for the day care of young children contained in Ministry of Health circular 37/68 also applies to this form of provision which has to be registered with the local social services department. Playgroups exist, primarily, to provide children with opportunities for play, and the chance to mix with other children, and to offer support for mothers. Most playgroups meet in village or community halls, which they often share with other forms of activity. Admission is usually open to anyone who can afford to pay the fee charged and children between the ages of 2 and 5 years are normally catered for. Playgroups vary widely in the numbers of children they take, the figures ranging from below 10 to over 30; the average number attending a session is 20 (P.P.A., 1979). Attendance is on a part-time basis and many more children may be on a register than attend a single session. Playgroups tend to meet regularly for half-day sessions, and many open only two or three times per week. Management of the playgroup is usually by an elected committee, but day-to-day running is in the hands of a supervisor who is usually assisted by mothers participating on a rota .

The four forms of provision outlined above represent the context of the work in this thesis.<sup>1</sup> Other forms of care for the pre-school child, e.g. childminders, private nurseries, nursery centres, are also available, but are not discussed here.

Analysis of differences in the provision for the under-5's was fundamental to the D.E.S. sponsored project "Play, Exploration and Learning in the Pre-School" (Hutt et al., in preparation). The project had three major aims: First, to observe and record the activities of children and staff in the different forms of provision. Secondly, to evaluate the learning potential of the experiences children enjoy in these different environments. Thirdly, to examine the efficacy of particular teaching strategies which may optimise children's opportunities for learning during the important early period of their development.

Traditionally, the effectiveness of pre-school programmes has been evaluated by means of standardised intelligence tests (Evans, 1971). At an early stage of the project it was possible to identify a need for some means of measuring not only changes in children's cognitive skills but also those aspects of behaviour which

<sup>1</sup> Hereafter, for the sake of brevity the term 'pre-school provision' and 'nursery' are used generically to apply to all four types of pre-school - the nursery school, the nursery class, the day nursery and the playgroup. Where reference is made to a particular form of nursery the terms used apply to the types of provision described above. The term 'nursery education' is applied to nursery schools and nursery classes combined.

directly reflect the aspirations and values of the adults responsible for the children's care. The present study represents an attempt to define this requirement more closely, to develop an instrument to meet it, and to assess the effectiveness of the instrument in practice.

### The nursery tradition.

Although interest in the pre-school child has been particularly great over the past two decades, the history of concern for the education and welfare of the child below the age of five extends over a far greater time span. Prescriptions for the socialisation and tuition of the young child occur in classical writings but formal provision for his instruction outside the familial home is a phenomenon of the last two centuries.

The pioneering work in the foundation of pre-school provision occurred at the same time as a change of attitude towards children in society. As Blackstone (1971) points out, one of the apparent differences between industrial societies and other social systems is the higher level of prestige allocated to children as a distinct social group in the former.

"A new philosophy has grown up which maintains that the needs of the child ought to be given consideration before all others. The child belongs to the most privileged age range in the advanced industrial society and demands are constantly made that its rights should be respected. Sacrifices made by adults on behalf of children do not receive scorn on the grounds of undue sentimentality, but are applauded as virtuous acts of unselfishness."

(Blackstone, 1971, p. 8)

The industrial conditions of the late eighteenth and early nineteenth century focused attention on the needs of what were termed the 'infant poor'. These needs centred upon the child's health, his education and his play. Not until the early seventeenth century had children begun to emerge as social entities in their own right, and even then the concept of 'childhood' was strictly limited to the first few years of life (Aries, 1973). Thus, the writings of Rousseau and some of his late eighteenth century contemporaries mark the beginnings of a radical change in attitude and approach to child rearing. Whereas earlier authors had instructed their readers to deal sternly, if not harshly, with their children, Rousseau desired his to:

"Love childhood, indulge its sports, its pleasures, its delightful instincts. Who has not sometimes regretted that age when laughter was for ever on the lips and when the heart was for ever at peace? Why rob these innocents of the joys that pass so quickly, of that precious gift which they can never abuse? Why fill with bitterness the early days of childhood, days which will no more return for them than for you?"

( Rousseau, 1762, p. 43)

These sentiments were central to subsequent attempts to found both nursery and primary education.

The history of pre-school provision is well documented. (Blackstone, 1971; Crowe, 1973; Van der Eyken, 1974; Bradburn, 1976). Two strands in the development of the provision may be distinguished (Blackstone, 1971). The first is a concern for the health and welfare of the child and recognition of the need to protect children from



exploitation by parent or employer. This concern ultimately led to the view that positive provision to care for working class children was necessary in order to compensate for deficiencies of the home. The second strand is composed of an interest in the education of the young child and is initially identified with a small sector of the middle class who founded institutions from the conviction that children needed additional or alternative stimulation to that provided by the home, however good the general standard of care within it. These strands, the compensatory and the strictly educational are closely intertwined in what might be termed the nursery tradition (Woodhead, 1976) and are extant today. Although the strands differ in their origins, they share the belief that the home is in some way inadequate for the complete development of the young child.

At a practical level the nursery tradition emanates from the work of pioneers such as Robert Owen, Margaret and Rachel McMillan, and Susan Isaacs. (Van der Eyken, 1974). Through the efforts of people such as these the general desirability of some form of pre-school provision came to be recognised. Although the emphasis on the special needs of 'disadvantaged' children has continued, the identity of these needs has tended to change, in reflection of the changing character of urban poverty. Although nursery education has always recognised the need to develop all aspects of the child, the work of the early educators was principally concerned with the promotion of the health and

physical welfare of children struggling to survive in conditions of urban squalor. More recently greater emphasis has been placed upon the role of the nursery in socialising the child, in providing emotional security and in facilitating the child's cognitive development.

An interest in these areas is shared by developmental and educational psychology and the system of nursery provision has at times drawn heavily, if eclectically, from contemporary psychological and educational theory. At the outset nurseries were much influenced by the work of early educationists such as Froebel and Dewey. From Froebel (1887) came the notion of the importance of both play and rest to the child, while Dewey's work focussed attention on the need to provide for freedom of movement and experience. (e.g. Dewey, 1916). The work of Montessori (1912) also emphasised the necessity for the adoption of a child-centred approach and highlighted concern for the development of learning styles based upon freedom. Later, the work of authors such as Bowlby (Bowlby, 1953, 1969) demonstrated the importance of early affective ties and reinforced beliefs in the nursery's role in the provision of emotional security in cases where this was not forthcoming in the home. More recently, the voluminous work of Jean Piaget has assumed special importance, and has had a profound impact upon early childhood education generally (Lancaster and Gaunt, 1976). Its influence has undoubtedly been felt in the pre-school world where the principal effect has been to emphasise the young

child's limitation to the concrete; his need to be actively involved in the learning process; and his inability to reason logically at the pre-school stage.

The belief in the efficacy of play in the facilitation of the child's development may be seen as a third strand of the nursery tradition. Whereas the strands outlined by Blackstone (Blackstone, idem) are concerned with the functions of the nursery, this last strand is methodological. Its origins can be found in the writings of Pestalozzi and Froebel, who urged that children should be provided with the opportunity and liberty to develop their spirit through free and unfettered activities. In the statement of the case for play in early childhood, the activity became invested with almost poetic qualities:

"Play is the purest, most spiritual activity of man at this stage, and at the same time typical of human life as a whole....It gives...joy, freedom, contentment, inner and outer rest, peace with the world. It holds the sources of all that is good."  
(Froebel, 1887 p. 54)

Later authors have gone further to suggest that not only is play beneficial, but also instinctive and spontaneous:

"No one needs to teach a child to play..... Nature plants strong play instincts in every normal child to make sure that certain basic developmental needs will be satisfied."  
(Gesell and Ilg, 1946, p. 360)

and that it is essential for the normal development of the child:

"It (play) expresses a child's relation to himself and his environment and without adequate opportunity for play, normal and satisfactory emotional development is not possible."

(Lowenfeld, 1935, p. 324)

The currency of similar views is apparent in more recent publications on pre-school provision (e.g. Parry and Archer, 1974, 1975; Cass, 1975; Dowling, 1976; McCreesh and Maher, 1976). Thus Cass (1975) writes:

"Yet play experiences are vital to all children; The very essence of play is that it is an end in itself; there is no compulsion about it, it can be taken up or laid aside at will for its own final justification. Children not only discover themselves in their play they begin to understand the behaviour of people and things."

(p. 17)

and McCreesh and Maher state:

"The importance of play for all children cannot be over emphasised. For the pre-school child play is a means of coming to grips with his environment. His first discoveries of his world are made possible through play. His language and thought are developed in play situations. His social and emotional development are supported and developed through play. His physical and mental well-being are assisted through play."

(p. 20)

One reason why such sweeping claims can be made for the behaviour known as 'play' lies in the definition of the term. As Millar (1968) states:

"the term play has long been a linguistic waste-paper basket for behaviour which looks voluntary but seems to have no obvious biological or social use."

(p. 11)

The term may be applied variously to the gambolling of lambs in the field and to quite complex human problem solving activities (Hutt, 1979). In the specific case of 'child's play' the term has often been used to describe virtually all non-utilitarian behaviour patterns (e.g. Lowenfeld, 1935). Such over-inclusive usage of the term 'play' is unhelpful both theoretically and pragmatically, but explains why diverse claims may be made for the behaviour. If play subsumes the majority of a child's activities it is not surprising that it is invested with such importance.

In the infant school, teachers recognise a distinction between work and play, although the distinction is by no means clear-cut and is largely situation-dependent (King, 1978). A similar distinction may be found in the literature on play and from it stems the implication that work is essential and play is inessential (Hutt, 1979). This implication in the use of the term 'play' has resulted in particular difficulties in early childhood education in general and nursery education in particular. For some teachers and parents learning occurs through work and yet children play in the nursery. A defence for the occurrence of play in the nursery may be found in psychological theories of play (for reviews see Millar, 1968; Ellis, 1973; Singer, 1973; Hutt, 1979). In particular, emphasis is given to those theories which suggest that play has a primary role in learning.

Early theories of play, for example those of Schaller and Lazarus, saw it as a restorative to work or as a means of utilizing surplus energy (Spencer, 1985). Such views were not concerned with the content of play, which by implication was held to be unpredictable and irrelevant, and similar theories are resorted to in the justification of provision for physical play in current pre-school practice.

A theory concerning the role of play in learning was propounded in the last century by Groos (1898), who saw play as pre-exercise, suggesting that only animals endowed with detailed instructive patterns of behaviour which are perfect on their first trial have no need to play. A similar functional theory of play is proposed by Bruner (1972), who argues that play represents a means of minimising the consequences of ones actions enabling learning to take place in a situation that might otherwise be hazardous. Play also provides the opportunity to experiment with combinations of behaviour which could not be attempted under functional pressure. Bruner suggests that manipulative subroutines are practised, perfected and varied in play and then put together into functional units of practical value in adulthood.

Another very influential and perhaps conceptually the most elaborate, theory of play belongs to Jean Piaget. Piaget (1951) sees play as the product of a stage of thinking through which the child must pass in his development from an original egocentric and phenomenalist

viewpoint to the adult's objective and rationalistic outlook. The process of accommodation, the modification of internal schemata to fit reality, and assimilation, the filtering or modification of the input to fit an existing schema, are functional invariants. They are not, however, always in balance with one another, one form predominating over the other on different occasions. If accommodation dominates assimilation the result is imitation and if assimilation dominates accommodation the consequence is play. For Piaget behaviours are only more or less playful. Sutton-Smith (1966) complains that Piaget through use of an "implicit copyist epistemology" has reduced play to a secondary role in the structure of the intellect. But Piaget argues that play is a necessary component of the child's intellectual development:

"Play is an exercise of action schemes and therefore part of the cognitive component of conception."

(Piaget, 1966)

and:

"It is indispensable to his affective and intellectual equilibrium, therefore, that he have available to him an area of activity whose motivation is not adaptation to reality but on the contrary, assimilation of reality to the self, without coercions or sanctions..... Intelligence constitutes an equilibration between assimilation and accommodation."

(Piaget & Inhelder, 1969, p.58)

Thus in Piaget's system play is not necessarily subordinate to accommodative imitation; rather play and imitation are different but equally essential components of the process of intellectual growth.

An alternative perspective is provided by psycho-analytic theories, which see play as a reflection of the child's attempts to master or compensate for situations which initially pose psychological problems for him. Thus, Anna Freud (1937) suggests that play may serve both to lower anxiety around a given content through promotion of active coping devices and to deny the original grounds for anxiety. A similar view is expressed by Erikson (1965):

"....the child's play is the infantile form of the human ability to deal with experience by creating model situations and to master reality by experiment and planning."

(p. 214)

The proponents of the theories of play outlined above, although differing in perspective, are united in their belief in the value and necessity of play in childhood, and their views find expression in official publications on early childhood education (e.g. Plowden Report, 1967). The effect of this upon current nursery practice is apparent.

#### Current nursery practice.

Recent observational studies of pre-school practice have found a distinct emphasis on 'free-play' (Clarke et al., 1969; Tizard et al., 1976; Sylva et al., 1980; Hutt et al., in preparation). In a study of different forms of pre-school provision Hutt et al. (idem) found that periods devoted to free-play (in which the child is at liberty to choose his own play activity from a selection of activities and to pursue that activity with a minimum

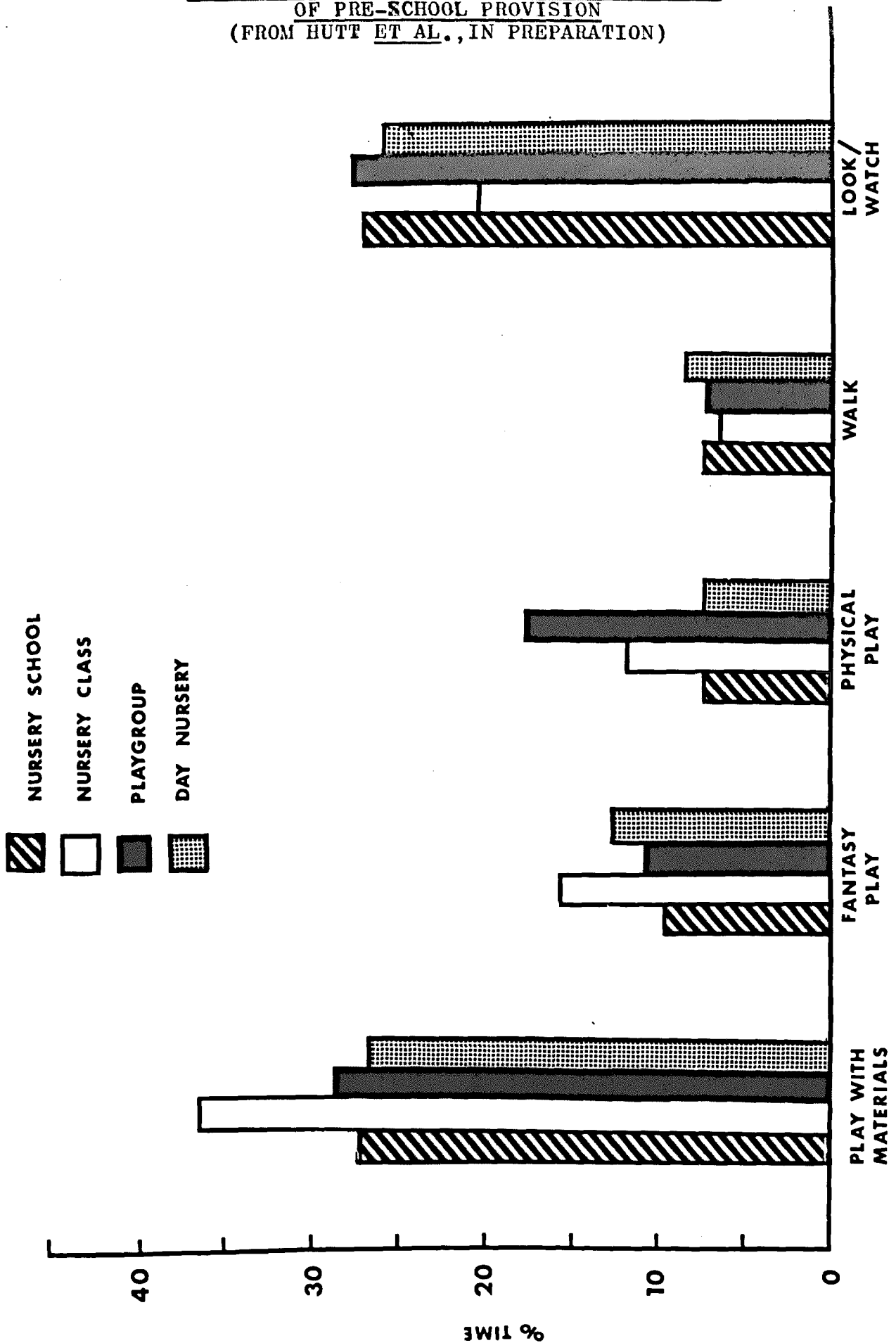


of external constraint) occupied on average approximately 33 percent of each session. Within the free-play period the child is able to choose between approximately a dozen different forms of activity at any one time. The activities catered for are various but some forms of provision occur more frequently than others. A 'wendy house' or home corner is ubiquitous and materials such as sand, water and paint are commonly available. Organised periods, during which the child's activity is subject to overt constraint, are primarily dedicated to singing and story-telling and necessarily involve adult participation. They occupy most time in nursery classes and schools and least in playgroups.

In a second study Hutt et al. (idem) observed a group of target children in each form of pre-school provision. The proportion of time spent in various forms of activity for groups in each type of environment is shown in Figure 1.1. Not surprisingly, perhaps, given the general availability of different kinds of materials and the importance attached to play with them (Yardley, 1973; Cass, 1975; Parry & Archer, 1975) a great deal of time is devoted to this type of play in each form of nursery. Play incorporating a symbolic element - here designated fantasy play - occupies less time and, generally, an even smaller amount of time is given over to physical play (except in the case of the playgroup where physical play occurs indoors more frequently than in other forms of provision). In each form of nursery, however, a

**FIGURE 1.1**

**PROPORTION OF TIME SPENT BY CHILDREN IN  
DIFFERENT PLAY ACTIVITIES, IN FOUR FORMS  
OF PRE-SCHOOL PROVISION  
(FROM HUTT ET AL., IN PREPARATION)**



considerable amount of time would appear to be spent in looking around and watching other children or adults without active participation. The study found that children's activity spans are generally short in the nursery, but that the presence of an adult at an activity tends to significantly increase the span (Tyler et al. 1979). However, contact with adults may be comparatively limited for some children.

A third observational study conducted by Hutt et al. (idem) examined the role performance of nursery staff. The study revealed that nursery staff tend to spend the major part of a session actively working with, supervising or monitoring children. Activity spans of staff are very short and the average span of attention to a single child is only of the order of 20 seconds.

The results of the above series of studies would suggest that the nursery is a 'child-centred' environment with an emphasis upon provision for exploration of and play with a wide variety of stimuli, in which the role of the adult is supportative rather than instructive. As Hutt (1979) points out, the nursery tradition presented in its most extreme form suggests that as long as appropriate and stimulatory materials and equipment are made available to the child he will choose his own activity, and engage in it at a level corresponding to his developmental stage. Since children learn through play, the individual child will acquire necessary concepts and skills in due course and at his own pace as a

consequence of his own actions. As a corollary, this argument suggests that adult intervention in the child's activities is not only largely unnecessary but also, in many instances, undesirable. However, a challenge to this position has come from recent research.

#### Nursery provision and recent research

The nursery tradition, as revealed by current practice, has recently been the subject of a great deal of research and, as a consequence, a certain amount of criticism. An implicit criticism may be found in the results of studies which have sought to examine the general effect of the nursery upon children.

Douglas and Ross (1964) found that attendance at nursery school did not confer long term advantages upon those children in their national sample who had had this experience. Similarly, a recent study in Scotland concluded that although there is some evidence of overall benefits from nursery education, the differences between children who have attended nursery school and those who have not, as measured on a variety of tests, is comparatively small (Clarke et al., 1979). Although numerous methodological problems impinge upon such studies, the results are, nevertheless, disturbing. If the measurable effects of nursery provision upon the children are apparently slight it may be questioned whether the provision is functioning satisfactorily. Other studies which focus on more specific aspects of provision would suggest that in some of these nursery practice could

be improved. For example Tizard et al. (1976) found that in pre-school centres much play is at a rather low level. In particular, criticism is directed towards the notion of 'free-play'.

"Thus, although it is often argued by educationalists that the intrinsic motivation of self-initiated play leads to the kind of serious absorption which is the best guarantor of learning, in practice other aspects of the free-play situation tend to prevent such absorption."

(Tizard et al., 1976, p.262)

Bruner makes a similar point:

"There seems to be, then, an untapped capacity for elaborate play that is not fully enough engaged by most playgroups and nursery schools....One gets the impression...that they are often unclear and at cross purposes about what they are trying to do. They attempt to serve so many functions (although they serve some of them very well for some children) they fail to enlist to the full the growing intellectual energies and skills of the three- and four-year olds whom they principally serve."

(Bruner, 1980, pp. 187-188)

Other criticisms focus upon the use of language in the nursery. Thomas (1973) conducted a small-scale study whose main concern was the quality of the children's language in response to the educational environment. Observations were made in three nursery classes

in which Thomas found a general paucity of speech serving a specifically educational function. Staff speech to the children was primarily concerned with the staff's caring role, and their utterances did not appear to be adapted to the children's ability levels. Tizard (1979) shows that the quality of mother-child talk at home, built on shared topics and presuppositions, is richer and more finely tuned than language in nursery school. Similarly, Sylva et al., (1980) in an observational study of nursery classes and playgroups found that "coherent conversations were few and far between." (p. 92).

It may be argued that although teachers are often well aware of the linguistic needs of the children and the means by which these may be met through discourse, the free-play setting within the nursery, as described in the previous section, may preclude lengthy and systematic work with the child. Several studies have demonstrated that the staff act as focal points for children's attention (e.g. Lomax, 1977; Hutt et al., in preparation) and that the demands made upon the staff are great (Hutt et al., *idem*). Paradoxically, it may be argued that within a system which emphasises free-play, the more successful a member of the nursery staff is in providing stimulation for the children, the greater is the probability that she will act as a focal point for their attention; as a consequence

the probability of her being able to carry out extended work with a single child is reduced.

An underlying problem of particular importance for pre-school provision in general and nursery education in particular lies in the informality of the methods adopted. Woodhead (1976) points out that informal methods are very easily open to misuse since they make special demands upon the child's ability to take full advantage of the activities provided, and correspondingly upon the teacher to ensure that each child is gaining the maximum benefit from the activities. It may be argued that the efficacy of play is not something that can necessarily be assumed for all children. For Woodhead (*idem*), the success of informal methods is dependent upon the ability of the teacher to maintain implicitly in the quality of her organisation of activities and interaction with the children the structure sequence and control which is maintained explicitly in a formal programme. Such a dependancy makes great demands upon the staff: the criticisms of researchers would suggest that such demands are not always met. If recent research may be seen as having presented the pre-school world with a problem, it has also suggested two alternative and complementary approaches towards a solution.

The first approach involves the adoption of a learning programme specifically designed for the nursery. This approach is frequently advocated by researchers in both Great Britain and America and numerous studies have examined the effects of the implementation of such programmes. It has been argued that if intensive instructional methods are used the nursery has the potential to offset any inadequacies of the home and to render children more equal as they enter the stage of compulsory schooling. Examination of the findings of nursery based research programmes suggest that, almost without exception, children show substantial gains in I.Q. and other cognitive measures during the first year of the programme, and that cognitively structured curricula produce greater gains than play-oriented nursery programmes (Bronfenbrenner, 1974).

Whether structured learning programmes in the nursery are truly effective in the intervention of disadvantage is open to debate (Bronfenbrenner, *idem*). However, a major obstacle to their implementation in the nursery lies in the attitude of nursery staff toward structured approaches. Woodhead (1976) suggests that pre-school teachers are often unhappy about the idea of structure, which they often assume to be synonymous with extrinsic motivation, externally imposed discipline and highly teacher-centred methods in the style of Bereiter and Engelmann (cf. Bereiter and Engelmann, 1966). In Great Britain direct instructional methods have generally been rejected as inappropriate for children of nursery school age (Quigley, 1971; Harvey and



Lee, 1974; Woodhead, 1976).

The source of teachers' objections to structure in the nursery is evident from the preceding discussion of its tradition. Watt (1974), commenting on nursery teachers' reactions to learning programmes, makes the point that structure in its general sense must have a place in the nursery school curriculum if purposeful free activity is not to give way to aimless licence. For Woodhead (1976), the main source of the danger of the informal learning situation of the nursery lies in the commitment to individual learning. Success depends very largely upon the teacher's ability to assess the progress of each individual child separately, to know his strength and weakness, and to design a programme accordingly. In order for learning to occur at the optimal rate, it may be argued that the teacher must know how to make the best use of the opportunities for development which are presented in the children's play activities. An alternative approach to the structured learning programme, therefore, lies in the provision of a system of assessing and recording the progress made by an individual child. Assessment and recording would provide clear evidence to the staff of the efficacy of a particular practice for a particular child. Although such a system may be open to the objection that it imposes too great a set of constraints upon nursery staff and their children, it is capable of furnishing a variety of benefits in a relatively informal setting. These benefits are enumerated and discussed in the next section of this chapter.

### Possible benefits of assessment in the nursery

Pre-school education may list amongst its functions the early diagnosis of handicap (Council of Europe, 1971), and this function has recently been given official recognition in the findings of the Committee of Enquiry into the Education of Handicapped Children and Young People (Warnock, 1978):

"Nursery education....is of immense value. It not only contributes to a child's early development but also provides opportunity for the early identification of signs of special needs or problems in young children.....it can provide a very useful setting, too, for the assessment of a child's needs."

(Warnock, 1978, p. 86).

A detailed system of assessment and recording in the nursery would enable staff to ensure that the nursery fulfilled this purpose, and would provide a means of communication with other professions concerned with the welfare of the handicapped child. As Warnock (idem) states:

"If a suitable educational programme is to be devised at an early stage, it is vital that a child's special needs should be discovered and assessed without delay."

(p. 73)

Children with severe difficulties or extraordinary skills are much discussed in the literature, and are often quickly spotted by the observant teacher or nursery nurse, although her ability to analyse and describe these handicaps or gifts may be limited. As Clarke and Cheyne (1979) suggest, it is all too easy on entering a nursery to be impressed with the large number of activities provided and to fail to notice that certain children are not really

involved in any of them. Children who are unobtrusive and undemanding, but who nevertheless require the help of the caring adult to facilitate their development, may be in danger of neglect in such a fluid environment. A systematic assessment and recording procedure necessarily draws each child to the attention of the nursery staff and ensures that his behaviour is regularly monitored and that his needs are given deliberate consideration from time to time. The more standard the system of assessment, the more likely it is that the information recorded will be comparable from recorder to recorder, occasion to occasion, and child to child.

A third benefit that may be derived from assessment and record-keeping lies in the assistance that it may give in the solution of the problems associated with the act of transferring a child from the care of one adult to another. Such a transfer may occur within the nursery itself or between the nursery and the infant school. Where channels of communication between the child's previous caretaker and his new one are good, the information imparted may be invaluable. A flexible system of assessment, the meaning of whose records is shared by the adults concerned, can prove to be of great service, particularly during the period that immediately succeeds the act of transfer.

Some forms of nursery record may furnish the nursery with a means of establishing greater rapport with the home. From a review of early intervention studies Bronfenbrenner

(1977) concludes that the evidence indicates that the involvement of the child's family as an active participant is critical to the success of any intervention programme:

"Without such family involvement, any effects of intervention, at least in the cognitive sphere, appear to erode fairly rapidly once the programme ends. In contrast, the involvement of the parents as partners in the enterprise provides an on-going system which can reinforce the effects of the programme while it is in operation, and help to sustain them after the programme ends."

(p. 252)

Unlike most other stages of education, a good nursery education does not necessarily lead to obvious results. The attainment of elementary concepts, although vital to the child may not be apparent to the parents. Partly as a consequence of this, parents often seem not to appreciate some of the possible benefits of nursery education. A tangible record of the child's progress through the nursery, which can be shown to the parents, may make the parent more aware of the nursery's objectives and the means by which these are attained. As a consequence, parents might subsequently reinforce the procedures of the nursery at home and, thereby, markedly facilitate the child's progress.

Comparative reviews of pre-school programmes have shown consistently that the more structured approaches, incorporating specific goals, have tended to be more successful. (Bereiter, 1972; Horowitz and Padén, 1973; Bronfenbrenner, 1974). The implementation of a more systematic and goal oriented approach usually necessitates

a fairly detailed analysis of the levels reached by the child in various areas of attainment and of the next set of skills and concepts to be approached. A standard system of assessment and recording should be of assistance in this process.

Systems of assessment may enable nursery staff to evaluate more critically their own performance. A system of assessment and recording should permit staff to identify those areas in which they have been successful in promoting development. The NFER project reported by Woodhead (1976) noted a clear influence of the commitment and enthusiasm of nursery teachers upon the effectiveness of their language programme. Other research has also emphasised the importance of the motivation of the staff upon the effects of intervention programmes on the children. (Weikart, 1972; Karnes, 1973; Tizard et al., 1976). The positive feedback that a system of record-keeping may provide may serve to stimulate and maintain staff enthusiasm. Alternatively, the system may assist in staff training. Where a large proportion of the children in a nursery are delayed in development staff expectations may be skewed to this pattern (Laishley & Coleman, 1978). A system of assessment may help staff to develop and maintain accurate and realistic expectations for the children in their care. Finally, a system of assessment may enable staff to identify those areas in which a modification of their own approach within the nursery may be advantageous. Although most nurseries will contend that they are seeking to encourage all areas

of a child's development, some areas may be neglected or the provision made may be less effective by comparison with others. A system of assessment may allow staff to identify those areas which need further attention and encourage them to redress the situation.

Although it is possible that the benefits cited above may be derived from a system of assessment and recording, the implementation of such a system contains inherent dangers. A structured assessment procedure and record form may lead users to concentrate narrowly on certain aspects of behaviour to the exclusion of other equally important but less 'testable' aspects. Moreover, a system which is of great complexity and whose procedure is of considerable duration may encourage staff to dwell upon the problems of assessment rather than the problems of teaching. A system of assessment and recording should facilitate the stimulation of development in the children rather than preclude it.

In conclusion it must also be pointed out that the benefits of a system of assessment must be obvious to the users as well as to external observers of the nursery. In a description of the Kramer Project, Elardo and Caldwell (1974) stressed the importance of transferring responsibility for pre-school programmes from psychologists to the nursery staff. Other authors have made a similar point (e.g. Woodhead, 1976; Bruner, 1980). The following chapters describe an attempt to develop a system of assessment and recording appropriate for the nursery, in the course of which nursery staff have been actively involved.

## CHAPTER 2

### THE AIMS AND ATTITUDES OF STAFF

#### IN PRE-SCHOOL PROVISION

##### Introduction

The previous chapter has suggested that there is a need in the nursery for a means of systematically assessing the development and progress of the pre-school child. For the development and implementation of a system of assessment to be successful it must be congruent with the prevailing nursery ethos as evidenced by the stated aims and objectives of the nursery and the typical interpretation by the staff of their role within it. The present chapter describes an empirical study whose purpose was to investigate such features of the nursery environment of which account would have to be taken in devising a system of assessment and which would place certain constraints upon it.

Study 2.1: A questionnaire study of the aims and attitudes of staff in the pre-school.

The study described below was carried out to provide information on the attitudes of staff in various forms of pre-school provision towards that provision in general and their own role in particular. As Watt (1977) points out, nursery education (as represented by nursery schools and classes) may be seen as the meeting point of two systems: the vertical system of 'education through schooling' in which nursery education forms the first rung of an ascending

ladder which the child will continue to climb until late adolescence; and the horizontal system of 'provision for the under 5's' to which nursery education contributes substantially. Nursery education is able to identify with both systems since it has strong professional and administrative links with the former and shares mutual interest in terms of its clientele with the latter. However, it is likely that the aims and objectives of the staff in nursery education will be differentiated from those of their counterparts in other sections of the two systems, if only because of the existence of this dual set of relationships. Thus, although a certain amount of attention has been dedicated to the investigation of teachers' attitudes and role perceptions in general, those of teachers in nursery education in particular are worthy of further study. Rather less consideration has been given to the attitudes and self-perceptions of nursery nurses in nursery education and to those of staff in other forms of pre-school provision and a study of these is worthwhile in its own right. However, of particular interest would be a study enabling comparisons of the attitudes and role perceptions of all caring adults in all forms of pre-school institutions.

The traditions of the pre-school world have been briefly reviewed in the first chapter. It would appear that these traditions exert a powerful influence on the aims and attitudes of staff in the nursery. Indeed, Roberts (1975) suggests that in the formulation of aims for nursery schools and classes in particular, due account should be



taken of past changes of emphasis in the field of nursery education. Roberts doubts the value of specifying particular goals for the school, arguing that the child should be looked upon as a unique individual with particular abilities and disabilities, and that planning should proceed at an individual level. In defining her own series of aims for nursery staff she stresses that the staff should attempt to look at the children as a number of separate persons while ensuring that provision is made for fun and enjoyment.

She goes on to state that the area of greatest importance is that of social education, which she argues must be based on an understanding of emotional growth. These sentiments are reflected in the findings of the study of Parry and Archer (1974) in which they surveyed schools with a tradition of 'good' nursery education. They state that the criteria for the establishments 'deemed good' for young children are those which value the importance of:

- a) nurturing, safeguarding and caring for each child;
- b) appreciating the uniqueness of each child;
- c) providing opportunities for the child to experience and enjoy first-hand learning experience;
- d) providing situations which encourage each child to pursue his natural curiosity, which gives choice, encourage attentiveness and help him to express himself;
- e) providing opportunities for questioning and discussion;

- f) developing through harmonious personal relations an atmosphere conducive to learning;
- g) stimulating such learning by intervening when considered appropriate.

These criteria provide a useful insight into the ideology of the nursery. So too do the findings of a major study by Professor Philip Taylor's team who explored in detail the attitudes inherent in nursery education by means of a standard questionnaire distributed to the teachers of 1,413 nursery classes and 485 nursery schools in England and Wales (Taylor et al. 1972). The initial part of the questionnaire pertained to biographical details and the data suggested that the teachers constituted a fully qualified and experienced professional group, a majority of whose members had received a training relevant to the work they were presently engaged in. Most teachers gave a vocational motive for entering the profession, although older teachers emphasised to a greater extent that they had little or no alternative. In the second part of the questionnaire the teachers were presented with five descriptions of possible aims for nursery education, which they were required to put in rank order. From the results it is clear that teachers displayed some variability in their ranking of the five aims. However, an order of priority for the aims did emerge as follows:

- 1) social development
- 2) intellectual development
- 3) home - school relationships
- 4) the development of aesthetic awareness
- 5) physical development

The emphasis on the social purpose of nursery education was independent of other variables such as the social class of the children in the nursery and the number of children to be taught.

In a third series of questions, Taylor et al. (idem) provided teachers with a list of more specific objectives to consider. Results showed that the teachers attached a degree of importance to each specified objective but greater emphasis was placed upon some than upon others. Those rated as being extremely important refer to the acquisition of fundamental social and transactional skills without which a child would experience some difficulty in obtaining the optimal benefit from nursery education. Second in importance was a large group of objectives relating to the development of general personal, physical, intellectual and social skills. Least importance was attributed to objectives relating to the acquisition of formal educational skills, although the value of developing language and reasoning skills was recognised. Factor analysis of the data suggested that the child's psychological awareness of himself and others was the area given greatest emphasis, but the differences in the importance

placed upon each area were comparatively small. A relatively low rating was awarded to aspects of intellectual and cognitive development, a finding which tends to underline the nursery teachers' concern to avoid involving the child in too much formal education. A subsequent series of open questions produced more diffuse, but generally similar views. A section of the questionnaire relating to roles demonstrated a clear preference for teacher-centred roles in which the child plays a distinct part.

The study described above is of great importance since it is one of only a few devoted to this area of investigation and the sample size is large. However, the survey was conducted at the beginning of the 1970's since which time nursery education has both expanded and been the subject of considerable research interest. The introduction of new staff upon expansion and the percolation of research findings into the nursery may have affected the views of staff. A fresh examination of prevailing attitudes was, therefore, opportune prior to the development of the assessment system. Moreover, the study of Taylor et al. dealt only with the views of nursery teachers. Within nursery education there are two professions: teachers and nursery nurses. The latter group may play an important part in influencing policy within the nursery and consequently their attitudes need to be taken into consideration in the development of the assessment system. Outside nursery education there are several other forms of pre-school provision the views of whose staff also require examination.

These factors led to the development of a questionnaire which was distributed to staff in different forms of pre-school provision in two areas.

The design of the questionnaire.

The complete questionnaire may be seen in Appendix A. It is based upon and is, therefore, similar to that used by Taylor et al. (1972). The main difference lies in the brevity of the questionnaire used here and the exclusive use of closed rather than open questions. Several constraints dictated features of the design of the questionnaire. First, it was felt desirable that the questionnaire should be kept as brief and as simple as possible, whilst enabling the elicitation of the required information, in order that a high response rate might be obtained. It seems likely that unless the respondent is highly motivated to complete the questionnaire the reliability and validity of responses will decrease with the length of the questionnaire and the complexity of the questions contained within it. The aim of the study was to elicit the attitudes of all groups of staff within nurseries, not just of those who were particularly well disposed towards the study. It was, therefore, decided to limit the number of questions whose content and form were determined by brief piloting with a small number of nursery teachers.

Secondly, it was felt to be preferable to retain a degree of similarity between the questions used and those employed by Taylor et al. (idem) in order to ensure a degree of comparability between the two studies, thereby allowing

possible changes in attitude to be observed. Some differences were inevitable, however, given that the new questionnaire was to be completed by a wider range of subjects. Moreover, whereas the questionnaire of the earlier study had contained some open questions, that of the present one consisted exclusively of closed questions. As Oppenheim (1966) states, closed questions have certain inherent advantages: they are easier and quicker to answer; they require no writing; and quantification is usually straightforward. This means that more questions may be asked in a given time allotted for completion. The disadvantages of closed questions are the loss of spontaneity and expressiveness and perhaps the introduction of bias, either by the constraint placed upon the respondent to choose between given alternatives or by the promotion of suggestions and views of which he might not otherwise have thought. Closed questions are generally less subtle than open ones and may induce irritation in the respondent if he feels that he is incapable of expressing himself through the given answers. In this case, however, where a priority was given to keeping completion time for the questionnaire to a minimum it was felt that the advantages of closed questions outweighed their disadvantages. The questions were designed after the researcher had had considerable experience of working with nursery staff on another project and they were felt to encompass the views of a majority of nursery staff. In addition, it was recognised from the outset that further work, allowing of

greater self-expression on the part of the respondent would be required. This work is reported in the next chapter.

The questionnaire consists of four basic sections. The first pertains to the allocation of the respondent to a particular post and category of pre-school provision and to certain features of that provision. The second section contains questions which elicit biographical details from the respondent including a question concerning her motivation for working in the field. The third section concerns her view of the principal benefits of pre-school provision and the means by which these are derived. The fourth section consists of two questions dealing with her own role in the nursery.

In all the questionnaire contains fourteen questions and the time to be taken for its completion was envisaged to be of the order of ten to fifteen minutes.

#### Areas of Study

In the course of the study two contrasting areas were used. The first, hereafter termed Area A, consists of part of North Staffordshire. It includes the industrial city of Stoke-on-Trent, and the neighbouring semi-rural borough of Newcastle-under-Lyme. A product largely of the industrial revolution the city covers an area of 36 square miles with a population of approximately a quarter of a million. The adjacent borough centres on a comparatively prosperous market town, many of whose inhabitants are employed in the city. Both sections of Area A have a comparatively

long tradition of support for nursery education commencing with the opening of the first nursery class in 1918. The provision of nursery schools and classes in this area is generally good by national standards. However, it also contains numerous playgroups and six day nurseries providing alternative and contrasting forms of pre-school provision.

The second area used, Area B, is composed of three towns in South Cheshire. Although Cheshire as a whole is rather more prosperous than North Staffordshire, the towns in which the nurseries were situated, Crewe, Winsford and Macclesfield, share many features in common with the latter. However, until the last five years Area B has enjoyed comparatively limited nursery provision. Over the past five years a programme of building modern nursery units attached to the infant schools has markedly changed this picture. Other differences, apart from the length of the nursery tradition and the modernity of the buildings, separate nurseries in the two areas. Whereas nursery schools have been a prominent feature of the provision in Area A, the L.E.A. provision in Area B has focused on the nursery unit or class which is part of an infant school. Moreover, whereas in Area A the emphasis in the nursery schools and classes is on the provision of full-time places, that in Area B is on part-time education for the under 5's. These differences in the provision in the two areas makes comparisons between them most rewarding.



### The subjects

The questionnaire was initially distributed in Area A above, as indicated in Table 2.1. Responses were obtained from 33 nursery school teachers, 40 nursery school assistants, 3 teachers in nursery classes, 29 assistants in nursery classes, 44 day nursery officers and 47 playgroup supervisors. Table 2.1 shows that a comparatively high response rate was achieved in each form of nursery. All 6 day nurseries and all 21 nursery schools in the area were approached in this study. A random sample of approximately 25% of each of the other two forms of provision was made. Area A is unusual in that most of its nursery classes are staffed by nursery nurses alone, overall responsibility for the class resting with the head teacher. Since so few teachers in nursery classes completed a questionnaire in the following analysis, respondents from nursery classes are combined and treated as a single category. Thus respondents were allocated to 5 groups: Nursery School Teacher (NST), Nursery School Nursery Assistant (NSA), Nursery Class Teacher/Assistant (NC), Playgroup Staff (PG), and Day Nursery Staff (DN).

The questionnaire study was repeated in Area B, using a random sample of 21 schools (1 nursery school and 20 nursery units attached to primary schools). Twenty-six teachers and 28 nursery assistants replied to the survey, a response rate of approximately 90%. As previously stated, the history of nursery provision in Area A and B differs quite radically and it was hypothesised that different attitudes might be found

TABLE 2.1

DISTRIBUTION AND RETURN OF  
QUESTIONNAIRES IN AREA A

	<u>Number of</u> <u>Nurseries</u>	<u>Questionnaires</u> <u>distributed</u>	<u>Questionnaires</u> <u>returned</u>	<u>Percentage</u> <u>return</u>
NS	17	102	73	71.6
NC	15	40	34	85.0
DN	6	50	44	88.0
PG	17	54	47	87.0

in Area B as a consequence. In the analysis following the survey in Area B, responses were compared to those obtained from teachers and nursery nurses in nursery schools and classes in Area A.

### Results

#### Area A:

The first section of the questionnaire elicited biographical details from respondents. There were significant differences in age between the groups of staff. Figure 2.1). Nursery nurses in day nurseries tended to be younger than staff in the other groups with 43.2% of the respondents in this category aged less than 21 years. The overall difference in ages between the groups of nursery staff was highly significant ( $\chi^2 = 93.05$ ,  $df = 12$ ,  $p < 0.001$ ). The relative youth of the day nursery nurses was also reflected in their comparative inexperience and the small number having children of their own (Table 2.2). In contrast, the nursery assistants in educational establishments were highly experienced, while almost all the staff working in playgroups (97.8%) were themselves mothers.

All the teachers who responded to the questionnaire possessed teaching certificates but only 2 were graduates. All the nursery assistants had NNEB certificates. Of the 44 playgroup staff who replied, most had some form of brief training in child care, while 4 were qualified teachers and 10 were trained nursery nurses. Comparatively few of the respondents belonged to external organisations concerned with child care, e.g. BAECE. Approximately 20% of the

**TABLE 2.2**  
**PROPORTION OF STAFF IN EACH FORM OF NURSERY**  
**HAVING CHILDREN OF THEIR OWN**

NST	60.6%
NSA	51.3%
NC	59.4%
DN	18.2%
PG	97.9%

staff who replied to this question belonged to such an organisation, a much lower proportion than that cited in the study by Taylor et al. (Taylor et al. 1972). However, many more teachers than nursery assistants belonged, a majority of teachers in the survey (54.8%) being members of BAECE.

Finally in this section, staff were questioned about their primary motives for working in a nursery. Staff were asked to indicate the two items from a list which best expressed their reasons for wanting to work in a nursery. This question contained a degree of ambiguity in that respondents frequently reported that their motives for entering nursery work differed from their reasons for continuing in the work. In spite of this caveat, the responses show some interesting differences between the contexts. Table 2.3 shows the proportion of staff responding on each item for each type of nursery. As with the study of Taylor et al., the primary area of motivation may be described as vocational, the most frequently cited motives being 'work with children', 'interesting work' and 'worthwhile work'. Day nursery nurses tended to emphasise 'helping disadvantaged children' more than the other groups, while the only group to mention the hours of work as an important factor were the staff in the playgroups. None of the respondents indicated that salary played an important part in their choice of work.

**TABLE 2.3**  
**PROPORTION OF STAFF RESPONSES EMPHASISING**  
**PARTICULAR MOTIVES FOR WORKING IN**  
**NURSERIES FOR DIFFERENT FORMS OF**  
**NURSERY IN AREA A**

	NST	NSA	NC	DN	PG	Overall
Salary	0	0	0	0	0	0
Security	5.3	1.3	0	2.5	0	1.7
Good hours & holidays	1.8	0	0	0	5.7	1.7
No alternative	1.8	1.3	0	0	0	0.6
Family pressure	3.5	0	0	0	1.1	0.9
Opportunity of going to College	0	2.6	0	1.3	1.1	1.1
Interesting work	17.5	27.6	35.5	18.8	31.0	26.2
Worthwhile work	12.3	19.7	12.9	30.0	18.4	19.3
Best work	12.3	7.9	8.1	1.3	5.7	6.6
Work with children	36.8	35.5	43.5	20.0	33.3	33.1
Helping disadvantaged children	5.3	3.9	0	26.3	2.3	8.0
Other	3.5	0	0	0	1.1	0.6

The second section of the questionnaire dealt with the benefits and objectives of pre-school provision. Staff in nurseries were invited to indicate which of a series of possible benefits they felt children were deriving from their nursery. In addition, they were asked to select the two areas in which they felt children were gaining most from their time in the nursery. Many respondents appeared to experience some difficulty in answering on this section. For the purposes of analysis use was made of only those questionnaires where the respondent had chosen and indicated the principal areas of benefit. Frequencies of response on a particular item were calculated, and subsequently the proportion of responses to a particular item compared to the total number of responses was obtained. Table 2.4 presents this data.

Overall, the benefits considered most important were:

1. the ability to mix with others
2. enhanced language development
3. the opportunity to discover and use potential

Staff in nursery schools and classes tended to emphasise language development more than the other two contexts. Staff in day nurseries gave emotional security greater precedence than did the others, while playgroups in particular emphasised the role of the nursery in getting children to mix well together & the development of self-confidence.

TABLE 2.4  
PROPORTION OF STAFF RESPONSES EMPHASISING  
PARTICULAR BENEFITS DERIVED BY THE  
CHILDREN FROM PARTICULAR FORMS  
OF PROVISION

	NST	NSA	NC	DN	PG	Overall
Training	0	0	0	0	0	0
Good physical care	0	0	0	3.9	0	0.8
Correct attitude to school	3.2	1.3	4.8	1.3	2.3	2.4
Foundation for school work	11.1	12.8	9.5	1.3	8.0	8.4
Enjoyment	1.6	0	0	2.6	10.2	3.3
Emotional security	1.6	0	4.8	15.8	0	4.3
Self confidence	12.7	5.1	6.3	6.6	13.6	9.0
Enhanced ability to mix	4.8	11.5	23.8	14.5	31.8	17.9
Stimulation of interests	7.9	16.7	12.7	9.2	10.2	11.4
Wider experience	15.9	7.7	7.9	11.8	8.0	10.1
Realised potential	11.1	17.9	14.3	17.1	11.4	14.4
Enhanced intellect	1.6	2.6	0	6.6	0	2.2
Enhanced language	28.6	24.4	15.9	9.2	4.5	15.8



The various items in question 11 of the questionnaire may be divided into three categories:

1. Training and care (items f, i, m, c)
2. Socio/emotional development (items h, k, e, a)
3. Intellectual development (items b, j, l, d, g).

Table 2.5 shows marked differences between the responses obtained from staff in different forms of nursery (it should be remembered that the responses listed are of those areas in which the staff consider the children are deriving most benefit). The emphasis on socio-emotional development in the playgroup is most marked, while the emphasis on intellectual development is greatest in the schools. The view of the nursery as a foundation for later schooling is found most often in the educational establishments.

In the next question, staff were asked to consider 6 different programmes which could be introduced into a nursery. Staff were requested to rank the programmes in order of priority. As Table 2.6 reveals there was here a great deal of similarity between the groups. All groups of nursery staff placed programme (e), emphasising the need to allow the child to develop his potential at his own rate within a caring and supportative environment, as the first priority, while effectively occupying the child's time or actively involving the parents received comparatively little support in each form of nursery.

All respondents, with the exception of two playgroup supervisors, stated that the children's activities in the

**TABLE 2.5**  
**PROPORTION OF STAFF RESPONSES EMPHASISING GENERAL**  
**AREAS OF BENEFIT DERIVED BY THE CHILDREN**  
**FROM PARTICULAR FORMS OF PROVISION**

	Training and care %	Socio/emotional development %	Intellectual development %
NST	14.3	20.6	65.1
NSA	14.1	16.7	69.2
NC	14.3	34.9	50.8
DN	6.6	39.5	53.9
PG	10.2	55.7	34.1

TABLE 2.6  
ORDER OF PRIORITY GIVEN TO ALTERNATIVE  
PROGRAMMES BY STAFF IN DIFFERENT  
TYPES OF NURSERY

	NST	NSA	NC	DN	PG
<b>First programme</b>	e	e	e	e	e
Mean Rank	5.7	5.4	5.4	5.4	5.1
<b>Second programme</b>	c	c	c	c	c
Mean Rank	4.1	4.4	4.4	4.3	4.7
<b>Third programme</b>	a	a	a	d	a
Mean Rank	4.0	3.8	3.9	4.0	3.4
<b>Fourth programme</b>	d	d	d	a	d
Mean Rank	3.5	3.4	3.7	2.7	2.8
<b>Fifth programme</b>	f	b	b	f	b
Mean Rank	2.4	2.5	1.9	2.5	2.6
<b>Last programme</b>	b	f	f	b	f
Mean Rank	1.4	1.5	1.6	2.3	2.5

nurseries were planned to some extent (Table 2.7). However, when asked about their attitude to the role of adults in the nursery, the staff in the various contexts tended to give different replies (Table 2.8). The need for some guidance and instruction tended to receive greater emphasis in the nursery schools and classes than in the day nurseries and playgroups where the view that staff should allow the child to play and explore in his own way predominated. Overall, the differences between the groups on this question were significant ( $\chi^2 = 35.89$ ,  $df = 8$ ,  $p < 0.001$ ).

Comparison of the nursery nurses holding NNEB qualifications but working in different kinds of pre-school establishments proved interesting. Generally, nursery nurses working in day nurseries were younger than those working in the educational establishments ( $\chi^2 = 58.05$ ,  $df = 8$ ,  $p < 0.001$ ). Similarly, they tended to be less experienced and less likely to have children of their own. Their motives for entering the work were generally similar but day nursery nurses tended to emphasise the 'compensatory' aspects of their work, a finding which is reflected in their according emotional security a more prominent place among the benefits derived by the children. Day nursery nurses tended to rely more on the day-to-day planning than the nursery assistants in the other two forms of nursery and similarly placed greater emphasis on allowing the child to play and explore in his own way. Thus, although the nursery nurses in the different establishments have in most

TABLE 2.7  
PLANNING OF ACTIVITIES IN THE PRE-SCHOOL  
NUMBERS AND PROPORTIONS OF STAFF ADMITTING  
TO DIFFERENT FORMS OF PLANNING  
IN THE NURSERY ENVIRONMENT

	<u>Daily Planning</u>		<u>Planning on longer term basis</u>		<u>Total responses</u>
	n	%	n	%	
NST	6	18	27	82	33
NSA	12	30	28	70	40
NC	12	43	16	57	28
DN	36	82	8	18	44
PG	31	74	11	26	42
	—		—		—
Total	97	52%	90	48%	187

**TABLE 2.8**  
**NUMBER AND PROPORTION OF STAFF ENDORSEMENTS**  
**OF DIFFERING FORMS OF ROLE FOR**  
**STAFF IN THE PRE-SCHOOL**

Role	(a)		(b)		(c)		Total
	n	%	n	%	n	%	
NST	16	50	6	19	50	31	32
NSA	17	45	4	11	17	45	38
NC	9	29	5	16	17	55	31
DN	4	9	1	2	38	88	43
PG	7	16	9	20	29	64	45
Total	53	28%	25	13.2%	111	58.7%	189

cases received similar training; some of their subsequent attitudes to their work may be seen to differ from one type of establishment to another.

#### Area B:

In terms of biographical details the staff in Areas A and B tended to be similar with the exception that nursery assistants in Area B tended to be younger and less experienced. Teachers in Area A also tended to be older and more experienced than their counterparts in Area B but the differences between the groups were not significant.

The benefits of nursery education emphasised by the staff were similar in both areas, although staff in Area B placed slightly less emphasis on the enhancement of language abilities, and slightly more on the development of the ability to mix. The rating of alternative nursery programmes was similar in both areas, although nursery nurses in Area B tended to give slightly greater priority to Programmes 'd' and 'f'. More teachers in Area B admitted to planning activities on a daily rather than a longer-term basis but no significant differences in staff attitudes to adult roles in the nursery could be found. Thus, generally, the two areas appeared to be remarkably similar in their responses of the nursery staff to the questionnaire. As a consequence, in the following inter-item analysis the two sets of staff are combined.

Analysis of age trends in the responses showed no significant effects. More experienced teachers tended to consider that their role should include a degree of

guidance for the child ( $\chi^2 = 9.659$ ,  $df = 2$ ,  $p < 0.01$ ) and a similar trend with experience was seen in nursery assistants, but did not reach significance. No effects of the social class of the children upon the nursery staffs' view of the nursery programme could be discerned. However, respondents who viewed their children as coming from a predominantly working-class background tended to emphasise the view that the nursery was providing a wider range of experiences than the home. Teachers tended to stress the need for guidance more in nurseries with a middle-class representation while the opposite was true of the play-group supervisors.

Analysis of the responses of teachers and nursery assistants in the educational establishments showed that, generally, whatever their views about the programmes to be run they saw enhanced language development as the principal benefit of nursery education. However, the group of teachers and assistants who saw the nursery as furnishing a good foundation for later schooling tended to emphasise programme 'a' which specifically sets out to develop skills necessary for later schooling within an overall plan. Perhaps not surprisingly, this group also emphasised the need for the adult to guide the child in his activities.

### Discussion.

Within the different forms of pre-school provision there appear to be interesting similarities and differences between the staff. In the main, staff in nursery education



tend to be experienced in terms of both their training and the length of time they have been working with the under 5's. There is also a strong probability that staff in nursery schools and classes will have children of their own. This last factor also pertains to playgroup staff, but the training of playgroup supervisors is usually more limited than that of their counterparts in nursery education. Staff in day nurseries prove to be an exception to the general rule of experience in caring for young children. The reason for this may lie in the working hours involved in employment in a day nursery and the difficulties these impose upon the combination of work and the raising of a young family. However, differences in response to other questions also serve to differentiate day nursery staff from others in pre-school provision. Analysis of the data reveals an emphasis upon the compensatory role of the day nursery by its staff, an acknowledgement that is highly appropriate in the light of the differences between the children in day nurseries and those in other forms of provision. Nursery nurses in day nurseries stress this as a particular motive for working in that form of pre-school provision, but with this exception the motives underlying the nursery staffs' wish to work with young children are very similar.

There would also appear to be a great deal of agreement between the staff in different nursery establishments concerning the benefits derived by the children from the nursery, although the emphases vary between one form and another. In part these differences in emphasis reflect

the varied histories of pre-school provision. Day nursery staff, for example, see good physical care and the provision of emotional security as important benefits of their type of nursery. Playgroup staff differed from the other staff in their greater emphasis on the rewards of enjoyment, self-confidence and an enhanced ability to mix. Turner and Green (1978) report a similar emphasis upon socio-emotional development in playgroup supervisors. Staff in nursery schools and classes placed somewhat greater weight on the intellectual and linguistic gains made through nursery education. However, staff in all four forms of provision saw the socialisation of the child as being of great concern, and despite some differences in emphasis there appears to be a consensus about the form of programme a nursery should run. The greatest surprise here, perhaps, lies in the comparatively low ranking accorded to the programme describing the active involvement of the parent in the development of the child's abilities. As various authors have stated parental involvement can take different forms and be broken down into different levels, (Gordon, 1968; Watt, 1977). The form of involvement proposed by the questionnaire concerned the integration of the parents in the process of tuition rather than the allocation of the parent to an auxiliary role in the nursery. Interestingly, the groups according parental involvement the lowest priority were the nursery nurses in the two forms of educational establishment. Watt (1977) also found some nursery nurses

unwilling to concede a role for parents in the nursery, suggesting that some nurses might see such a role pre-empting their own. Such reasoning may underlie some of the responses from nursery nurses to this question in the present study, although it should be pointed out that a degree of variability in the responses existed.

Almost without exception nursery staff indicated that they tended to plan the child's day to a certain extent. The length and degree of planning is obviously an important part of the structure of the nursery and is related to other aspects of the role of the adult. Closer inspection of attitudes towards the role is permitted by the answers to the final question. Taylor et al. (1972) provided the nursery teachers in their survey with four alternative views of their own role in the nursery; two child-centred and two teacher-centred. The present study deliberately excluded the most popular choice (teacher-centred; child directed) in order to polarise responses more clearly. As anticipated, respondents overwhelmingly opted for response alternative (c) (child centred; self directed), although exactly half the teachers in the sample opted for alternative (a), which presented a more structured teacher-oriented approach.

The findings of the study are in broad agreement with others completed recently (Watt, 1977; Abbott, 1978; Clift et al., 1980). Watt, for example, states that

"Teachers on the whole defined the function of the nursery school/nursery class in general terms of the needs of children using phrases such as 'providing scope for all kinds of social and intellectual learning' ".  
(Watt, 1977)

Such a child-centred approach is evident from the present study, although it would appear that a section of the teaching staff hold a brief for a rather more structured approach. As a consequence, nursery schools and classes may be more receptive than other forms of pre-school provision to the adoption of a system of assessment.

CHAPTER 3  
STAFF PERCEPTIONS OF PUPILS  
IN NURSERY EDUCATION

Introduction

Any questionnaire necessarily imposes to a certain extent a structure devised by the researcher. Several respondents in the questionnaire study reported in Chapter 2 expressed the feeling that their own views were not fully represented in their answers. The study described below was carried out in an attempt to overcome this limitation and to provide information that would compliment that obtained in the previous investigation. However, since the method finally adopted was relatively time consuming for both researcher and subject it was decided to limit the second study to staff in nursery schools and classes.

Whereas the first study concentrated on the general attitude of the staff in different forms of pre-school provision, the present one focuses upon teachers' and nursery nurses' perceptions of the children. Since the pioneering work of Rosenthal and Jacobsen (1968) much attention has been devoted to the ways in which teachers perceive their pupils and to the relationship between teacher perception and pupil performance (for reviews see Pidgeon, 1970; Nash, 1976; Burstall, 1979). Although the original work of Rosenthal and Jacobsen has been the subject of much criticism on methodological grounds (e.g. Thorndike,

1968; Claiborne, 1969; Snow, 1969), some subsequent studies have continued to suggest that the investigation of the attitudes of teachers towards their pupils is of considerable value for the understanding of classroom processes. Quite naturally studies have tended to focus upon the teachers of children of compulsory school age. Comparatively little research has been directed towards the question of which characteristics of their pupils nursery teachers actually attend to and consider important. The present study addresses itself to this question.

In order to overcome the problems associated with questionnaires and rating scales researchers have recently turned to a technique, the repertory grid, first used and described by Kelly (1955) in his elucidation of a theory of personal constructs. Kelly was principally concerned with the development of the theory, which assumes that each person perceives the events and people he considers to be relevant to his life through a framework of a hierarchical system of bi-polar constructs. Subsequent use of the associated methodology for eliciting and analysing personal constructs, however, has seldom entailed adoption of the theory in which it was originally embedded. Partly as a consequence of this disassociation of method and theory the technique has developed in a variety of different ways and has been used for a multiplicity of purposes (Bannister and Mair, 1968; Fransella and Bannister, 1977) including several studies in education (Yorke, 1978). As Wood and Naphthali (1975) assert, it seems reasonable to suppose that teachers

are liable to pick out different aspects of their pupils' achievements, their perceptual field being governed by a complex of personal characteristics modified by experience. The repertory grid technique gives access to these perceptions.

Unfortunately, in the world of nursery education the study of teachers' perceptions of children in general, and the use of repertory grid techniques in particular, has been limited. Smith (1970) examined the attitudes of staff in three different forms of pre-school provision: a playgroup; a day nursery; and a nursery school. Each of the eleven subjects involved in the study completed a minimum context form of repertory grid. The number of constructs elicited varied between fifteen and twenty and Smith states that the main impression obtained from comparison of the different grids was of their similarity, most subjects emphasising the social rather than the academic performance of the children.

Thompson(1975) in an exploratory study of nursery teachers' perceptions of their pupils used a repertory grid technique with staff in two nursery schools that appeared to differ in their atmosphere and attitude towards nursery education. A total of seven teachers and nursery nurses participated. The elicited constructs were placed in eleven major categories of which three were concerned with personal qualities of the children, two with the childrens' social behaviour and four with displayed

competence and ability. Quite marked differences were found between staff in the different schools, the first emphasising childrens' personal qualities, while the second, although more varied, gave greater weight to negative aspects of evaluation such as the need for discipline.

In a pilot study for a larger project, Cashdan and Philips (1975) administered repertory grids to ten teachers working in nurseries. A content analysis of the constructs from all the grids obtained revealed a tendency for teachers to view pupils exclusively in terms of static judgements rather than in dynamic terms of development or progress. Almost half the constructs elicited concerned personal qualities of the children, while the subsequent principal component analysis showed the first components in each case to be concerned predominantly with positive or negative evaluations of the children. Cashdan (1979) implies that the way in which nursery staff perceive their children may have important consequences for interaction within the class.

Although the three studies cited above provide useful insights, each has been conducted on a fairly small sample of subjects or has neglected certain important aspects such as a comparison of the perceptions of staff with different training. The present study set out to examine the perceptions of both teachers and nursery nurses in nursery schools and classes.

### Study 3.1 : Nursery staff's perceptions of pupils



## Subjects

The subjects of the study consisted of 20 teachers and 20 qualified nursery nurses working in <sup>7</sup>nursery schools and 5 nursery units attached to infant schools.

## Procedure

The procedure was devised as a result of a pilot study involving three members of nursery staff who were subsequently excluded from the main study. Subjects were interviewed individually by the researcher. The purpose of the procedure was described to the subjects as an 'attempt to see the children through their eyes'. It was emphasised that responses given would not be evaluated but that the researcher might attempt to clarify responses where ambiguity was suggested.

The procedure was divided into several phases:

- 1) elicitation of elements and constructs.
- 2) elicitation of polarities of constructs.
- 3) location of elements on construct dimensions.

The separate phases are described below:

- 1) Elicitation of elements and constructs.

The nature of the elements selected by the researcher is likely to have an important bearing on the constructs elicited. Elements should, therefore, be chosen carefully to give a representative sample of the field under study. Since the focus of the investigation was staff perceptions of children, the items to be sorted consisted of children within the school. Six boys and six girls were selected

at random from within the class of the subject. Where possible, children who had been present in the class for less than one term or who were in their final term in the school were omitted, in an attempt to ensure that, while staff were reasonably familiar with all the children, they were unlikely to have spent time concentrating on any group of the children in particular. Within these constraints the attempt was made to ensure approximately equal representations of children of different age groups.

Previous studies have utilised either a maximum or a minimum context sorting procedure in order to elicit the subjects' constructs. Since the manner in which the items are presented to the subject may influence the form and generality of the constructs obtained, it was decided to employ both forms of presentation in the present study. The names of the children chosen as elements were placed on numbered cards. In the first stage of elicitation of constructs the teacher or nursery nurse was presented with all twelve elements simultaneously. The subject was then asked:

"Can you sort the children into groups so that children in a group are alike in some way and groups differ in some way that is important."

Once the subject had commenced sorting and had placed several cards in juxtaposition he was asked in what way the children grouped together were alike. The response was recorded and the subject asked for the opposite of the construct elicited. Occasionally, more than one construct

pair was elicited in a single sort. All pairs of constructs elicited were recorded.

After the initial sorting of the items the cards were rearranged and the subject was asked to sort again in a different way. The procedure was repeated until a maximum of six separate sorts had been completed or until the subject indicated that she was unable to supply further constructs by this procedure.

In the second stage of elicitation the subject was presented with the items in triplets and asked:

"Can you tell me if two of these children are alike and differ in some important way from the third."

The constructs supplied were recorded. A balanced incomplete block design of presentation was used in order to minimise the retention of particular elements in successive trials.

With both forms of elicitation the subjects were encouraged to focus first on the pair or group. However, occasionally, and with the minimum context sort in particular, subjects initially supplied a construct applying to a singleton. Such a construct was recorded and its opposite asked for. In all cases, however, subjects were encouraged to avoid constructs where the bipolarity was implicit rather than explicit (e.g. plays well - does not play well). Such construct pairs provide problems for the researcher who has to infer the meaning of the negative pole. Thus an attempt was made to ensure that the constructs were expressed in the form 'X - Y' rather than 'X - Not X' (Yorke, 1978). Where an elicited construct pair was

considered potentially ambiguous, or it closely resembled a pair elicited earlier the subject was questioned further to clarify meaning. At the end of the phase of construct elicitation she was again asked about all the constructs obtained in order to remove equivalents. Throughout this phase of the procedure an attempt was made to use and record only those terms supplied by the subject, thereby minimising bias from the researcher.

## 2) Elicitation of polarities of constructs.

In the next phase of the procedure the subject was asked to discuss the constructs supplied in the light of the characteristics the nursery was attempting to foster in the child and the manner in which the child's development was to be achieved. In particular, the subject was requested to rate the construct poles positively or negatively. Flexibility of questioning in the interview was found to be especially important at this stage. In the second part of this phase of the procedure construct pairs were written on to pieces of card and subjects asked to rank them in relative order of importance. The items rated first were assumed to be accorded the greatest importance.

## 3) Location of elements on construct dimensions.

In the final part of the procedure, the six construct pairs rated as being of most importance to the subject were taken as representing her core constructs. The subject was then requested to rate the twelve children used as elements on each construct pair using a seven point scale. Where elicited constructs were excessively permeable and clearly

not amenable to rating (e.g. boy - girl) the construct next in order of importance was substituted. Rating was carried out by placing the element cards under the attributed score on a larger piece of card. Between ratings on different construct pairs the items were reordered and the direction of positive and negative poles randomly assigned. Scores attributed to individual elements were recorded by the researcher rather than by the subject, who was unable to see the completed matrix. In this manner an attempt was made to avoid possible halo effects.

At the conclusion of the interview subjects were asked whether the discussion had omitted any area of importance to the perception of children in the nursery. Finally, staff were questioned about their length of experience of working with children below the age of five years. On average the total procedure lasted fifty minutes.

### Results

The final question of the interview from which information on the experience of the staff with the relevant age group of children was obtained, revealed that the staff interviewed contained a cross-section of the adult nursery population, some staff having less than five years experience, others much more than ten.

The first phase of the procedure elicited 374 construct pairs from the 40 subjects. Teachers supplied an average of 10.15 pairs, nursery assistants rather less with 8.55 construct pairs on average ( $t = 2.533$ ,  $df = 38$ ,  $p < .02$ ). When additional constructs obtained at the end of the

interview are included the figures rise to 414, 10.90 and 9.80 respectively and the difference between teachers and nursery nurses just fails to reach significance.

Since overlap or equivalence between construct pairs was suspected, constructs believed to be concerned with essentially the same areas were assigned to categories, with the rider that, because of the way in which constructs were elicited, no two constructs supplied by the same subject could be assigned to the same category. The constructs were placed in 16 major categories and 37 sub-categories. The areas thus differentiated are indicated in table 3.1 and definitions and examples of each category are supplied in Appendix B. As Smith (1970) points out, constructs elicited still require understanding from the experimenter and categorisation of similar constructs may lead to a loss of meaning. In order to guard against this to a certain extent, reliability of categorisation was ascertained by resort to comparison with independent assessors. Two colleagues were supplied with descriptions of 105 construct pairs chosen at random and containing at least one example of each sub-category. An overall agreement of 78.3% on each sub-category and 89.3% on the superordinate categories between the three raters was deemed satisfactory and justified use of the classification in the subsequent analysis. There was no evidence that any particular sub-category was especially unreliable.

TABLE 3.1  
CATEGORISATION OF CONSTRUCTS ELICITED  
BY REPERTORY GRID TECHNIQUES

<u>CATEGORY</u>	<u>SUBCATEGORY</u>
1. Child's relationship with children:	i) Ability to mix ii) Aggression iii) Leader - Follower
2. Child's personality:	i) Confidence ii) Loquacity iii) Boisterousness iv) Disposition v) Emotional adjustment
3. Child's relationship with staff:	i) Independence ii) Conversation
4. Staff attitude:	i) Eagerness ii) Co-operativeness
5. Play:	i) Play ability ii) Play preference iii) Play value iv) Play type
6. Concentration:	
7. Ability:	i) Intelligence ii) Awareness and comprehension
8. Language:	i) Speech ii) Use
9. Creativity:	
10. Self-help:	
11. Physical development:	
12. Age:	i) Chronological age ii) Maturity iii) Rate of development
13. Sex:	
14. Home background:	i) Stability and Security ii) Physical care iii) Care and interest iv) Expectations v) Status vi) Family vii) Parting & Separation
15. Settling in:	
16. Miscellaneous:	

The frequencies with which constructs of a particular superordinate category were elicited are given for teachers and nursery nurses separately in Table 3.2. Generally, the two groups of subjects are very similar on this measure, the only significant difference occurring with constructs pertaining to the child's home background. Significantly more constructs were supplied by teachers than by nursery nurses in this area. The most frequently elicited constructs for both groups referred to the child's personality (Table 3.3).

Table 3.4 shows the most frequently elicited constructs by sub-category for teachers and nursery nurses. Both groups frequently mentioned the child's overall level of intelligence and the ability to mix, the latter assuming particular importance for nursery nurses.

Comparison of the two different forms of elicitation employed revealed no differences in terms of the form of the constructs obtained. It had been hypothesised that the maximum context sorting procedure would produce more global constructs but no clear evidence of this was obtained. Several people encountered difficulty with the maximum context sort, fifteen of the subjects (6 teachers and 9 nursery nurses) stating that they saw the children as individuals rather than members of groups.

Analysis of the constructs elicited according to the experience of the subjects revealed few differences. Experienced teachers tended to produce more constructs than less experienced teachers but the reverse trend was observed in the responses of nursery nurses.



**TABLE 3.2**  
**FREQUENCY & PROPORTION OF SUPERORDINATE**  
**CONSTRUCTS ELICITED BY TYPE OF STAFF**

<u>Construct</u>	<u>Teacher</u>		<u>Nursery Nurse</u>		<u>Total</u>	
	n	%	n	%	n	%
1. Child's relationship with children	22	10.84	26	15.20	48	12.83
2. Child's personality	37	18.23	33	19.30	70	18.72
3. Child's relationship with staff	11	5.42	13	7.60	24	6.42
4. Staff attitude	12	5.91	12	7.02	24	6.42
5. Play	13	6.40	16	9.36	29	7.75
6. Concentration	7	3.45	4	2.34	11	2.94
7. Ability	15	7.39	14	8.19	29	7.75
8. Language	15	7.39	10	5.85	25	6.68
9. Creativity	4	1.97	6	3.51	10	2.67
10. Self-help	2	0.99	0	0	2	0.71
11. Physical development	6	2.96	1	0.58	7	1.87
12. Age	17	8.37	14	8.19	31	8.29
13. Sex	5	4.13	3	1.75	8	2.14
14. *Home background	26	12.81	11	6.43	37	9.89
15. Settling in	4	1.97	3	1.75	7	1.87
16. Miscellaneous	7	3.45	5	2.92	12	3.21
	<u>203</u>		<u>171</u>		<u>374</u>	

\*  $p < 0.02$  ( $\chi^2$  one-sample test).

TABLE 3.3RANK ORDER OF SUPERORDINATE CONSTRUCTCATEGORIES BY FREQUENCY OF ELICITATION

Rank	Construct	Total		Teacher		Nursery Nurse	
		n	%	n	%	n	%
1	2. Child's personality.	70	18.72	37	18.23	33	19.30
2.	1. Child's relationship with children	48	12.83	22	10.84	26	15.20
3	14. Home background	37	9.89	26	12.81	11	6.43
4	12. Age	31	8.29	17	8.37	14	8.19
5.5	7. Ability	29	7.75	15	7.39	14	8.19
5.5	5. Play	29	7.75	13	6.40	16	9.36
7	8. Language	25	6.68	15	7.39	10	5.85
8.5	4. Staff attitude	24	6.42	12	5.91	12	7.02
8.5	3. Child's relationship with staff.	24	6.42	11	5.42	13	7.60
10	16. Miscellaneous	12	3.21	7	3.45	5	2.92
11	6. Concentration	11	2.94	7	3.45	4	2.34
12	9. Creativity	10	2.67	4	1.97	6	3.51
13	13. Sex	8	2.14	5	4.13	3	1.75
14.5	11. Physical development	7	1.87	6	2.96	1	0.58
14.5	15. Settling in	7	1.87	4	1.97	3	1.75
16	10. Self-help	2	0.71	2	0.99	0	0.00

TABLE 3.4.  
FREQUENCY & PROPORTION OF THE MOST  
FREQUENTLY ELICITED SUBORDINATE  
CATEGORIES OF CONSTRUCTS  
BY TYPE OF STAFF

<u>Rank</u>	<u>Nursery Teachers</u>	<u>n</u>	<u>%</u>
1.5	2i. Confidence	11	55
1.5	7i. Intelligence	11	55
3.5	1i. Ability to mix	10	50
3.5	12i. Chronological age	10	55
5.	2iv. Disposition	9	45

<u>Rank</u>	<u>Nursery Nurses</u>	<u>n</u>	<u>%</u>
1.	1i. Ability to mix	14	70
2.	7i. Intelligence	12	60
3.5	2iii. Boisterousness	11	55
3.5	5ii. Play preference	11	55
4.	1ii. Aggression	9	45

Analysis of polar preferences on constructs showed that staff felt it highly desirable that children should mix well, that they should be confident and emotionally well adjusted, and converse freely with adults in the nursery. Emphasis was also given to the importance of the development of linguistic facility. It was also evident that staff attributed little importance to the co-operativeness of the child (although some nursery nurses considered that it was) or the child's play preferences.

Analysis of the staff rankings of their own constructs in order of importance produced some interesting findings (Table 3.5), suggesting that the frequency with which a construct is elicited is not always a good index of the importance that may be attributed to it. For instance, whereas constructs relating to the child's relationships with other children were the second most frequent category elicited, they were ranked eighth and seventh in order of importance by teachers and nursery nurses respectively. Where constructs referring to the child's home background had been elicited these were accorded considerable importance by both teachers and nursery nurses. The child's home background can thus be seen as an important factor in the explanation of the child's behaviour by nursery staff. Overall, the rank ordering for the two professions was very similar (Spearman's rank correlation;  $\rho = 0.8986$ ,  $df = 11$ ,  $p < 0.01$ ).

TABLE 3.5  
RANK ORDERING BY IMPORTANCE OF ELICITED  
CONSTRUCTS BY TEACHERS AND  
NURSERY NURSES

<u>TEACHERS</u>		<u>NURSERY NURSES</u>	
<u>Rank</u>	<u>Category</u>	<u>Rank</u>	<u>Category</u>
1	14. Home background	1	8. Language
2	12. Age	2	14. Home background
3.5	7. Ability	3	12. Age
3.5	8. Language	4	3. Child's relationship with staff
5	3. Child's relationship with staff	5	2. Child's personality
6	2. Child's personality	6	7. Ability
7	11. Physical development	7	1. Child's relationship with children
8	1. Child's relationship with children	8	9. Creativity
9	6. Concentration	9	5. Play
10.5	9. Creativity	10	4. Staff attitude
10.5	5. Play	11	6. Concentration
12	15. Settling in	12	13. Sex
13	4. Staff attitude		
14	13. Sex		

N.B. Category must have been elicited more than once  
to be included in analysis.

As a final part of the analysis each completed repertory grid was subjected to a principal component analysis. In each case, the first pair of components accounted for more than 70% of the variance. Generally, the first component could be interpreted as a measure of social maturity but interpretations of the second component were more difficult and more varied.

### Discussion

In general, the findings of this study are in accord with those of the earlier studies of Smith (1970) and Thompson (1975). The results are also congruent with those obtained from the questionnaire described in the previous chapter. In general, the principal area of concern for staff working with the young child is his social development. The constructs elicited that related to this area showed a fine degree of discrimination between different facets of this development. By contrast, where constructs pertaining to other areas of development - intellectual, physical or linguistic - were elicited they tended to be more global and less precisely defined. It was also noteworthy that whereas staff were willing to attribute negative values to a child's social behaviour, they were less willing to do so for other aspects of behaviour where the positive pole was stressed. For example, although staff were content to state that a particular child was bright, they would label other children as 'less bright'. Staff denied that they preferred to work with the brighter children, stating that they saw it as a duty to share their

time evenly between children; where a discrimination between children was made it was on the grounds that less bright children required greater assistance.

The child's ability level was seen as being something that staff should be aware of, but intellectual abilities considered especially important remained undisclosed from the study. As in the questionnaire study, language development was separated from other cognitive areas and given prominence. This finding is supported by the work of Clift et al. (1980), who report that:

"Aspects of language development were seen as distinct from and almost independent of areas related to cognitive or intellectual development, and of social aims."

(p. 44)

However, whereas Clift et al. (idem) found teachers making statements of aims concerning language development more frequently than nursery nurses, both groups in the present study attributed importance to this area. Indeed, the nursery nurses from whom a construct concerning language development was elicited, as a group accorded this area greatest importance. Teachers ranked it behind home background, age and general ability.

Both groups emphasised that it is important that nursery staff should be aware of the child's home background. It will be remembered that in the questionnaire study the programme which suggested a need for the active involvement of parents in the nursery routine was given a low priority, yet from the present study it is obvious that staff recognise the powerful influence of the home upon the

child's performance. It may be argued that knowledge of the home background is used to explain the child's behaviour in the school, although most staff stressed that they were reluctant to 'judge' any of the parents of their children. The use of 'home background' as an explanatory concept is well documented (e.g. Goodacre 1968; King, 1978).

King suggests that the 'family - home background theory' preserves two important ideological elements for the teachers. First, the innocence of the children: they cannot be blamed for their lack of progress or poor behaviour which is due to their background. Secondly, the 'theory' means that the school, and in particular the teacher, is exonerated from blame for the child's lack of progress and consequently neither the methods and practices of the school, nor the child centred ideologies underlying them, are questioned. It is interesting to consider that a similar 'theory' may be used by some staff in nursery schools and classes, although it is not suggested that ignorance of the child's home background on the part of the nursery staff is desirable.

As already noted, staff generally sought to avoid responses that were explicitly judgemental. Yet, as Smith (1970) and Cashdan et al. (1975) found, analysis of the repertory grid revealed an underlying evaluative component. Thus, despite the fact that the expressed ethos of the nursery refrains from making evaluations, teachers and nursery nurses do appear to do so. The criteria for the evaluations, however, are not usually explicit.



Three previous studies have employed repertory grid techniques in order to elicit the perceptions of primary school teachers (Nash, 1973, Taylor, 1976; Aitkenhead, 1978). Nash (1973) in his study of primary school children and their teachers reported that the two most common constructs used by teachers were 'well-behaved - poorly-behaved' and 'high-ability - low-ability'. Taylor's (1976) study also suggested that academic criteria predominate in the teachers' perceptions of their pupils. Aitkenhead's (1978) work examined the views of reception class teachers. The results of his study suggest that there are differences among reception class teachers as to the ways in which they perceive their pupils; some teachers stressing social adjustment while others attend mainly to ability and achievement from an early age. In general, more academic criteria are more commonly found later in the school year. Combining the findings of these studies with those of the present, one may hypothesise that there is a continuum in the perceptions of teachers at different stages of the educational process. At the nursery stage the emphasis is placed firmly upon social adjustment. In the reception class this emphasis shifts through the course of the year towards more academic criteria, until in later primary school these aspects and some pertaining to the social control of the child predominate.

### Conclusions for Assessment in Nursery Education

King (1978), through observation of infant teachers' actions, suggested that these were related to the ideas they held about the nature of young children and the nature of the learning process. These ideas formed coherent sets or ideologies. For the most part these ideologies were unconsidered by the teachers because they were taken for granted, but occasionally they were made more explicit, as in the writing of letters and guidance notes for parents. The prevailing ideology of the infant school finds official expression in the Plowden Report (1967), and is essentially one of child-centredness. Within this there are important elements of 'developmentalism', 'individualism', play as learning and childhood innocence (King, idem). It is possible to make similar inferences about an ideology of the nursery from the studies presented in this and the previous chapter. In developing a system of assessment for pre-school provision recognition should be made of the existence of this ideology. Thus the system should:

- 1) focus attention on the individual child;
  - 2) provide a means of describing the development of that child and evaluating whether that development is occurring satisfactorily;
- and 3) be compatible with an environment that stresses the importance of play with a minimum of adult intervention.

From the questionnaire study and the ensuing discussion it would appear that the aims of the nursery are comparatively

broad and imprecise. This would suggest that whereas conventionally a system of assessing and recording progress is dependent upon the previously formulated aims and objectives of the users, in the case of the nursery specific objectives will have to be, to a certain extent, externally imposed.

Accompanying the child-centred ideology of the pre-school is a general opposition to formal structure, as may be seen from responses within the questionnaire study. Therefore, in order to gain acceptance among nursery staff, a system of assessment should be as flexible as possible and require the minimum of formality in its procedure. Any system of assessment is bound to add to the structure of a traditional nursery, in which assessment has not previously had a place. It would seem that nursery schools and classes would be more receptive to such a system than other forms of pre-school provision, since staff in these institutions seemed from their responses more willing to countenance some teacher-direction in activities.

Both of the studies described above reveal that nursery staff perceive a need to foster all facets of the child's development. Any system of assessment should reflect this holistic approach and should refrain from focusing too narrowly on any particular area of development. However, whereas nursery staff appear to view the child's development in the areas of cognition, physical and linguistic skills in global terms, a system of assessment should break these areas down into more specific components in order that progress may be recorded accurately.

A final point is that the assessment system should depend primarily on information that can be obtained from the nursery setting rather than rely on the home as a source. The relationship between the nursery and the home is often, it would seem, an ambivalent one, and although the results of the system of assessment may act as a focal point for dialogue, in the first instance the value of the system lies in the help that it may provide for staff working within the nursery.

## CHAPTER 4

### THE ASSESSMENT OF PLAY

#### Introduction

The previous chapters have revealed an emphasis on free-play in the nursery. Not only does it occupy the greatest part of the nursery session it also has a central position in the nursery ethos. Since play is the predominant activity of the nursery child it would appear that the analysis of this activity forms the logical starting point for the assessment of the child's developmental level. The present chapter examines ways in which play may be categorised, analysed and assessed.

#### Types of Play

Given that numerous definitions of play are available it is, perhaps, not surprising that play may be differentiated into different forms. In attempting to assess play it is necessary to examine these and to consider whether one form is necessarily superior to another.

Piaget (Piaget & Inhelder, 1969) distinguishes four forms of play:

- 1) Exercise play: a primitive form of play and the only kind that occurs at the sensory-motor level: it is retained in part later. It consists in repeating, for the pleasure of it, activities acquired elsewhere.

- 2) Symbolic play: a form which occurs typically between eighteen months and seven years and which is seen as the assimilation of events in symbolic form.
- 3) Games with rules: this form of play is transmitted socially and increases in importance with the enlargement of the child's social life.
- 4) Games of construction: this form develops initially out of symbolic play. In its initial stages it is imbued with play symbolism but later it constitutes genuine adaptation or solutions to problems and intelligent creations.

For Piaget the four categories of play form a sequential hierarchy with exercise play typical of the youngest group of children, games of construction typical of the oldest. By implication play of the latter form may be deemed superior to play of the former kind. However, for the purposes of assessing play in an individual child between the ages of three and five years the categorisation is of limited value since two of the forms of play, games with rules and games of construction, rarely occur amongst the child's activities. The assessor would, in the main, be confronted with a simple dichotomy between exercise play and symbolic play. How then are we to distinguish between different forms of play at this age level? Hutt's taxonomy of play may form a useful starting point to an attempt to answer this question (Hutt, 1979).

Hutt commences her development of a taxonomy of play by distinguishing exploration and play, two activities which are often confused. The distinction is drawn on the basis of empirical observations of children responding to the stimulus of a novel toy (Hutt, 1966). In the course of the study, 128 three-to five-year old children were observed and the pattern of specific exploration was found to be fairly similar in all of them (Hutt, 1967). After initial exposure to the novel stimulus, the child would approach and inspect the toy. This visual inspection was followed by a fairly prolonged period of active investigation and manipulation, during which the child's action patterns were comparatively stereotyped and his posture and expression were interpreted as showing signs of concentration. After this initial 'exploratory' phase there followed a period when the child, exhibiting a posture and expression interpreted as relaxed, proceeded to manipulate the novel object by means of action patterns which were more varied in form than in the previous phase. For Hutt, the child, having acquired information concerning the properties of the novel toy through exploration, now utilised that knowledge in play. While exploration declined continuously with time, play activity increased to a peak before declining (Hutt, 1967). The distinctive features of the investigatory and playful phases are shown in Table 4.1 (from Hutt, 1970). The most interesting inference that may be drawn from Hutt's study is that play does not always enhance learning. Where the child's

TABLE 4.1CHARACTERISTICS OF INVESTIGATION AND PLAY(from Hutt, 1970)

A	<u>Investigation</u>	<u>Play</u>
1.	Synchrony of visual and tactile receptors.	Desynchrony, or only transient synchrony of receptors.
2.	Intent facial expression.	Relaxed facial expression.
3.	Stereotyped sequence of behavioural elements.	Variable and idiosyncratic sequence of elements.
4.	Elements of relatively long duration.	Elements essentially brief.
5.	Elicited by novel stimuli.	Never manifest in the presence of novel stimuli.
6.	Implicit query: "what does this <u>object</u> do?"	Implicit query: "what can I do with this object?"
7.	Shows linear decrement with time.	Is quadratic function of time.



exploration of the novel toy was perfunctory, the child did not always acquire further information about the object during the subsequent period of play with the toy. Where information was obtained during play it appeared to be largely accidental. Hutt concludes that play, as opposed to exploration, far from promoting learning may in some instances actually preclude it.

The findings of the above and related studies in combination with the semantic confusion surrounding the usage of the terms 'play' and 'exploration' prompted Hutt to develop a taxonomy of play which serves to make the distinction between the two forms of play more obvious (see Figure 4.1). Hutt commences this exercise by presenting a dichotomy between 'epistemic' and 'ludic' components of those activities which are generally subsumed under the term 'play' used in its broadest possible sense, i.e. between behaviour that is concerned with the acquisition of knowledge and that which is essentially 'playful' and pleasurable. The differences between the two categories are various (see summary in Table 4.2), and are similar to, but not identical with, those between exploration and play.

Hutt's two main categories of play may be further subdivided. Problem solving activities, involving the completion of puzzles, jig-saws etc. are the most task-oriented of epistemic behaviour patterns. Within these tasks the objective is to a certain extent inherent. Hutt (1979) argues that the desire to achieve solutions wholly constrains

**FIGURE 4.1**

**A TAXONOMY OF PLAY (from Eutt,1979)**

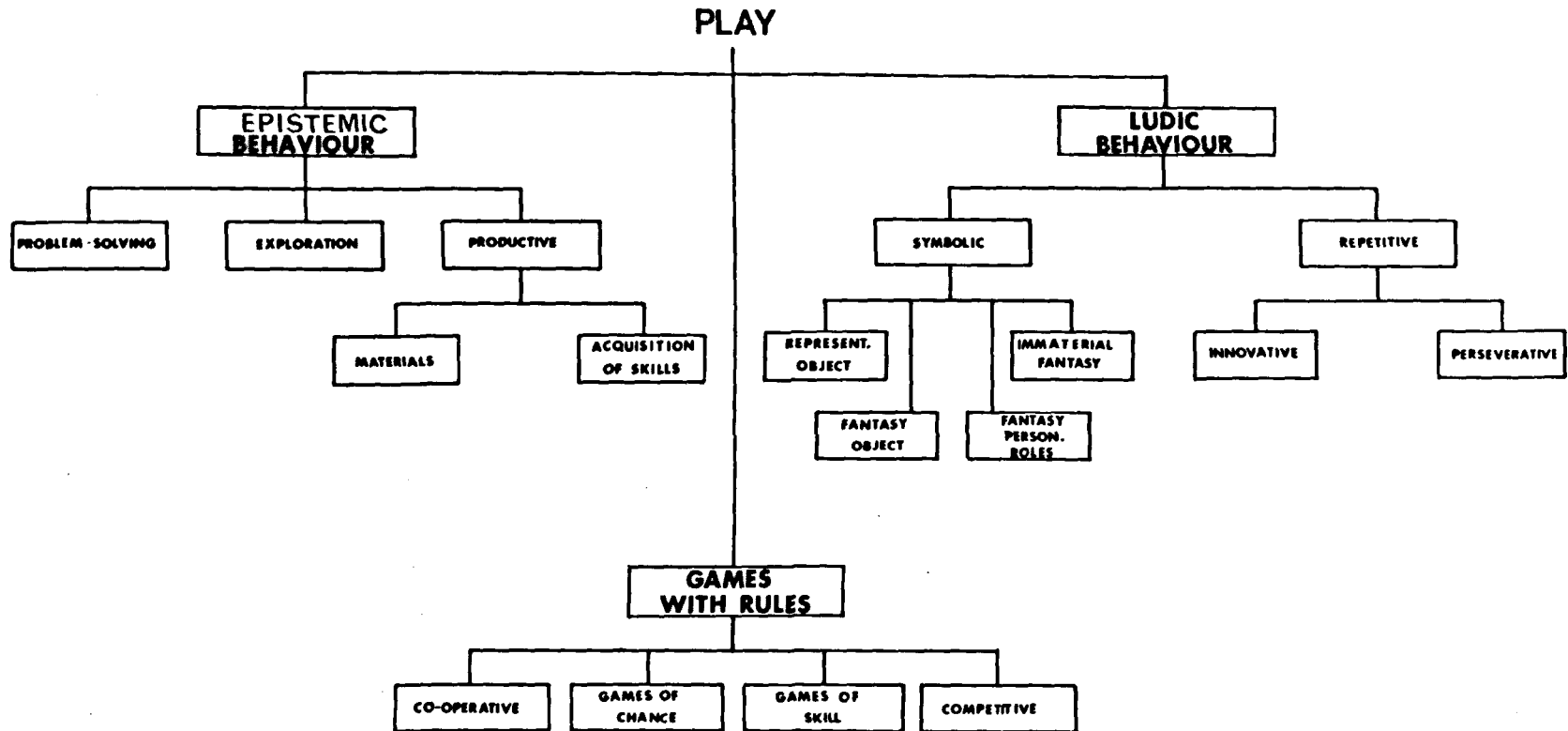


TABLE 4.2  
CHARACTERISTICS OF EPISTEMIC  
AND LUDIC BEHAVIOURS  
(after Hutt, 1979)

	<u>Epistemic</u> <u>Behaviour</u>	<u>Ludic</u> <u>Behaviour</u>
Focus of Attention	External	Internal
Nature of Attention	Sustained	Fragmentary
Mood State	Independent	Dependent
Constraints	Externally imposed, Obligatory.	Internally imposed, Optional.
Definition	Functional	Morphological

the child and the particular action patterns displayed are determined solely by the nature of the problem. A second subdivision of epistemic activity is termed 'specific exploration'. Here the objectives are rather less closely defined than in problem-solving but again behaviour is to a certain extent constrained by the properties of the focal object or material. The third subdivision of epistemic behaviour is termed 'productive', since the activities subsumed under this title are concerned with changes leading to an end product. This, in itself, acts as a form of constraint upon the child's pattern of behaviour.

Epistemic behaviour patterns require effort, sustained attention and persistence and, therefore, resemble 'work' more closely than ludic behaviour patterns. Epistemic behaviour may override particular mood states. Ludic behaviour, however, is highly sensitive to mood and may only be elicited when the child feels relaxed and well.

Ludic activity itself may be subdivided into 'symbolic' play and play which contains a 'repetitive' element. Symbolic or fantasy play may be subdivided according to the focus of the fantasy (after Davie et al. 1975). Repetitive play may be broken down into the categories of 'perseverative' and 'innovative' play according to the degree of novelty introduced into the behaviour patterns.

Hutt proceeds to outline possible physiological mechanisms which underly the various play states employing

an arousal model derived from the work of Berlyne (1960). However, for the purposes of assessing play it is not necessary to adopt a particular explanation of it: our main concern is the value that may be placed upon particular forms of play. Hutt's taxonomy is a useful starting point in that it takes account of the behavioural distinctions which characterise different forms of the children's activities generally termed 'play'. Hutt's model with its distinction between epistemic and ludic aspects of play resembles Piaget's discussion of the role of imitation and play. (Piaget, 1951). Epistemic behaviour is concerned with the acquisition of information and knowledge (the initial stages of the process of accommodation); ludic behaviour involves the rehearsal of material already acquired (as Piaget argues for the quintessence of assimilation, symbolic play). However, Hutt's model carries us further. Not only does it present us with a picture of the underlying motivational forces, it also directs us to consider the role of exploration as opposed to play. The importance of exploration in learning has been demonstrated empirically (e.g. Hutt and Bhavnani, 1972). The value of symbolic play in learning will be discussed later in this chapter. As with the work of Piaget, one should not conclude that the behaviours on the left hand side of the diagram in Figure 4.1. are necessarily superior to those on the right hand side. It may be argued, once again, that for the child to function at an optimal level opportunity and stimulation for the acquisition of skills must be available, as must

time for their rehearsal. Indeed Hutt's taxonomy suggests that there is a need for a balance to be struck between the two forms of play: if a child exhibits predominantly epistemic behaviour patterns it could be argued that, although learning (accommodation) is occurring, generalisation through the application of the skills and concepts to different contexts is not. Gilmore (1971) makes a similar point when he argues that play prevents new abilities from being lost due to disuse. Similarly, if a child spends an overwhelming proportion of his time engaged in ludic behaviours it is difficult to see how, following the reasoning of Piaget and Hutt, the child could acquire much fresh information to aid his development further. Thus, it may be argued that an excessive predominance of any one form of play in the child's repertoire is unlikely to be conducive to optimal development.

Hutt also cautions those concerned with child's play, that play which involves a great deal of repetition is often undesirable. In her terminology, where actions are repeated without any novel features they become perseverative. The most extreme examples of such activity are the stereotypes of autistic children where the same sequence of actions is continuously repeated in invariant form. (Hutt & Hutt, 1968; 1970). Although such extreme manifestations of perseverative behaviour are rare in normal children, thumb-sucking, rocking and other repetitive self-manipulatory or self-stimulatory behaviour patterns also fall into this category. This is behaviour of which the average teacher

would be aware; other perseverative patterns are less obvious. Hutt et al. (in preparation) argue that the actions of children at the sand trough or water trough frequently show a high degree of perseveration. In many cases it is difficult to argue that this repetition constitutes the useful rehearsal or practice of a skill since the actions may have been performed frequently with only limited variations for many months. Teachers argue that children need occasionally to retreat from the stimulus of the environment and that repetitive activities help them to do this. Undoubtedly, as has been argued above, ludic (and within them repetitive) behaviour patterns do have a place. Yet if a child devotes considerable time to the repetition of elementary movement patterns long since acquired it may be construed that he is not playing at an optimal or even a desirable level.

Within Hutt's taxonomy many different forms or types of play may be distinguished on the grounds of their morphology and supposed function (Garvey, 1977, Hutt, 1979, 1980). In studies of nursery education, categorisation has tended to focus on the morphology of the child's behaviour (e.g. physical play), the material focus of the behaviour (e.g. collage), or its symbolic content (fantasy play). Lomax (1977) suggests that in recording children's progress in the nursery, staff should observe the children and record the proportion of time dedicated to each type of activity by the child. It is difficult to see, however, of what value this information is other than ensuring that

the child is subject to a variety of experiences: while indulging in a particular activity the child's behaviour may be exploratory or repetitive, absorbed or desultory. Sutton Smith (1965) concludes that it is not possible, in general, to interpret a preference on a play scale as an indicator of real play participation or competence. The form of the child's play may be readily observed - its quality is less easily demonstrated.

### The quality of play

That superficially similar activities may have different qualities associated with them is generally recognised:

"There are two levels of play. One merely keeps children occupied: the other contributes to their educational development."  
(Parry and Archer, 1974)

Sylva et al. (1980) comment that they found teachers in nursery education loath to deprecate the value of any child's play. With the abundance of contradictory theories of play available any behaviour can be attributed a value.

"If he stands against the garden fence for ten minutes staring absently around him, they claim he is 'learning by observing'. If he repetitively puts dough into balls they say that 'the new baby at home is causing him to regress and he needs this simple act.'  
(p. 48)

In other words, for some teachers all that a child does at pre-school may be construed as valuable and necessary to his development.

Nevertheless, the point made by Parry & Archer still stands. The attempt to measure the value of play in a wide variety of settings requires the development of criteria



by which behaviours as different as pouring water into a bottle and playing mothers and fathers can be compared. Smith (1976) suggests that in social play one should consider three aspects of the play sequence: the content, the structural complexity and the relative relationships between the participants in the play. Various attempts to define similar criteria for all forms of play have been made and Table 4.3 outlines some of the more recent ones. Various features of these schemes are worthy of discussion.

Smilansky's criteria are based on the earlier work of Piaget, Bühler and Valentine (Smilansky, 1968). As with Piaget, the categorisation of different types of play constitutes a developmental sequence, games with rules being the most mature form. However, whereas Piaget sees games of construction as the ultimate form of play, Smilansky discusses 'constructive play' and sees it as an intermediate form between functional and symbolic play.

Tizard's scheme for the analysis of play involves several complementary facets (Tizard et al., 1976). The first centres on the use the child makes of material, the focus of his attention and the appropriateness of the actions to the materials. The second concerns the internal complexity of the play sequence, while the third is a development of Parten's categories of social participation in play. The latter implies that co-operation with others is a more advanced and therefore a more desirable form of behaviour - a similar implication appears in the criteria of Parry and

TABLE 4.3

CRITERIA CITED FOR THE ASSESSMENT  
OF QUALITY IN PLAY

Lunzer (1958)

1. Adaptiveness in the use of materials.
2. The integration of behaviour.
3. The degree of concentration displayed.
4. The level of competition shown.

Parry & Archer (1974)

1. The frequency of imitative role play.
2. The frequency of make-believe play with regard to objects, actions and situations.
3. The frequency of talking, conversation and meaningful vocabulary used by children.
4. The continuity of the play interest and the development into other kinds of experiences.
5. The child's absorption in his experience, either alone or with others.

Manning & Sharp (1977)

1. Play that enables the children to learn and develop.
2. Play that is sustained over a period of time.
3. Play that is carried through to a conclusion that the children find satisfying; that gives rise to perseverance and concentration.
4. Play that is absorbing for the individual children concerned.
5. Play that is enjoyed and shared by a group of children albeit to differing degrees.

Smilansky (1968)

1. A hierarchical sequence of levels of play.
  - a) Functional play.
  - b) Constructive play.
  - c) Symbolic play.
  - d) Games with rules.

Tizard et al. (1976)

1. The use made of materials:
  - a) play with no materials.
  - b) symbolic play.
  - c) partial play.
  - d) 'appropriate' play
2. The complexity of play organisation.
3. A scale of social participation.
4. The duration of the play sequence.

Sylva et al (1980)

1. Differentiation of play sequence.
2. The inclusion of transformation in the activity.
3. The cognitive challenge of the activity.

Archer (1974). Manning and Sharp's first criterion rather begs the question since we do not know exactly which form of play will enable a given child to learn and develop. Sylva et al. (1980) attempted to analyse the cognitive challenge of an activity yet eventually were reduced to definition by example of their meaning of the term.

Inspection of the schemes suggest that, overall, there is a degree of consensus concerning the critical features for the assessment of the quality of play:

- 1) the duration of the activity (Lunzer, 1958; Tizard et al. 1976; Parry & Archer, 1974; Manning & Sharp, 1977).

Activities of longer duration are seen as being preferable to activities of short duration.

- 2) the complexity of the sequence of elements (Tizard et al. 1976; Sylva et al. 1980).

Quality of play is positively correlated with the number of elements of the play in an ordered sequence.

- 3) the degree of social participation inherent in the activity (Tizard et al. 1976; Parry & Archer, 1974; Manning & Sharp, 1977).

The degree of association of the target child with other children is taken as an index of the quality of his play.

- 4) the degree of symbolism incorporated in the child's play (Tizard et al. 1976; Smilansky, 1968; Parry & Archer, 1974; Sylva et al. 1980).

Symbolic play is by definition seen as having a higher quality than most other forms of activity.

- 5) the language content of the play (Smilansky, 1968; Parry and Archer, 1974).

Play which provides opportunity for the use of language in different ways is seen as being of higher quality than play in which the requirement for conversation is minimal.

Each of these criteria will be examined in turn.

#### The duration of the play episode

An easily taken measure of play is the duration of an individual episode, however it is defined. Evidence exists to suggest that in general the duration of play bouts increases with age (Van Alstyne, 1932). From this it may be inferred that bouts of long duration are generally superior to bouts of activity of short duration. Certainly evidence also exists to support such an inference (e.g. Halverson & Waldrop, 1976). However, as Tizard et al. (1976) point out, the duration of play episodes is a measure which is very variable both within age-groups and within individual children. It is dependent on such factors as the type of play material being used, the social setting and the frequency of distractions. It would, therefore, be important to bear all these factors in mind when assessing the quality of a child's play through the use of this measure.

In addition, it may be seen that although a long duration may be seen as a necessary condition for play to be designated as of high quality it is by no means a

sufficient condition. Autistic and psychotic children may spend long periods engaged in repetitive and stereotyped behaviours (Hutt & Hutt, 1965; Richer, 1974). In this case, the duration of the episodes would be seen as an indication of the limitation of the child's behavioural repertoire.

Measurement of the duration of an episode, although perhaps yielding an overall index of the child's concentration does not provide information on the level of attention devoted to the subject matter by the child. Within an episode attention may be sustained or fragmentary. Most authors (e.g. Parry & Archer, 1974; Manning & Sharp, 1977) would consider the former preferable to the latter. It is necessary, therefore, to consider both the child's activity span and his attention span (Tyler et al. 1979) before reaching conclusions about the quality of his play. Thus, although superficially the duration of the episode may appear to be a simple index of play quality, in practice the inferences that may be drawn from this measure alone are strictly limited.

#### The sequence of elements

Generally, it may be posited that the more elements or action patterns that are combined within a given episode, the greater is the complexity and hence the quality of the play, provided that the sequence of the elements forms a coherent unit. A problem arises in defining the elements of the play episode.

Authors whose perspective derives from the field of ethology tend to adopt atomic, morphological units as the basis for their description of play episodes (e.g. Blurton-Jones, 1967; McGrew, 1972; Smith, 1972). Other researchers have preferred to adopt more gross, molecular functional units for their categorisation of behaviour. Clearly the two forms of unit would lead to different inferences concerning the complexity of play, since more of the smaller morphological units might be expected to occur within an episode of a given duration. Moreover, it seems likely that this measure of the complexity of play will be dependent upon the play setting or material being used. The evaluation of a child's play based on observation within a particular play context would need to take this context into account.

#### Social participation in play

Mildred Parten's classic studies (Parten, 1932; Parten & Newhall, 1943) introduced six categories of play behaviour which have been frequently used to assess the quality of the child's play. The six categories and their definitions are provided in Table 4.4. Parten's work suggested that solitary play was the least mature form of play while co-operative play represented the most mature form. The sequence of categories gained general acceptance as a measure of the maturity of early peer interaction. It may also be seen that the scheme fits into the Piagetian framework for development through types of play, a factor which may have led to its acceptance, which until recently remained

TABLE 4.4  
CATEGORISATION OF PLAY BY  
DEGREE OF PARTICIPATION  
(AFTER PARTEN, 1932)

Unoccupied :	Engaged in no observable activity.
Solitary :	Independent play by himself with toys different from those being used by other children.
Onlooker :	Watching other children but not interacting physically or conversationally with them.
Parallel Activity :	Playing alongside other children with the same kinds of materials.
Associative Activity :	Play with other children in which "turns" are taken, or materials are interchanged.
Co-operative play :	In which all children are working towards a common goal with some evidence of social organisation.

unquestioned. A study by Barnes (1971) supported Parten's view of the developmental sequence in social participation, but highlighted dangers in using the actual frequencies of occurrence of the behaviour patterns in Parten's data in normative fashion. Subsequent studies by Moore et al. (1974) and Rubin, Maioni and Hornung (1976), however, suggested that parallel play rather than solitary play should be regarded as the least mature form. Roper & Hinde (1978) cast further doubt on the utility of a linear social participation index as a result of a principal-components analysis of the data from an observational study of 3 and 4-year olds in two nursery classes. Smith (1978) argues that Parten's original scheme confuses purely social participatory categories with task-related categories e.g. unoccupied. On the basis of a longitudinal study of childrens' play patterns, Smith suggests that although overall solitary play may be said to decrease with increasing age, it is possible that where it occurs in older children it is fulfilling a different function. Smith sees solitary play in older children as a mature coping behaviour in subjects who have developed beyond the stage at which parallel play would be exhibited. Moore et al. (1974) claim that, contrary to traditional views, most solitary play is indicative of independence and maturity rather than dependence and immaturity. Smith's work (Smith, *idem*) suggests that such a claim should be limited to older children within the 3 to 5



year age band. In general, it would seem that a linear social participation index is of limited value and that it is necessary to differentiate between the level of which a child is capable and the level that is preferred. In assessing play in terms of the level of social participation of the target child the assessor should be aware of this requirement.

### Symbolic play

Much recent interest has been focused on this area, although the terms used to describe the behaviour patterns connected with it are various. At different times these patterns may be referred to as make-believe play (Manning & Sharp, 1977), fantasy play (Klinger, 1971; Smith, 1976), imaginative play (Singer, 1973), thematic play (Feitelson & Ross, 1973), sociodramatic play (Smilansky, 1968) and pretend play (Garvey, 1977). The different terms reflect minor variations in the definition of the behaviour patterns but at a fundamental level each is concerned with a type of play which involves pretence.

Teachers generally appear to regard forms of symbolic play as being of inherently high quality (Parry & Archer, 1974), a view which is also to be found in the psychological literature. Smilansky in an important study in Israel compared groups of privileged and underprivileged children (Smilansky, 1968). In the activities of the underprivileged group she found a lack of coherence in the sequences of children's action patterns and conversations, much repetitive behaviour or isolated spasms of effort, and

a general lack of flexibility. These features alone would be indicative of a poor quality of play in the underprivileged group according to the criteria discussed above. But, more particularly, Smilansky found a deficiency in the amounts of sociodramatic play in the underprivileged group when compared with their more fortunate peers. For Smilansky sociodramatic play combines imitation and make-believe. Six play elements are seen by Smilansky as essential to sociodramatic play: imitative role-play; make believe with regard to 1) objects and 2) actions and situations; persistence; interaction; and verbal communications. The first four elements apply to dramatic play in general, the last two to sociodramatic play alone. Analysis of Smilansky's elements shows that they bear a close similarity to the criteria for play of a high quality listed above. Thus, sociodramatic play, as defined by Smilansky, is a comparatively complex form of behaviour. She suggests that the more a child engages in sociodramatic play the more ready he is to engage in other aspects of school life and to participate in the "school game". A particularly important factor here is the way in which sociodramatic play encourages linguistic facility. Children who come from passive environments skip the 'stage' of sociodramatic play, progressing directly to games with rules. Here the motivation is extrinsic rather than intrinsic and the children derive no satisfaction from intellectual or creative activity where the latter form of motivation is important. Games with rules also demand

a minimum of verbalisation, and particular patterns of language usage do not become established.

Smilansky explains the overall value of sociodramatic play in terms of identification, a notion that was not taken up by other authors. However, Smilansky's assertion that through training in sociodramatic play the overall level of the child's performance, and in particular that of his linguistic facility, was substantially raised led to a great deal of research on the category of symbolic play, most of which supported her claims (e.g. Saltz et al. 1974, 1977; Rosen, 1974; Golomb and Cornelius, 1977; Dansky, 1980). Eifermann (1971) suggests that symbolic play in disadvantaged children is not omitted but delayed, although her conclusions do not contradict Smilansky's view as to the importance of sociodramatic play. However, Smith (1976) argues that most tutoring studies show not the effectiveness of fantasy play but the importance of tutoring per se in the raising of levels of performance. Thus the suggestion that the mere occurrence of an episode of symbolic play is evidence that the play is of a high quality cannot yet be substantiated.

#### Language in play

Smilansky (idem) emphasised the important interrelationship between fantasy play and language usage. Hutt (1980) refers to a study which showed that on several measures of language facility fantasy play was superior to other

forms of play. Measures of mean length of utterance, type token ratio, the number of adverbs, and the number of modal auxiliary verbs were taken on recordings of the speech of children in five day nurseries. The results showed that on all four measures the children scored more highly during fantasy play sessions and that on three measures these differences were significant.

Usage of language in the course of play generally has been the subject of much attention recently. Tough (1977) argues that the use of language for certain purposes is a critical feature of the child's functioning within the pre-school. She defines seven different purposes for language: self-maintaining; directing; reporting on present and past experiences; towards logical reasoning; predicting; projecting; imagining. Tough argues that all children tend to use language for the first three purposes but only a minority of children frequently employ language for the latter four purposes. It may be argued that since these purposes are of importance in later schooling where logical reasoning, prediction and projection are frequently demanded of the child by teachers, the facility to employ language to fulfil these purposes is something that should be encouraged in the nursery. Tough's analysis might be seen as providing a useful tool for looking at the language content of play and as such might be incorporated into a system of assessment. However, Wells has criticised Tough for arguing her case from observations of children drawn from socio-economic extremes (Wells, 1978). When the speech

of children from a greater range of backgrounds is examined, he argues, the distinctions between the speech of children who may be described as well or poorly functioning becomes less clear cut. Moreover, an overdependence on the analysis of the language content of play in the assessment of its quality would seem to be a mistake. Some play by the nature of its focal material would seem to encourage or discourage social interaction (Hutt et al., in preparation) and, perhaps, as a consequence, particular forms of speech. In order to establish a child's customary pattern of language usage it would appear to be necessary to sample his speech in a number of different play settings. Assessment of the level of usage in a particular context would need to take account of that context.

#### Assessment and the Teacher

Each of the above criteria carry certain constraints upon their usefulness in the analysis of the quality of a child's play. All would require comparatively detailed observation of the individual child prior to the process of making an evaluation. Although this is feasible for the research worker, it is questionable whether the teacher or nursery nurse would be able to dedicate the necessary time to this pursuit except in the isolated case. In addition, it is not obvious that such an expenditure of time would be cost effective even if other practical demands upon the nursery staff permitted it. Comparatively brief observation of the children's play might serve to highlight the problems

of particular children whose behaviour shows excessive tendencies in any particular direction. From the above discussion of the work of Piaget and Hutt, we can see that a degree of balance between the different forms of play is desirable. Where an excess of a particular form is apparent action on the part of the nursery staff may be required. Brief periods of observation may also reveal which children tend to have particularly low spans of concentration and which attend well, which are social isolates and which are especially gregarious. Thus, on any particular bipolar criterion a limited amount of direct observation may identify children at the polar extremities. Only a great deal of observation and analysis would serve to unravel the complexities of the behaviour of children who occupy more intermediate positions. Children whose behaviour tends to excess in any particular direction are usually readily identified by teachers without recourse to a system of assessment, as already argued in the first chapter. Direct observation of play alone would not appear to solve the problem of identifying the abilities and needs of the 'average' child.

A further point against the adoption of a system of direct observation as the sole basis for assessment is that observation usually reveals a child's customary pattern of behaviour rather than the limit of his abilities. As Tizard et al. (1976) point out:

"As measures of cognitive development then, observations of play proved considerably less reliable and more time consuming to carry out than standardised tests. Further, because play is self-initiated, it is not usually possible by observing play to see the limit of the child's capacity. With no pressure upon him he does not work to his optimum."

(p.262)

Although the child's customary level of functioning is important, ultimately the teacher (and other nursery staff) must be concerned with the extent of the child's learning. In the cases of the child who functions at the highest level of which he is presently capable, but which is also comparatively low, and the child who customarily functions at a similar level, which is much lower than his ability, the implications for action on the part of the staff are very different. In the former case the action may be concerned with the facilitation of learning. In the latter case staff may feel it necessary to help the child to adjust to a different set of expectations. The process by which the child's abilities are revealed will almost inevitably involve a degree of interaction between the staff and the child. In its extreme form the nursery tradition and ideology would suggest that such interaction is undesirable since it would involve a degree of constraint upon the child's activity. Yet various studies have shown that interactions between adult and children in play have positive rather than negative effects. The role of tuition in symbolic play has already been mentioned. Other studies (e.g. Cashdan et al. 1975; Dunn & Wooding, 1976; Tyler et al. 1979 ) suggest that beneficial effects of adult involvement can be seen in many different areas. In

conclusion, from the above discussion it may be argued that in order to satisfactorily assess the child in the nursery two aspects of him need to be examined and by two different methods; these are:

- 1) features of the child's play as revealed by brief periods of observation.
- 2) the concepts and skills that the child has acquired, revealed by interaction in a standard setting.



CHAPTER 5  
THE DEVELOPMENT OF THE KPAG:  
THE PILOT PROJECT

Previous chapters have established that there is a need in the pre-school for a systematic means of assessing and recording the progress of the individual child, and have described the environment in which such a system would operate. The present chapter describes the development of such a system within a set of constraints which operate upon it.

Constraints upon a system of assessment

Three sets of constraints, it is argued, operate upon a system of assessment and record-keeping in the nursery. First there are constraints imposed by the attitudes of the nursery staff and some of these have been discussed in the first three chapters of this thesis. Secondly, there are constraints imposed by factors inherent to the particular nursery setting. Thirdly, there are constraints which are externally imposed by the psychologist, who seeks a system that is both reliable and valid. Each set of constraints will be discussed in turn.

1) Constraints imposed by the attitudes of nursery staff.

The attitudes and perceptions of staff working in nurseries have been described and discussed in Chapters 2 and 3. For the purposes of assessment and record-keeping,

staff attitudes would appear to exercise the following constraints upon the design of the system and its implementation.

- a) The system of assessment should evaluate the child's development in as many areas as possible, in order that a complete picture of the child might be obtained.
- b) The system should recognise and be congruent with the existing implicit curriculum of the nursery and the emphasis on learning through play. Thus, the system should reflect the aims and objectives of the nursery and the principal means by which these are achieved, as previously described.
- c) In addition, the system of assessment and recording should be both flexible and relatively informal (i.e. it should lack the rigidity and formality of the standardised psychological test). In particular, evaluation of the child's abilities should, as far as possible, impose the minimum restrictions upon the child.

## 2) Constraints imposed by the nursery environment.

Whereas the above set of constraints is determined by staff attitudes and the nursery ethos, those defined below are a consequence of other factors which operate within the nursery.

- a) The system of assessment and recording should require a minimum of time for its completion.
- Although, by comparison with later schooling, the

adult : child ratio that pertains in most nurseries is highly favourable, the amount of time that staff are able to dedicate to assessment and record-keeping is probably fairly small. In the initial phase of the introduction of a system within a nursery, it is probable that staff will be unenthusiastic over a system that is perceived to be too complex and time-consuming. In order to gain acceptance the system should yield the maximum amount of useful information within the minimum span of time.

b) The materials employed during the assessment should be readily accessible to staff. In the main, items that are commonly found in the nursery should be used, thereby saving both expense and frustration for staff in the collection of the items.

c) The procedure should be adapted to the setting of the playroom. The work of Donaldson and her colleagues suggests that children perform well in settings that are relatively familiar and where the form of the questioning makes 'human sense' to the child.

(Donaldson, 1978).

d) The items contained within the test should furnish information concerning the child's level of development and assist in the determination of the next stages of the learning or developmental process for the child.

e) Ultimately, the true benefits of assessment and recording may only be derived when staff make use of the information that is obtained during the procedure.

The form of the record should render the information contained within it readily accessible and encourage staff to refer to it. The format should, therefore, be clear, so that the required information may be obtained upon comparatively brief inspection.

### 3) Constraints that are externally imposed.

The two sets of constraints described above circumscribe the requirements of a system of assessment and recording from the perspective of the specific environment in which the system is designed to operate, i.e. the individual nursery. A third set of constraints, which should apply to systems of assessment generally, may be added.

a) As a group, the items included within the assessment system should discriminate between children. A collection of items which were universally either too difficult or too simple for the population of subjects would be of little practical or theoretical value.

b) Each item should be accompanied by specific criteria enabling the user to classify the child's response to it. Typically, standardised tests also provide procedural rules for the presentation of each item. These rules may be more or less flexible. Where particular set phrases are employed in the presentation, care should be taken that these do not include concepts which are of equal or greater difficulty than those under examination (Kaufmann, 1978).

c) The third constraint of this set is related to the previous pair and stipulates that items should show a high degree of reliability and validity. These two features are of critical importance in the selection of items for inclusion within a standardised psychological test. Although it is perhaps unrealistic to expect an assessment system employed within the nursery by nursery staff to be as reliable or valid as a standardised test used by a trained psychologist, it remains desirable that the former system should display these attributes to some degree.

The suggestion that the third set of constraints are externally imposed rather than of necessary importance to nursery staff, indicates a possible difference in perspective between nursery staff and the researcher. Such differences have been encountered on other projects (e.g. Quigley, 1971; Harvey and Lee, 1974). The constraints upon the design of a system of assessment and recording for the nursery are so numerous and so varied that it is unlikely that a single system can satisfactorily meet all of them. In order that the system should gain acceptability with nursery staff, it seems desirable to allocate a descending order of priority to the constraints in the order given. As Woodhead states:

"In the last analysis it is probably more important that staff should be committed and enthusiastic about the educational programme that they are providing than that they follow any particular proven method."

(Woodhead, 1976, p.62)

The same point may apply to a system of assessment and recording. However, in the development of the system described below an attempt has been made to satisfy the criteria for a satisfactory test in the terms of the discipline of psychology as well as of those of the pre-school.

A large number of different types of assessment procedure are available to nursery staff intent upon the evaluation of the development of the children within their care. These sources of assistance may be divided into two principal groups:

- 1) Those that have been designed as a general means of assessing the development of children between the ages of three and five years.
- 2) Those that have been designed specifically to provide records appropriate for use within the nursery.

The division is essentially arbitrary but may be of pragmatic use. Each of the major forms within these groups will now be considered with respect to their ability to remain within the constraints outlined above.

### 1. General means of assessment

#### a) Standardised psychometric tests.

Several reviews of the usefulness of such tests for the teacher are available in the literature (e.g. Jackson, 1971; Bate et al., 1976; Lomax, 1979). In theory, tests provide an efficient means of assessing a child's current level of functioning. Some are concerned with the child's

general cognitive development (e.g. Stanford Binet, WPPSI, McCarthy Scales of Children's Abilities), or language comprehension (e.g. Reynell Developmental Language Scales, ITPA, Peabody Picture Vocabulary Test), others with the child's social and emotional development (e.g. Vineland Social Maturity Scales). In practice, the usefulness of such tests in the nursery school is limited. Although most would satisfy the third set of constraints itemised above, the majority of the standardised tests would fail on the first two.

Tests which are limited to one area of development obviously fail to satisfy the first criterion of a satisfactory assessment system in the nursery. Even where the child's general development is assessed the number of scales provided tends to be restricted. In addition the items utilised within the test are often irrelevant to the nursery curriculum. Other drawbacks to standardised tests relate to the second set of constraints. Most tests require that the subject work with the tester in isolation. Many nurseries lack quiet private areas and children are unaccustomed to being taken to a room alone by an adult. Even if staff were prepared to work with children on this basis it is not clear that a true picture of the child's ability in the nursery would be obtained. Another major problem with standardised tests concerns their availability. Many of the better standardised and more informative tests require administration and interpretation by a person with special training and are restricted to use by psychologists.

In addition, it would seem, that psychometric tests have been designed for a different purpose from a nursery based assessment system. The psychologist is principally concerned with the collection of normative information on groups of children and the measurement of individual differences with respect to group norms. Such interests are rather different from those of the nursery staff. Thus, although the results from some of the items of standardised tests may be of interest to nursery staff, it is not clear that use of such a test would satisfy their general requirements.

b) Developmental scales.

Examples are provided by Sheridan (1960) and by Zimmerman and Calovini (1970). Developmental scales of this form present a good overview of the normative pattern of child development. Thus, they satisfy most of the constraints imposed by the attitudes of nursery staff. However, they fail to meet most of the externally imposed constraints since they characteristically omit details of assessment procedures.

c) Assessment charts.

Examples of such charts are the Progress Assessment Charts of Social Development (Gunzberg, 1972) and the P.I.P. Development Charts (Jeffree and McConkey, 1976). Such charts are potentially of greatest use to the teacher. In most cases they are based upon psychometric tests and developmental scales. However, they differ from these in both presentation and procedure, being more specific in procedure than the developmental scales and less formal than the



tests. Many of these charts have been designed for use with handicapped children and contain items of an appropriate level of difficulty for normal three-to five-year olds. However, for use in some nurseries they are over-elaborate and, therefore, too time-consuming. Also, frequently, the general emphasis of these charts is on social and physical rather than cognitive performance, an orientation which may not completely match that of the nursery.

## 2) Systems of assessment designed for use in the nursery

### a) Systems developed through pre-school research in Great Britain.

During the course of the present project, several examples of systems of assessment and recording developed specifically for use in British nurseries have become available (cf. Lomax, 1977b; National Children's Bureau 1977; Bate et al., 1979). Inspection of these suggests that they are eminently better suited to use by nursery staff than the assessment systems cited above. All are very comprehensive but preliminary discussions with nursery staff attempting their use suggest that they may be over-complex. However, they provide an interesting basis for comparison with the work reported here.

### b) Systems developed through pre-school research in America.

Many systems of assessment and recording have been developed through research in the pre-school. Examples of such systems are provided by Boehm (1971) and by Kamii (1971). In the main, these systems have been designed for the evaluation of children participating in research sponsored

intervention programmes in the pre-school. As such they tend to reflect the theoretical perspectives of their designers rather than those of the nursery tradition. It is not obvious, therefore, that they would be acceptable to the majority of nursery staff. Another factor militating against their widespread use is their general unavailability in this country.

c) Systems developed by nursery staff.

A sample of approximately twenty systems of assessment and recording was collected in the initial phase of the present project and published examples are available (e.g. Matthews and Matthews, 1978). Not surprisingly, inspection of these systems suggests that they meet the first two sets of constraints listed above. However, it is less clear that they satisfy the set of externally imposed conditions. Many of the record cards devised by nursery teachers are too general and impressionistic. Most fail to specify criteria by which a child may be accredited with having attained a particular concept or skill, an omission which may lead to inconsistency in the assessment process and possible ambiguities in the interpretation of the completed record. Furthermore, many of the simpler forms of record do not necessarily require a member of the nursery staff to establish information about the child which she does not already possess from her personal daily contact with him. As a consequence, she may be encouraged to record relatively superficial impressions rather than considered observations.

None of the means of estimating a child's progress in the nursery described above would, therefore, appear to be ideal (with the possible exception of systems included in Section 2a). The remaining part of this chapter describes an attempt to develop a system of assessment and recording for use in the nursery which satisfies the criteria previously discussed. This system is hereafter referred to as the Keele Pre-School Assessment Guide (KPAG).

#### Development of the Keele Pre-School Assessment Guide

Consideration of the arguments expressed in Chapter 4 suggested that a system based upon observation and testing in semi-structured situations would be the most suitable procedural basis for a nursery system of assessment. Observations in the nursery school are of particular value in the assessment of the child's social behaviour and of his spontaneous use of language (Tough, 1976; Lomax 1979). However, as discussed in the previous chapter, if performed systematically, direct observation is usually very time consuming. In addition, nursery staff may be confronted with a choice of either becoming participant while observing, or of causing changes in the behaviour of the children by their failure to play expected roles.

The distinction between semi-structured situations and tests is arbitrary and rests on the degree of flexibility permissible. Like tests, semi-structured situations may be useful in eliciting from a child behaviour which is indicative of his competence rather than his typical

performance. Therefore, an initial decision was taken to divide the assessment system into two sections: the first deals with aspects of the child's customary behaviour as revealed by observation; the second with the child's ability in several domains revealed by observation and the use of semi-structured situations.

### Assessment of the child's typical performance

Section I of the KPAG is primarily concerned with the child's overt behaviour. Initially five aspects of the child's behaviour were chosen for assessment: these comprised the areas of popularity; aggression; confidence; concentration and creativity.

The first three aspects of the child's behaviour were chosen for assessment because of the importance attributed to them by nursery staff (see Chapter 2). The areas of concentration and imagination (or creativity) were chosen for their possible theoretical importance.

Bruner (1980) suggests that concentration and distractibility are sensitive indicators of the conditions affecting children:

"Highly concentrated activity suggests the child is finding satisfaction and challenge in a task.  
Distractibility suggests trouble of some kind..."

(p. 203)

A prima facie case may be made that the longer a child is able to attend the more efficient his information processing and hence the better his performance. This position is supported by empirical evidence. Various studies have shown that concentration, as measured by attention span or activity

span, tends to increase with age (cf. Tyler et al., 1979) and that attention shifts from a single-channelled, adult controlled form to a double-channelled, child-controlled form during the child's third and fourth years of life (Cooper et al., 1978). Establishment of control of attention is, it may be argued, an important developmental step. The degree of control established in the pre-school as evidenced by the child's level of activity may serve as a predictor of future social and intellectual performance (Halverson and Waldrop, 1976). This finding is consistent with Kagan's view that children with "fast tempos" (marked by short attention spans and impassivity) do not maintain an active involvement in hypothesis verification when confronted with a novel situation. (Kagan, 1971). Furthermore, the main difficulty experienced by brain-damaged and hyperactive children lies in their inability to concentrate (Laufer et al., 1957; Hutt & Hutt, 1964).

However, prolonged concentration upon a single activity or task to the exclusion of other features of the environment may also serve as an indicator of pathology. This is especially true when the activity upon which the child is focused is stereotyped and repetitive. The opposite to such behavioural forms are activities which reveal creativity and imagination and nursery staff may actively seek to encourage the latter, since it has been argued that creativity denotes a mode of cognitive

functioning of importance in the life of the child (Wallach & Kogan, 1965).

A system of observation followed by rating on a set of scales was chosen for assessment of these five areas. Given the necessary informality of the observations, rating scales were considered to be the most appropriate means of recording information about the children. Each of the five areas of behaviour was allocated an individual seven point scale whose extreme points were identified. Several logical considerations determined the number of points included in each scale. The choice here represents a balance between discriminative power and reliability (Guilford, 1954). A smaller number of steps may yield high inter-rater reliability but the scale will possess low discriminative power. The converse argument applies to scales employing a larger number of points, although a figure may be reached where the scale is so finely graded that it exceeds the raters powers of discrimination. A seven point scale was felt to be most satisfactory given the need for a degree of reliability and scope for the recording of changes in the child's behaviour. Specification of the terminal points of each scale was considered to allow a greater degree of flexibility in the use of the scale, although it was realised that this would probably be gained at the expense of reliability. Such a decision was considered permissible given that the purpose of this section of the record is to provide evidence of the child's performance against himself rather

than to furnish an absolute scale. In presenting the scales, 'favourable' extremes were randomly varied in position to avoid response set and halo effect.

In a second part of Section I entitled 'Other Characteristics' three blank scales were provided. Staff were encouraged to complete this section if features of the child's behaviour or abilities not included elsewhere were deemed to warrant assessment. Space was allocated for the description of this behaviour as well as for the rating of the child's progress within it.

#### Assessment of the child's abilities

The child's abilities were divided into four principal areas: cognition, physical skills, socialization and language ability. Each of these areas was further subdivided into subsections and component items. In some instances the division is essentially arbitrary but fulfils the pragmatic function of rendering the system easier to use. Items for this section were selected following a review of 19 developmental scales<sup>1</sup> and pre-

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<sup>1</sup> Böhm Test of Basic Concepts  
 Denver Development Screening Test  
 Gesell Developmental Schedules  
 Goodenough-Harris Draw-a-man Test  
 Hill and Povey Concept Acquisition Test  
 Intelligence Tests for Young Children (Valentine)  
 Keele Pre-School Cognitive Profile  
 Leiter International Performance Scale  
 McCarthy Scales of Children's Abilities  
 Merrill-Palmer Scale of Mental Tests  
 Progress Assessment Charts (Gunzberg)  
 Peabody Picture Vocabulary Test  
 Reynell Developmental Language Scales  
 Social Behaviour Rating Scale  
 Snijders-Oomen Non-verbal Intelligence Scale  
 Stanford-Binet Scale of Intelligence  
 Stycar Chart of Developmental Sequences  
 Vineland Social Maturity Scale  
 Wechsler Pre-School and Primary School Intelligence Scale

school intelligence tests, other available resources in the literature, and current research into pre-school practice. Initial selection of 113 items was based upon analysis of the constraints outlined in the first section of this chapter. The items were chosen to cover an age range of two to six years, and a description of this complete with criteria for scoring is given in Appendix C. Each of the four principal areas of this section of the assessment system will now be considered in turn.

Cognition: 48 items: 6 subsections :- space and time; the properties of objects; sorting and classification skills; memory; number and puzzles.

The approach taken in this area may be described as broadly Piagetian with an emphasis upon the acquisition of the concepts and skills necessary for the transition between the pre-operational and concrete operational stages of development. Thus, subsections include, for example, items concerning the child's ability to classify, conserve, and to make transitive inferences. The adoption of such an approach was determined by the importance of Piaget's work to developmental psychology and to early childhood education, and by the paucity of alternative theoretical perspectives acceptable to the pre-school. The adoption was not made, however, without reservation. For example, a subsection on memory was introduced because recent evidence suggests that the child's memory abilities may influence performance



on classic Piagetian experiments (cf. Bryant, 1974).

Consideration of the child's memory abilities may also facilitate interpretation of other areas of the completed record, e.g. the subsection on language use.

Physical skills: 30 items: 3 subsections :- manipulation; drawing; co-ordination.

Items selected here broadly reflect the normative pattern of development as witnessed in developmental scales. The inclusion of the subsection on drawing here rather than in the section on cognition was determined by the need for overall balance in the system of assessment, since arguably drawing and writing skills contain both cognitive and motoric components.

Socialization: 15 items: 2 subsections :- self-help; play patterns.

The self-help skills selected reflect development in this area and were included because of their importance in assisting the child to function adequately within the nursery environment, without undue need for the caring attention of staff. The subsection on play-patterns is broadly based upon the work of Parten and Piaget. However, for reasons discussed in Chapter 4, the set of items includes parallel play rather than solitary play as the most elementary form.

Language: 20 items: 4 subsections:- language use; speech; vocabulary; comprehension.

The inclusion of a section on language divorced from that on cognition follows the Piagetian theme of the system. However, it also acknowledges the importance of language skills in children's development (cf. Vygotsky, 1962; Bruner, 1964). The choice of subsections in this area in part reflects the schisms between a) structure and function in language development (Blank, 1974), and b) the expression and receptive components of language ability (Reynell, 1969).

Items on Section II were included in the assessment procedure on a pass - fail basis. In each subsection, items were arranged in approximate ascending order of difficulty according a) to the normative data available and b), in some instances, to theoretical considerations. Examples of the latter may be seen in the subsections dedicated to the development of number skills and patterns of play. In the number subsection, initial items concern the use of simple relative codes comparing 'one' or 'a few' with 'many' and a simple absolute code for small numbers. Use of such elementary codes marks the start of the development of number concepts (Bryant, 1974). Gradually, within this section items increase in difficulty. Thus, simple number recognition and counting with mathematical understanding is followed by items concerning number value and the abstraction and generalisation of the quantitative property of numbers (Taylor, 1976). Finally, items assess the

child's ability to conserve number and perform simple mathematical operations, the attainment of which marks the child's entry into the stage of concrete operations.

(Piaget and Szeminska, 1952). In the subsection on play-patterns items pass from the assessment of the child's ability to play in parallel, associatively and co-operatively to his ability to play games with rules and to appreciate the concepts of winning and losing. (Parten, 1932; Piaget, 1951).

The guide developed consisted of a manual specifying the procedure and the criteria for items and a record form. The design of the record form of the KPAG allowed the level of skill attained by the child in each area to be portrayed by plotting his performance on a circular chart. This form of display, similar to that used by Gunzberg and by McFie (Gunzberg, 1972; McFie, 1975), was chosen for several reasons. First it was selected for its clarity and the ease with which information can be retrieved from it. Secondly, unlike the other forms of display which were experimented with, it allows closely related areas of skill or concept formation to be placed in juxtaposition. Finally, the circular shape is symbolic of the traditional nursery concern for the fostering of all aspects of the child's development in order to produce as complete and rounded a personality as possible.

After initial development in the manner described, the KPAG was submitted to nursery staff for use. The results of a pilot project involving the KPAG in its original form is described below.

Study 5.1: Pilot project to investigate the usefulness of the Keele Pre-school Assessment Guide.

The aim of the present study was to evaluate the usefulness of the Guide in the setting for which it was principally designed.

Subjects

Fifty-one children in 8 nursery schools and classes were assessed by means of the KPAG (pilot form). The children varied in age from 3yrs 0 mths. to 5 yrs 0 mths.

Procedure

Forms and manuals for the KPAG (pilot form) were distributed to the teachers in charge of the nurseries. Teachers were requested to familiarise themselves with the content of the manual prior to commencing assessment of a group of children in the nursery. Subjects for study were selected at random from the register. Completed forms were returned to the researcher after a period of approximately one month, together with staff comments about the system.

Results

The proportion of children obtaining particular scores on each of the five specific rating scales of Section I of the KPAG is shown in Table 5.1. Inspection of the table reveals that in the case of three of the five scales all the points were used and none very over-used, although a bias towards the positive end of the continuum may be discerned. This finding would suggest that the scales may have a reasonable

TABLE 5.1

DISTRIBUTION OF SUBJECTS BY ITEMS OF  
SECTION I IN PILOT STUDY OF KPAG

	<u>Low</u>		<u>Score</u>				<u>High</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
	%	%	%	%	%	%	%
Popularity	4	6	15	19	22	19	17
Aggression	12	12	12	37	23	4	2
Confidence	0	9	15	19	13	21	23
Concentration	2	8	17	23	23	8	19
Creativity	0	14	12	18	29	18	10

discriminatory potential. Comments received from staff concerning the scales were various, but were generally favourable. Where criticism of them was expressed it was directed at the level of specificity of the scales, some teachers feeling that a larger number of scales assessing less global areas would have been desirable.

The results from the second section of the KPAG (pilot form) and presented in Table 5.2, which shows the proportion of children accredited with passing particular items by age group. Examination of this table reveals a clear trend with age and difficulty of item. Moreover, it is clear that the suggested order of difficulty of items is inaccurate in places. Nursery staff expressed rather more numerous criticisms with respect to this section. In particular, although staff felt the items to be useful and informative, they were concerned by the complexity of the system and by the length of time that had to be dedicated to the assessment procedure.

### Discussion

Examination of the findings of the pilot study suggest that the first section of the KPAG is able to discriminate between children and is broadly acceptable to nursery staff in terms of its form and content. A minority of staff were concerned that the rating scales possessed an inherent judgemental quality of which they disapproved. More cogent arguments were levelled against the first scale covering the child's popularity. Some staff argued that this scale

TABLE 5.2(1)  
DISTRIBUTION OF SUBJECTS PASSING ITEMS OF  
SECTION II BY AGE IN PILOT STUDY OF KPAG

	%									
C1	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>		
3 yrs	89	58	42	32	53	16	5	5		
4 yrs	94	84	74	74	74	26	32	23		
C2	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u> **
3 yrs	95	100	84	68	68	89	47	26	32	16
4 yrs	97	100	88	88	78	91	72	56	44	6
C3	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
3 yrs	95	89	74	79	53	58	68	53	37	26
4 yrs	100	97	97	91	75	81	88	75	56	59
C4	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>					
3 yrs	100	83	50	11	6					
4 yrs	100	99	63	38	22					
C5	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
3 yrs	95	95	58	63	5	21	5	21	11	5
4 yrs	100	100	88	94	31	53	19	50	34	22
C6	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>					
3 yrs	100	65	94	29	6					
4 yrs	100	75	94	63	28					

\*\* This finding may be a result of sampling error but may also result from a genuine inversion effect on this item (cf. Bever, Mehler and Epstein 1968).

TABLE 5.2(11)

	<i>%</i>									
P1	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
3 yrs	95	89	63	68	47	42	37	37	21	32
4 yrs	97	100	94	94	81	77	74	77	45	52
P2	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
3 yrs	100	89	79	74	53	37	16	21	0	11
4 yrs	97	97	93	97	93	77	67	47	27	43
P3	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
3 yrs	95	74	84	74	32	37	37	11	32	37
4 yrs	100	97	100	97	78	81	81	56	69	81
S1	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>					
3 yrs	82	41	94	76	0					
4 yrs	84	88	97	88	3					
S2	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
3 yrs	100	76	76	65	59	53	35	35	39	24
4 yrs	100	97	93	93	80	83	83	70	90	70
L1	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>					
3 yrs	94	75	38	31	31					
4 yrs	100	87	61	68	68					



TABLE 5.2(iii)

%

L2	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
3 yrs	88	76	53	59	6
4 yrs	100	97	81	68	48

L3	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
3 yrs	100	72	72	44	11
4 yrs	100	91	91	78	28

L4	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
3 yrs	100	100	72	28	17
4 yrs	97	100	97	81	53

confused several component features of the child's personality and behaviour, making use of the scale difficult, and, in some instances, introducing a degree of ambiguity. Revision of the scale was, therefore, considered necessary.

Although Section II also appeared to show evidence of good discrimination between children, the reaction of staff to its length and complexity suggested a need for some alterations. Revision was also necessitated by the structure of the system, which suggests that items are arranged in ascending order of difficulty. Generally, however, staff felt that the method of observation and testing in a semi-structured situation was acceptable and the format of the circular diagram that completed the record form was liked.

Overall, the findings of the pilot project suggested that although the pilot form of the KPAG was unlikely to find general acceptance with nursery staff for the reasons stated, with comparatively minor modifications it might.

CHAPTER 6  
THE DEVELOPMENT OF THE KPAG  
(ii) THE REVISED FORM

The results of the pilot project described in the previous chapter suggested that the pilot form of the KPAG was too long and too complex for the general assessment of children in the average nursery. The present chapter describes the process of revision of the KPAG and provides information on a larger scale study of its use.

Revision of the KPAG

Section I:

The comments from teachers participating in the pilot project suggested that the first scale of this section contained several components. In particular it was felt that this scale confused the child's ability to mix with other children and his powers of persuasion and leadership within an activity. Consequently, it was determined to replace the original scale of popularity with two scales covering the child's social relationships with his peers. The first scale related to the degree of social participation usually displayed by the child and is referred to as his 'ability to mix' with other children. The second derived scale related to the child's powers of leadership and dominance. Thus, in the revised form, Section I of the KPAG contained six rating scales for

specific areas of personality and behaviour. These six scales were identical to the first six scales of Appendix E. In addition, the subsection on 'other characteristics' was retained in the original form.

## Section II:

Comments elicited from staff during the course of the pilot project frequently contained reference to the excessive time needed to complete the assessment procedure.

In the main, this criticism was addressed to the second section of the KPAG, where staff felt that the number of items included for assessment was too great. Information that was of potential use to the staff would, however, undoubtedly be missing in the shorter revised form. However, examination of the data on this section yielded by the pilot project suggested that the total number of items could be reduced without a significant loss of discriminatory power. It was, therefore, determined that the number of items in Section II should be diminished, while the overall structure of the assessment was maintained. Reselection of items was on the basis of:

- 1) their usefulness in the planning of further activities for the child.
- 2) their power to discriminate between children at different levels.
- 3) the need to maintain the format of the record form, whereby items appearing on the same concentric circle of the diagram are of approximately equivalent difficulty.

Revision reduced the number of items contained within this section from 113 to 75. The system of subsections was retained but each now contained a uniform total of 5 items. Thus, the system contained 30 items concerned with cognitive development, 15 with physical skills, 10 with socialization and 20 with language development. The definition of the items and the criteria for scoring are essentially similar to those given in Appendix D, differences being confined to minor alterations of wording.

The effectiveness of the revised form of the KPAG was assessed by means of the study described below.

Study 6.1: An evaluation of the revised form of the KPAG.

The principal objective of this study was to evaluate the effectiveness of the KPAG in its revised form in the assessment of children within the nursery setting. Effectiveness was to be measured in terms of the Guide's ability to discriminate usefully between children and its acceptability for nursery staff.

Subjects.

A sample of 145 children (73 boys, 72 girls) aged between 3 and 5 years attending 16 nursery schools and classes in different parts of England was obtained. The age and sex distribution of the sample is given in Table 6.1.

Procedure.

Teachers in the nurseries approached by the researcher were provided with KPAG manuals and forms. Where these teachers had participated in the pilot project, the nature of the revisions made to the assessment system was indicated

TABLE 6.1.  
DISTRIBUTION OF SUBJECTS IN STUDY OF REVISED  
VERSION OF KPAG BY SEX AND AGE

AGE yrs	BOYS n	GIRLS n	TOTAL n
3 - 3½	7	14	21
3½ - 4	25	17	42
4 - 4½	16	20	36
4½ - 5	<u>25</u>	<u>21</u>	<u>46</u>
Total	73	72	145

to them. Teachers were requested to select a group of three boys and an equal number of girls at random from the register. Assessment was then performed independently by teachers on their own sample of children over a period of approximately one month, when completed forms were returned to the researcher. Included on the assessment forms returned were details of the child's age, sex and handedness. In some instances, teachers had been unable to complete all the forms provided. However, since no single teacher made a significantly disproportionate contribution to the final sample of completed forms it was felt that bias due to this sampling error would be negligible. Analysis of the completed forms was performed by the researcher and the results are presented below.

### Results

As an initial part of the KPAG procedure, nursery staff were asked to assess whether the subject of assessment was customarily right-handed, left-handed or displayed no obvious preference. Staff were instructed to observe the child in play with materials. Where it was not clear, after observation, which hand was preferred, assessors were asked to perform simple experiments with the child such as placing a brick directly in front of the child and asking him to pick it up, and asking him to cut with scissors. The findings for subjects where the information was provided are shown in Table 6.2 . Some previous studies have failed to find sex differences on this measure, although Annett found significant differences between boys and girls in a sample aged between three and a half and 15 years, the boys tending to display more mixed and left-handedness. In the present

TABLE 6.2  
DISTRIBUTION OF SUBJECTS IN STUDY  
OF KPAG BY SEX AND BY HANDEDNESS  
(FREQUENCY AND PERCENTAGE)

Handedness	BOYS		GIRLS		TOTAL	
	n	%	n	%	n	%
Right handed	55	83.3	52	82.5	107	82.9
Left handed	7	10.6	7	11.1	14	10.9
No preference	4	6.1	4	6.3	8	6.2



study no significant sex differences are found. ( $\chi^2 = 0.015$ ,  $df. = 2$ ,  $p > .01$ ). Fewer children show mixed handedness than in Annett's sample which may indicate that there is a relative imprecision of testing on this item in the present study.

#### Section I:

The distribution of subjects on items of Section I is shown in Table 6.3. Inspection shows that, for each scale, no point is unused suggesting again that these scales possess discriminatory potential. In the case of the first three scales, the distributions differ significantly from those expected by chance. In the cases of the first scale, referring to the child's ability to mix, and the third scale, which pertains to the child's level of concentration, the distribution is skewed towards the high or 'positive' end of the spectrum. In the case of the 'aggressive - timid' continuum, the distribution obtained approximates to a normal distribution denoting that the majority of the sample are neither extremely aggressive nor excessively timid. That this distribution differs significantly from the one obtained for the following 'cautious - confident' scale shows clearly that teachers tend to differentiate between these sets of constructs. No sex differences are found on any of the items of this section but there is evidence of a trend with age in each case (see Figure 6.1). Correlations of scores on each scale with age are presented in Table 6.4. The correlation coefficient reaches significance in each case, although the trend with age of the scale pertaining to

TABLE 6.3  
DISTRIBUTION OF SUBJECTS BY ITEMS OF  
SECTION I IN STUDY OF KPAG  
(FREQUENCY AND PERCENTAGE)

	<u>SCORE</u>						<u>High</u>
	<u>Low</u>						
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
	n	n	n	n	n	n	n
Ability to Mix	8	21	21	7	24	30	33
Aggression	13	28	23	36	25	15	4
Confidence	8	19	27	14	34	23	20
Leadership	15	26	22	21	21	20	15
Concentration	9	21	32	13	27	32	10
Imagination	14	21	22	25	20	24	18
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
	%	%	%	%	%	%	%
Ability to Mix	5.6	14.6	14.6	4.9	16.9	20.8	22.9
Aggression	9.0	19.4	16.0	25.0	17.4	10.4	2.8
Confidence	5.5	13.1	18.6	9.7	23.4	15.9	13.8
Leadership	10.3	17.9	15.2	14.5	14.5	13.8	10.3
Concentration	6.3	14.7	22.3	9.1	18.9	22.4	7.0
Imagination	9.7	14.6	15.3	17.4	13.9	16.9	12.5

FIGURE 6.1

CHANGES IN MEAN RATINGS ON SECTION I  
OF THE KPAG WITH AGE

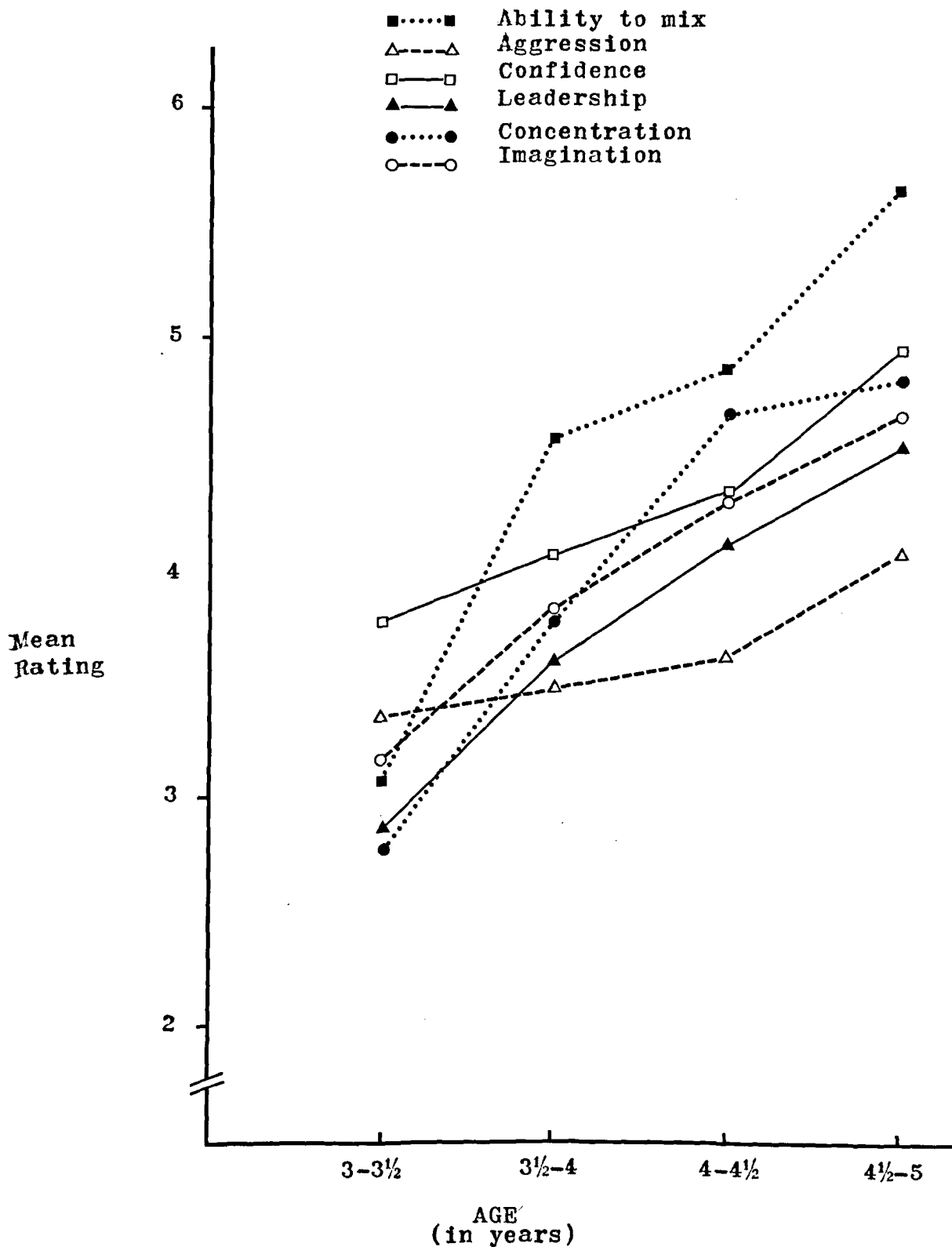


TABLE 6.4  
CORRELATION COEFFICIENTS FOR ITEMS  
ON SECTION I WITH AGE

	<u>Correlation Coefficient</u>	<u>Significance</u>
Ability to Mix	.41	.001
Aggression	.17	.025
Confidence	.25	.002
Leadership	.30	.001
Concentration	.41	.001
Imagination	.28	.001

displayed aggression appears weaker than the others.

Approximately one-fifth of the sample were also assessed on other constructs supplied by the assessor in the part of Section I entitled 'other characteristics'. The aspects most frequently assessed here related to the child's co-operativeness with adults, his anxiety state, the frequency of temper tantrums and features of his communicative abilities, e.g. speech impediments.

#### Section II:

Data derived from the administration of this section were analysed to note the percentage of children passing each of the items at various age levels. The results of this analysis are presented in Table 6.5. Analysis of variance by age and by sex failed to reveal any significant differences between boys and girls, but significant differences with age were discovered on each subsection. ( $F > 9.4$ ,  $df. = 3$ ,  $p < .001$  for each subsection).

Examination of the data revealed good discrimination between children. On Section II, for 3 to 5 year-olds, the average percentage of children passing items at each level of difficulty (i.e. on the same concentric ring of the diagram) was 92, 78, 53, 35 and 18 respectively. Within a concentric ring of the record diagram the level of difficulty showed a degree of variance, but within each subsection the items were in the correct order of ascending difficulty. Overall, each item served to discriminate between children, since there was no item upon which the children were either universally successful or unsuccessful.

TABLE 6.5 (1)  
DISTRIBUTION OF SUBJECTS PASSING ITEMS  
OF SECTION II BY AGE AND BY SEX

**C1 SPACE AND TIME**

<u>Age</u>		<u>Item</u>				
		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	71	61	35	10	6
	Girls	55	55	29	3	3
	Combined	63	58	32	6	5
4 - 5 yrs	Boys	98	83	78	33	18
	Girls	98	83	73	30	23
	Combined	98	83	75	31	20
	Total	82	72	56	20	13

**C2 PROPERTIES OF OBJECTS**

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	90	74	45	16	0
	Girls	94	77	35	19	6
	Combined	92	76	40	18	3
4 - 5 yrs	Boys	98	90	75	60	8
	Girls	100	90	88	63	13
	Combined	99	90	81	61	10
	Total	96	84	63	42	7

**C3 SORTING AND CLASSIFICATION**

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	97	77	26	19	19
	Girls	97	61	29	26	13
	Combined	97	69	27	23	16
4 - 5 yrs	Boys	98	95	75	54	43
	Girls	100	93	75	50	38
	Combined	99	94	75	54	43
	Total	98	83	54	40	31

TABLE 6.5 (ii)**C4 MEMORY**

<u>Age</u>		<u>Item</u>				
		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	97	77	37	10	3
	Girls	93	60	27	20	0
	Combined	95	68	32	15	2
4 - 5 yrs	Boys	97	95	79	44	31
	Girls	100	90	82	59	18
	Combined	99	92	81	51	24
	Total	97	82	59	36	14

**C5 NUMBER**

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	71	61	10	13	0
	Girls	61	48	26	13	3
	Combined	66	55	18	13	2
4 - 5 yrs	Boys	98	80	70	50	10
	Girls	95	77	79	49	15
	Combined	96	78	75	49	13
	Total	83	68	50	33	8

**C6 PROBLEM SOLVING**

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	90	84	19	13	0
	Girls	87	65	10	6	0
	Combined	89	74	15	10	0
4 - 5 yrs	Boys	100	98	75	53	33
	Girls	93	100	60	50	23
	Combined	96	99	68	51	28
	Total	93	88	44	33	15

TABLE 6.5 (iii)

## P1 DRAWING

<u>Age</u>		<u>Item</u>				
		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	87	45	6	3	0
	Girls	94	58	10	6	0
	Combined	90	52	8	5	0
4 - 5 yrs	Boys	100	92	62	56	13
	Girls	98	93	68	51	12
	Combined	99	93	65	54	13
	Total	95	75	40	32	7

## P2 MANIPULATIVE SKILLS

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	74	48	19	10	10
	Girls	68	58	26	10	16
	Combined	71	53	23	10	13
4 - 5 yrs	Boys	90	90	54	51	46
	Girls	93	88	56	61	37
	Combined	91	89	55	56	41
	Total	82	73	41	36	29

## P3 CO-ORDINATION

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	97	84	42	10	10
	Girls	77	84	29	6	6
	Combined	87	84	35	8	8
4 - 5 yrs	Boys	98	95	80	40	43
	Girls	100	100	73	49	27
	Combined	99	98	77	44	35
	Total	94	92	59	29	23



TABLE 6.5 (iv)

## S1 SELF-HELP

<u>Age</u>		<u>Item</u>				
		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	87	68	48	29	10
	Girls	90	65	48	29	13
	Combined	89	66	48	29	11
4 - 5 yrs	Boys	98	85	90	73	58
	Girls	100	88	98	61	46
	Combined	99	86	94	68	53
Total		95	78	74	50	34

## S2 PLAY PATTERNS

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	87	68	45	19	10
	Girls	90	68	35	26	10
	Combined	89	68	40	23	10
4 - 5 yrs	Boys	95	85	83	65	40
	Girls	100	100	95	70	35
	Combined	98	93	89	68	38
Total		94	82	68	48	25

## L1 LANGUAGE USE

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	81	61	19	13	10
	Girls	65	42	16	13	23
	Combined	73	52	18	13	16
4 - 5 yrs	Boys	98	80	65	48	43
	Girls	98	80	56	51	44
	Combined	98	80	60	49	43
Total		87	69	42	34	31

TABLE 6.5 (v)

## L2 SPEECH

<u>Age</u>		<u>Item</u>				
		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	81	68	26	10	6
	Girls	81	52	29	10	10
	Combined	81	60	27	10	8
4 - 5 yrs	Boys	95	90	74	54	36
	Girls	95	90	60	28	20
	Combined	95	90	67	41	28
	Total	89	77	50	27	19

## L3 VOCABULARY

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	97	68	23	13	3
	Girls	100	61	16	10	0
	Combined	98	65	19	11	2
4 - 5 yrs	Boys	95	88	65	60	20
	Girls	100	85	76	61	12
	Combined	98	86	70	60	16
	Total	98	77	48	27	7

## L4 COMPREHENSION

		$\frac{1}{\%}$	$\frac{2}{\%}$	$\frac{3}{\%}$	$\frac{4}{\%}$	$\frac{5}{\%}$
3 - 4 yrs	Boys	94	58	13	3	3
	Girls	87	35	16	23	0
	Combined	90	47	15	13	2
4 - 5 yrs	Boys	97	79	69	59	15
	Girls	100	68	66	37	12
	Combined	99	74	68	48	14
	Total	95	62	44	32	8

The majority of children were able to successfully perform items of the first level of difficulty. Where children fail on an item of this level the finding may be interpreted as an indication of general immaturity or of a localised deficiency, depending upon the child's performance in other areas. A minority of children frequently succeeded on items of the fifth level of difficulty, indicating the absence of a marked ceiling effect for the assessment. Only in a few cases, involving the oldest and most able children within the sample, did staff make the suggestion that the completed record tended to underestimate the child's abilities. The percentage of children passing items on the cognition and physical skills section at each level of difficulty approximated to that for the assessment as a whole. Percentage passes for the socialization and language section tended to be above and below the average level respectively.

Inspection of the data revealed some evidence of a connection between the teachers' ratings on the first section of the Guide and the items passed on the second section. In order to obtain a measure of performance in Section II, an arbitrary weighting system was applied to items of this section. Items of the first level of difficulty were attributed a score of 1, items of the second level of difficulty a score of 2 etc. Scores for a scale, e.g. cognition, were subsequently obtained by summation of the scores of items successfully accomplished by the child. (For a justification of this procedure see the next chapter). Correlations between ratings obtained on Section I and scores calculated for

Section II are shown in Table 6.6. All of the coefficients quoted are highly significant with the exception of those for the relationship between the child's rated aggressiveness and his scores on the cognition and socialization scales. However, both the ratings of Section I and the scores of Section II show a significant correlation with age, and a correlation analysis which controls for this variable is required. Table 6.7. shows correlation coefficients for the relationships between items in each section of the KPAG partialled by age. Although comparison with Table 6.6. reveals that the level of significance is decreased in most instances, the majority of the coefficients are still sufficiently great to lead to the rejection of the hypothesis that the sections of the KPAG are unrelated. In particular, the ratings for leadership and imagination are highly correlated with all scores on areas within Section II. Thus, although the two sections of the KPAG employ diverse methods, there is a relationship between the results obtained from each.

### Discussion

The findings of the present study suggest that the items contained within the KPAG cover an appropriate range of behaviour patterns, abilities and skills for the assessment of children between the ages of three and five years. Discussions with staff suggested that there is a need in some instances for the inclusion of items of a greater level of difficulty than those contained in the assessment for the continuation of the performance of the brightest children.

TABLE 6.6  
CORRELATION OF ITEMS ON SECTION I  
WITH TOTAL SCORES ON SECTION II

		SECTION II			
SECTION I		Cognition Total	Physical Skills Total	Social- ization Total	Language Skills Total
		<hr/>	<hr/>	<hr/>	<hr/>
	Ability to Mix	.49	.37	.50	.57
	Aggression	.18	.24	.14	.27
	Confidence	.30	.31	.32	.36
	Leadership	.49	.45	.45	.56
	Concen- tration	.54	.45	.37	.46
	Imagination	.59	.54	.48	.64

TABLE 6.7  
CORRELATION OF ITEMS ON SECTION I  
WITH TOTAL SCORES ON SECTION II  
(PARTIAL WITH AGE)

		SECTION II			
		Cognition Total	Physical Skills Total	Social- ization Total	Language Skills Total
SECTION I	Ability to Mix	.28***	.13	.32***	.43***
	Aggression	.07	.15*	.03	.21**
	Confidence	.19*	.22**	.21**	.30***
	Leadership	.39***	.35***	.34***	.49***
	Concent- ration	.35***	.27***	.14	.30***
	Imagination	.54***	.48***	.40***	.60***

\* p < .05

\*\* p < .01

\*\*\*p < .001

However, extension of the assessment system in this way would tend to make the system more complex leading to its outright rejection by some nurseries. The solution to this problem may be to direct staff to other more detailed systems of assessment in individual cases where this is thought to be necessary. At the opposite end of the scale, the . KPAG. . would appear to contain items of a sufficiently low level of difficulty for it to act as an effective screening device for handicap or deficiency within the specified age range.

Although the results reveal that items on Section II of the K.P.A.G. are ranked in the correct order of difficulty within each subsection, the items within a given ring upon the diagram show a degree of variance in level of difficulty. It would appear, therefore, that a degree of adjustment may be required within the items on certain subsections of the assessment. However, it is not clear to what extent the results reflect the general level of children's skill and abilities for this age group in the population as a whole and to what extent they are coloured by emphases within current nursery practice. In the cognitive domain it is apparent that, as a group, the children are most able on the items devoted to sorting and classification tasks. In contrast, the children appear to be slightly less capable than anticipated from previous work in the areas of 'number' and 'space and time'. These findings may well reflect a concentration in nursery practice on sorting and matching tasks, and the relatively limited attention paid to number skills. In the

area of physical skills, generally the children's abilities appear to be well developed. It is, however, in the area of socialization that the children appear to be doing best when compared with previous work in the field of assessment. For example, in 'self-help' a majority of the four-year olds are assessed as being able to dress themselves completely without adult assistance, with the exception of tying shoelaces. Similarly in 'patterns of play' more than a third of the four-year olds have satisfactorily obtained the concepts of winning and losing, despite the suggestion that games with rules are typical of a later stage of development (e.g. Piaget, 1951; Smilansky 1968). In the area of language development, as anticipated, the children performed better on items such as holding lengthy coherent conversations than on those requiring more formal skills such as reading and supplying definitions of the differences between words.

Unexpectedly, no sex differences were found on any of the items of Section I or on any subsection of Section II. Although some authors have emphasised the importance of sex differences in the early years of development (e.g. Hutt, 1972), others have suggested that where differences between boys and girls exist few reach significance (e.g. Maccoby and Jacklin, 1975). Similarly, although some standardised tests have found, and consequently made allowances for, the effects of gender (e.g. Reynell, 1969) others have not done so. A frequently reported finding is that boys are more aggressive than girls. The nursery staff's ratings of boys and girls on



the scale of Section I pertaining to aggressiveness in the present study showed a similar trend but it did not reach significance. Elsewhere, the differences between boys and girls were negligible.

The study reported above was repeated on a further sample of 150 three-to-five year olds attending nurseries in the Bristol area as part of a further evaluation of the KPAG. The results were broadly similar to those cited above when allowance was made for a slight difference in average age between the samples. Again no sex differences were found in the data. The replication of the above results would suggest that the data obtained is reasonably reliable for children within nursery education. Assessment of children within other forms of pre-school provision might reveal interesting differences in emphasis and such a study will be attempted in future.

Whether the KPAG is completely acceptable to staff in nursery education is not yet clear. Lomax (1977b) found that the reaction of nursery nurses using a record form developed by collaboration between staff and researcher in a single nursery school were generally favourable, although the comments of the six nursery head teachers who subsequently reviewed the system would appear to have been more critical. Where staff have been actively involved in the process of the construction of the system, responses to its final form may be more favourable than where users have been isolated from this process. In the case of the KPAG, ... reactions from nursery staff using the instrument have been various. Some

have been very enthusiastic, indicating that they would like to employ it as a permanent framework for their own record-keeping procedures. In other nurseries reception of the Guide has been less warm. Where criticism has been levelled at the Guide it has usually been on one of three grounds. First, several of the nursery staff involved in the above study indicated that they found the procedure of assessment on items of Section II of the Guide too time-consuming, despite the revision of the pilot form. This is an interesting criticism since the KPAG contains appreciably fewer items than other systems of assessment designed for use in the nursery (e.g. Lomax, 1977b; N.C.B., 1977; Bate et al. 1979), and may be partly attributable to lack of familiarity with the instrument.

The second major criticism of the KPAG was levelled at specific items which were felt to be at least irrelevant, if not actually undesirable, within the context of nursery education. In particular, criticism was levelled at the inclusion of items on reading and writing, which were felt by some teachers to be outside the scope of the nursery curriculum. These items were included in the Guide in the final level of difficulty because they are skills which some children begin to acquire towards the end of the nursery period. Moreover, their inclusion stressed the continuity of interest between the nursery and the infant school. It seems unlikely that any assessment procedure will exactly match all nursery curricula and practices without being too limited or too general. In the main, the KPAG would appear to be

congruent with the central core of the nursery curriculum and the majority of staff involved in the study conceded this point.

The third major criticism was directed at the degree of structure and precision which the criteria for some of the items of Section II was felt to require. Although assessment was intended to take place in a semi-structured setting, some staff felt that even this placed too great a constraint upon either child or teacher or both. Again, however, it would seem that where staff are thoroughly conversant with the procedure a greater degree of flexibility in the assessment procedure is obtained and the criticism tends to disappear.

In summary, the evaluation of the KPAG suggests that the Guide is both useful as a tool for discriminating between children in terms of their skills and abilities and broadly acceptable to nursery staff. However, the study described in this chapter, although it suggests that the Guide is able to operate within the constraints imposed by the attitudes of nursery staff and the requirements of the nursery setting, does not furnish information upon the reliability and validity of the assessment system. These attributes of the KPAG are the subject of the next chapter.

## CHAPTER 7

### THE RELIABILITY AND VALIDITY OF THE KPAG

An important statistical property of any set of test items is their reliability or the consistency with which they measure a particular attribute. For a given item the degree of reliability achieved is its agreement with itself when the administration is repeated upon the same group. The question of the reliability of an item is an important one since an item with low reliability cannot provide consistent assessments and is of little use for the evaluation of performance. However, the demonstration that an item can be scored reliably, although a necessary feature for its inclusion in an assessment package, is insufficient of itself to warrant that inclusion. The validity of an item, i.e. the capacity of the item to predict some specified but not identical behaviour is also very important. It is obviously not worthwhile to employ items, however reliable, which are more closely related to a separate area than to the area which they are supposed to predict. Thus, both reliability and validity are important for the acceptability of a test.

As Lewis (1974) points out, every test result is the end product of a process involving many stages. Four of these stages involve a process of selection or sampling wherein error may be introduced into the result. The four steps are:

- 1) the conduct of the test and scoring of the child's test performance by a particular tester.
- 2) the administration of the test at a particular time and place.
- 3) the construction of the test from a particular selection of suitable items.
- 4) the choice of the particular test used as opposed to a number of alternative tests of the same behaviour patterns or attributes.

A change at each stage, whether it involves the tester used, the time and place of testing, the test items or the whole test itself, would in general affect the final result. We need, therefore, some indication of how test results vary as a consequence of the sampling involved at each stage. The variability from sampling in each of the first three of the above stages is a component of the test's reliability: the variability from sampling at the last stage represents the test's validity. The various means by which variability is introduced into the system will now be considered in turn.

In constructing tests psychologists have long recognised the need to reduce to a minimum the sampling variability of testers. The principal means by which this reduction is achieved is by the provision of detailed instructions to the tester covering the administration of the test and the scoring of responses. For some items the wording of the questions posed may not be critical and acceptable responses showing possession of the ability, skill or concept may be various. However, for other items a fine

degree of precision in both the administration of the individual items and the evaluation of the responses obtained may be required. In order to achieve reliability between testers, most psychological tests formalise and standardise the procedure at each stage of the test's completion. In addition, since it is often subtle nuances of manner which contribute most to the inter-tester variability, especially in the testing of young children, it is frequently seen to be important to limit use of a test to a particular category of individuals, i.e. trained psychologists. As Evans (*idem*) indicates, a knowledge of children's modes of thinking, a sensitivity to their reactions, as well as a scrupulous regard for test procedures are all essential. It is arguable that the first two characteristics are possessed by many teachers, nursery nurses and playgroup supervisors. However, it is unlikely that the last requirement for reliability between testers will be met in the nursery given the constraints outlined in the first two chapters of this thesis. Indeed, the KPAG makes deliberate acknowledgement of this point in informing the user of the guide that the format of presentation may be altered in order that the administration of the items may be more satisfactorily integrated into the nursery day. Without such an allowance for a deviation from a standard procedure it is improbable that the assessment system would have achieved a minimum level of acceptability with nursery staff given the prevailing nursery ideology and the emphasis

on spontaneity and freedom from constraint. Nevertheless, the instructions to the user of the Keele Pre-school Assessment Guide do caution that the tester should adhere reasonably closely to a set of established criteria and refrain from providing the child with too many clues to the correct response. Also it is envisaged that interpretation of the completed record will take the lack of a completely standard procedure into account. Since the KPAG is not a standardised test and since the category of users is relatively unrestricted it would be unrealistic to expect inter-tester reliability to be as great as in most psychological tests. However, it is clearly still desirable that the results of the guide should show some reliability otherwise little credence could be given to the records, and some of the studies below approach the problem of determining the reliability between testers on parts of the assessment.

The second form of variability stems from the time and place chosen to test the child - would the child have performed differently if his performance on items had been investigated on another day? This consideration is relevant if only because importance is seldom attached to the precise time the test is administered, the assumption being that at the time of the test the child is willing and able to perform at an optimal level. However, such an assumption is not always tenable, and variations in performance over short periods of time may occur as a result of a number of underlying factors, many of which stem from

the testers themselves. Short term fluctuations in physical health, for example, may affect test performance as would less obvious qualities such as the child's motivation, impulsivity and state of anxiety. Symptoms of ill health are often recognised by the teacher and allowance may be made for the child's physical condition in the interpretation of the record or, more usually, the assessment of the child's abilities may be deferred until he is fully recovered. Fluctuations in mood state are, however, sometimes more difficult to perceive and may be particularly critical in their effect upon initial testing shortly after the child's introduction to the nursery, when the adult's knowledge of the child's customary behaviour is limited. The KPAG suggests that initial testings should only proceed once the child has settled and a time interval of at least one month after entry is recommended. However, it is clear that fluctuations in performance will still occur later on. The extent of the variability induced by the factors described above could be estimated by administering the test to the same subjects on two occasions and then correlating the two sets of scores, thereby obtaining a coefficient of stability or test-retest reliability. The interval between the tests should not be so long that appreciable changes in the child's abilities or attainments could occur, but it should not be so short that the subject is able to remember correct responses where these have been furnished. Such test-retest procedures with an interval of three to four weeks are a standard means of evaluating reliability in psychological tests, and Section I of the KPAG



has been examined in this way. This section deals with characteristics of the child where tuition has a long term rather than a short term effect if it has an effect at all. The test is thus one of observer reliability. Peculiar difficulties occur with the implementation of such an examination for the items in the second section, where the items in the main pertain not to features of the child's personality but to his level of skill and concept attainment. These difficulties arise from the difference in perspective between the teacher (or other member of the nursery staff) and the psychologist.

Whereas for the psychologist the test can be seen as an end in itself, for the teacher it represents a starting point. The psychologist uses the test to place the child in relationship with his peers. The teacher uses the test in order to discover the stage reached by the child in order that she can facilitate his passage to the next one i.e. in order to teach. To have the teachers perform a test-retest reliability study it would have been necessary to have forbidden the tuition of areas pertaining to the items in the KPAG. If the items were of a comparatively abstract nature, and unrelated to normal practice within the nurseries, as may be the case with the items of some I.Q. tests, such a restriction on staff would perhaps have been possible. However, since the items in the KPAG were explicitly chosen for their affinity to the nursery curriculum and since the equipment used in the KPAG so closely resembles

that commonly found in the average nursery it was felt that it would be impossible to perform such a study using teachers or nursery nurses as the testers. An alternative would have been to have employed a psychologist as the tester on both occasions. The objection here would have been that such a study would ignore the critical factor of the inter-relationship between the teacher and the child. The aim is not to see whether psychologists can use the system reliably but whether teachers can do so. Some evidence for the reliability of particular items occurs in the study concerned with the validity of the assessment system.

Various means are available for estimating the variability in scores arising from changes in test content. Where the test has been constructed from the outset as a combination of equivalent halves, the correlation of the two halves, corrected by the Spearman-Brown formula, enables the internal consistency of the test to be examined. Where the test has not been designed in this manner, it is possible to obtain a similar statistic by splitting the test into halves in some arbitrary but *prima facie* reasonable way. However, in such a case measures based on the consistency of performance from item to item (e.g. the statistic obtained from use of the Kuder-Richardson formula 20) may be preferable. The internal consistency of the second section of the KPAG has been estimated by both methods.

Finally, it is necessary to consider the validity of the items contained in the KPAG. Questions concerning validity

probe the relevance of any particular test measurement still further by seeking to relate it to an established set of measures, rendering it more meaningful. Generally, a coefficient of validity shows the correlation between the test and another, criterion test. The choice of the criterion is usually very important. In the case of the KPAG, which is not a standardised I.Q. test within the mainstream of psychometrics, it is critical. Two factors influenced the choice of criterion. First, since the KPAG is divided into several subsections dealing with specific aspects of development a standardised test having a number of subscales concerned with similar areas was deemed preferable as a criterion. As the discussion in the fifth chapter of this thesis notes, comparatively few standardised tests cater for children between the ages of three and five. Of the more commonly used tests only the McCarthy Scales of Children's Abilities has multiple subscales. Secondly, the choice of criterion test was influenced by the problems inherent to the testing of pre-school children which have already been touched upon. Davis (1974a) reports that better rapport was obtained with the McCarthy test than with the Stanford-Binet and notes that the separate McCarthy items were of a more appropriate length than the short tasks in the Stanford-Binet or the long sub tests of the Wechsler Pre-School and Primary Scales of Intelligence. In another review, Davis (1974b) concluded that the McCarthy "is probably the best test devised so far for testing the mental ability of individual young children" (p. 251).

For these reasons the McCarthy was chosen as the criterion test, and a measure of concurrent validity was obtained. No measures of predictive validity, such as a correlation of KPAG results and later infant school performance are currently available but it is hoped to carry out studies looking at the outcome for the child in the infant school in the future.

The remainder of the chapter is dedicated to a series of studies investigating reliability and validity in both sections of the KPAG.

### STUDY 7.1

#### SECTION 1: INTER-RATER RELIABILITY

As stated in the introduction to this chapter a principal source of variability in test scores is due to differences between individual testers. The present study's purpose was to investigate inter-observer differences in the first section of the KPAG; specifically it was to determine whether the six rating scales defined in the first section of the KPAG would be used reliably by members of staff in nursery education.

#### Subjects.

The study was performed in seven nursery units attached to infant schools and seven nursery schools. In each unit, a teacher was asked to rate ten children (five boys, five girls), using the form shown in Appendix E. The children were chosen at random from the register by the researcher. Children who had just arrived at the nursery or who had a poor attendance record were omitted from the study. A

nursery nurse in each nursery was asked to rate the same ten children independently of the teacher. In eight of the fourteen nurseries a second teacher was asked to rate the same children without collusion with the others and in a further eight a second nursery nurse was requested to do the same. Thus, in total, the study included 140 children (70 boys, 70 girls) aged between 3 and 5 years, rated by 22 teachers and 22 nursery nurses. The study afforded fourteen teacher - nursery nurse comparisons; eight teacher - teacher comparisons and eight nursery nurse - nursery nurse comparisons, each comparison being on the rating of ten children.

The instrument used in the study is shown in Appendix E. As well as containing the six rating scales of the first section of the KPAG as previously described, the instrument also provided for the rating of the child's likeability and physical attractiveness, together with space for the elucidation of details of the child's social background etc.

### Results.

The results of the study pertaining to the overall reliability of the six rating scales are shown in Table 7.1.

The table shows that teachers and nursery nurses tended to use the scales in similar fashion. Generally, the teachers tended to attribute higher ratings to the children than did the nursery nurses but for only two of the scales, those concerning concentration and imagination, did the differences

TABLE 7.1.

MEAN VALUES AND MEASURES OF INTER-RATER  
RELIABILITY FOR THE SIX KPAG RATING SCALES

<u>Scale</u>	Teachers Ratings (Mean)	Nursery Nurses Ratings (Mean)	t	Pearson Correl- ation	Exact Agree- ment (%)	Approximate Agreement (%)
Ability to Mix	4.93	4.83	.07	.5735***	33.8	69.1
Aggression	3.91	3.74	1.20	.5814***	25.7	64.3
Confidence	4.62	4.41	1.30	.4883***	25.0	57.9
Leadership	3.89	3.59	1.95***	.5684***	32.1	67.1
Concentration	4.59	3.94	4.04*	.4613	29.5	58.3
Imagination	4.43	4.13	2.07*	.5470***	26.4	72.1

\*  $p < .05$

\*\*\*  $p < .001$

between the two groups of raters reach significance.

(Scale for concentration,  $t = 4.04$   $df = 138$  ,  $p < .001$ ;  
Scale for imagination,  $t = 2.07$   $df = 139$  ,  $p < .05$ .)

Examination of reliability coefficients showed that although these reached statistical significance they were rather low. Using a different measure, the percentage of occasions ratings on a scale were in agreement, it was found that in only 29 percent of cases on average was agreement on the point of a scale exact: allowing an error of 1 point on the scale increased the average level of agreement to sixty-five percent.

Examination of reliability measures by sex of the child (Table 7.2) and by the age of the child (Table 7.3) suggested that staff tended to rate girls rather more reliably than boys and to show more agreement when rating younger children than older children, although in neither case was the difference particularly great.

Examination of reliabilities obtained from the teacher - teacher and nursery nurse - nursery nurse comparisons showed that these coefficients of reliability were of a similar level to those already given. Thus, no effect of training of the rater upon the reliability of the rating could be discerned.

### Discussion.

Overall, the levels of reliability obtained were rather lower than had been anticipated or desired. Variability in scores between raters can be accounted for in two principal ways. First, variability may be due to differences

TABLE 7.2(i)  
INTER-RATER RELIABILITY MEASURES FOR THE  
SIX KPAG RATING SCALES BY SEX OF CHILD

<u>B O Y S</u>			
Scale	Pearson Correlation Coefficient	Exact Agreement (%)	Approximate Agreement (%)
Ability to mix	.5219***	31.4	67.1
Aggression	.6136***	22.9	62.9
Confidence	.5506***	20.0	57.1
Leadership	.4604***	30.0	60.0
Concentration	.3212**	28.6	54.3
Imagination	.4287***	22.9	70.0
Average		<hr/> 26.0	<hr/> 61.9

\*\* p < .01

\*\*\* p < .001



TABLE 7.2(11)  
INTER-RATER RELIABILITY MEASURES FOR THE  
SIX KPAG RATING SCALES BY SEX OF CHILD

G I R L S

Scale	Pearson Correlation Coefficient	Exact Agreement (%)	Approximate Agreement (%)
Ability to mix	.6266***	36.2	71.0
Aggression	.5467***	28.6	65.7
Confidence	.4195***	30.0	58.6
Leadership	.6707***	34.3	74.3
Concentration	.5773***	30.4	62.3
Imagination	.6259***	30.0	74.3
Average		<hr/> 31.6	<hr/> 67.7

\*\* p < .01

\*\*\* p < .001

TABLE 7.3(1)  
INTER-RATER RELIABILITY MEASURES FOR THE  
SIX KPAG RATING SCALES BY AGE OF CHILD

3 years n = 35

Scale	Pearson Correlation Coefficient	Exact Agreement (%)	Approximate Agreement (%)
Ability to Mix	.4835**	34.3	57.1
Aggression	.7055***	34.3	71.4
Confidence	.3872*	25.7	54.3
Leadership	.6216***	34.3	77.1
Concentration	.6162***	25.7	57.1
Imagination	.6712***	31.4	80.0
Average		31.0	66.2

\* p < .05

\*\* p < .01

\*\*\* p < .001

TABLE 7.3(11)INTER-RATER RELIABILITY MEASURES FOR THESIX KPAG RATING SCALES BY AGE OF CHILD

4 years n = 105

Scale	Pearson Correlation Coefficient	Exact Agreement (%)	Approximate Agreement (%)
Ability to Mix	.5682***	33.7	73.1
Aggression	.5156***	22.9	61.9
Confidence	.4913***	24.8	59.0
Leadership	.5152***	31.4	63.8
Concentration	.3727***	30.8	58.7
Imagination	.4272***	24.8	69.5
Average		28.1	64.3

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

in the relationships between the target child and each rater, leading to differences in perception of the child by each rater. In the relatively fluid environment of the nursery such an explanation for variability in ratings is highly plausible. Staff frequently admit that the children tend to relate and interact differently with each member of staff in the nursery and staff may encounter some children rather more frequently than others.

A second reason for the degree of variability found in ratings may lie in the features of the scales themselves. Although, as already stated, the scales are based upon, and are therefore similar to, the constructs employed by nursery staff in the perception of individual children, subtle differences in interpretation of the meaning of the points on each scale may account for variability in rating. Only the meaning of the end points of the scale is given and staff, therefore, have to determine the meaning of the middle points themselves. An alternative form of scale, with each point clearly defined will probably reduce unreliability. Support for this belief is given by examination of the reliabilities obtained for separate points on each scale in the study above. Such an examination reveals greatest variability in rating around the mid-points. Reduction of the length of the scale from seven to five points would also tend to increase the degree of reliability of the scales but for reasons already argued (see Chapter 5 ) such an alternative would lead to undesirable side effects. Reliability might be increased but the sensitivity of the

scales would be greatly reduced.

In order to establish the extent to which the variability in ratings is caused by differences in staff perceptions of the same child a second study, involving individual raters rating the same children on two separate occasions, was carried out.

## STUDY 7.2

### SECTION 1: INTRA-RATER RELIABILITY

The purpose of the present study was to examine variability in the use of the rating scales by individual teachers in nursery education. It was hypothesised that if variability in the ratings of children by pairs of raters in the first study was caused primarily by differences in the perceptions of the children of the two raters, the reliability of these scales would be greatly increased when the use of the scales was restricted to a single rater. Differences in interpretation of the meanings of individual points in the scale would similarly be eliminated by this means.

#### Subjects.

Ten teachers in seven different nursery schools and classes participated in the study. Since the previous study had revealed no differences in the reliability of the scales according to the training of the pairs of raters, it was decided to limit this study to nursery teachers, who, it is envisaged, will be the principal users of the KPAG.

### Procedure

Each teacher rated ten children selected at random from the register by the researcher in the manner of the previous study. Staff were given approximately one week to complete their observation and rating of the children, after which time the forms were collected from them. After a further interval of three weeks the ten teachers were issued with new forms and asked to re-rate the children. No warning had been given to staff that a second rating would be required and staff were instructed to concentrate upon the children as they appeared at the time of rating on each occasion. An interval of three weeks was chosen as appropriate since:

- 1) it was considered sufficiently long for it to be unlikely that staff would remember their original ratings of the children;
- 2) It was felt to be sufficiently short for it to be unlikely that the children's behaviour would change considerably between ratings.

Staff were informed that the object of the study was to examine the sensitivity of the scales to changes in behaviour of the children rather than to examine the reliability of the scales in use.

### Results.

The results of the study are shown in Table 7.4. Comparison of the means for the two ratings on each scale shows no significant differences between them. Thus it seems unlikely that the nursery teachers involved in the study used

TABLE 7.4  
MEAN VALUES AND MEASURES OF WITHIN-RATER  
RELIABILITY FOR THE SIX KPAG RATING SCORES

Scale	Teachers Ratings: First (Mean)	Teachers Ratings: Second	t	Pearson correlation	Exact** Agree- ment %	Approx- imate Agreement %
Ability to Mix	4.880	4.929	-0.56	.8086***	53.5	86.9
Aggression	3.900	3.889	-0.11	.7958***	54.5	89.9
Confidence	4.680	4.806	-1.28	.7689***	52.0	83.7
Leadership	4.080	3.990	+0.61	.7732***	52.5	84.8
Concentration	4.100	4.263	-1.07	.6384***	48.5	81.8
Imagination	4.290	4.313	-0.33	.5994***	48.5	75.8

\*\*\*  $p < .001$

\*\* Range of agreements for individual teachers for each scale.

Ability to mix	20% - 100%
Aggression	20% - 100%
Confidence	20% - 80%
Leadership	20% - 100%
Concentration	20% - 90%
Imagination	40% - 100%

the retest to demonstrate that the children had matured or 'improved' in the interval between ratings, a factor which could potentially have led to unreliability.

Comparison of the reliability coefficients obtained in the present study and those of the previous one show that the former are superior for each of the six scales. In the present study no differences in the reliabilities for different ages or the sex of the children was found.

Reliability still tended to be poorest for points towards the middle of the scale, and comparison of the performance of individual teachers showed that there was considerable variability in the reliabilities achieved.

### Discussion

As anticipated intra-rater reliability was substantially better than inter-rater reliability for the six scales. However, measures of reliability still did not attain the levels that had been hoped for.

The underlying cause of the unreliability of the scales may be endemic to rating scales generally. Lomax (1979) reports a study which involved the use of rating scales by nursery nurses. Some items, including those concerned with persistence, information seeking and creativity showed fair inter-rater agreement. However, the majority of items displayed poor reliability and Lomax concludes that specific details of situations may be necessary if ratings of social skills are to be both reliable and useful.



In two pilot studies alternative forms of the KPAG rating scales were employed in an attempt to assess whether reliability could be increased by changes in the format of the scales and in the procedure for their use. In the first study descriptors were supplied by the author for each point of each scale, and staff were asked to rate the children upon the scales as previously described. In the second study staff were requested to discuss the subjects with each other prior to rating. In this study, where staff chose to rate the child at an intermediate point on a scale they were required to provide their own descriptor of this point. The conclusions that may be drawn from these two studies are only tentative since the samples were small in each case. However, for both studies the results suggested that the reliability of the revised scales exceeded the levels quoted in the studies above. Of the alternatives used in the pilot studies, some nursery staff stated a preference for the form in which they supplied their own descriptors for the points on each scale, after consultation and discussion with other members of staff. Since this format requires the greatest active consideration of the child by staff it was decided that it should be adopted for the final version of the KPAG. and is shown in Appendix D.

The validity of the KPAG rating scales has yet to be established. Ideally this would be done by means of an observational study performed by the researcher subsequent to rating of the child's behaviour by nursery staff. However,

some evidence that nursery staff are able to accurately assess aspects of the child's social behaviour does exist. For example, Roper and Hinde (1979) conducted a study in which nursery teachers were asked to rate aspects of children's social behaviour on 7-point scales contained within a questionnaire. Simultaneously two independent observers made observations on the children in the classroom. The results from the two component parts of the study allowed for 15 different comparisons between the two sets of data to be made. Of the 58 rank order correlation coefficients calculated, 74% indicated significant agreement. This finding would suggest that a degree of validity may attach to teachers' ratings of young children.

Study 7.3: Section II: The internal consistency of the items.

The aim of this study was to supply information on the internal consistency of the second section of the KPAG.

Subjects.

150 children (82 boys, 68 girls) aged between 3 years 0 months and 5 years 3 months attending 8 nursery schools or classes within the Bristol area.

Procedure.

The subjects were assessed by nursery staff using the revised form of the KPAG. Completed records for the children were returned to the researcher who conducted an analysis of the data to produce measurements of the internal consistency of the second section of the Guide.

To examine the internal consistency of the set of items, items were allocated to separate halves on an odd - even basis for each scale and for the section as a whole. The halves were then correlated and the correlation coefficients obtained corrected by means of the Spearman-Brown formula<sup>1</sup> to adjust for the length of the test. The results are shown in Table 7.5, which also supplies the standard errors of measurement.

Since the splitting of the test into halves in the above manner is rather arbitrary (Butcher, 1968) an alternative, employing the Kuder-Richardson formula 20<sup>2</sup>, which gives the average coefficient that would be obtained if the test were split in every possible way, was also adopted. The results are shown in Table 7.6

<sup>1</sup> The Spearman-Brown formula employed may be quoted as:

$$r_{tt} = \frac{2r_{AB}}{1 + r_{AB}}$$

where  $r_{tt}$  = the coefficient of internal consistency for the complete test and  $r_{AB}$  = the correlation coefficient for the two halves of the test.

<sup>2</sup> The Kuder-Richardson formula 20 may be quoted as:

$$r_{tt} = \frac{n}{n-1} \frac{\sigma^2_t - pq}{\sigma^2_t}$$

where  $n$  = the number of items in the test

$p$  = the proportion of correct responses to each item in turn,

and  $q = 1 - p$

TABLE 7.5  
RELIABILITY COEFFICIENTS (CORRECTED BY SPEARMAN-  
BROWN FORMULA) AND STANDARD ERRORS OF  
MEASUREMENT OF THE FOUR SCALES OF  
THE KPAG SECTION II BY AGE

		Age in Years			
		3 - 3½	3½ - 4	4 - 4½	4½ - 5
N		10	32	39	51
COGNITIVE:	$r_{tt}$	.903	.944	.916	.939
	$SE_M$	1.419	1.182	1.519	
PHYSICAL:	$r_{tt}$	.929	.797	.863	.843
	$SE_M$	0.841	1.023	0.944	
SOCIAL:	$r_{tt}$	.893	.875	.775	.790
	$SE_M$	0.736	0.704	0.719	
LANGUAGE:	$r_{tt}$	.959	.942	.871	.942
	$SE_M$	1.031	0.946	1.218	
KPAG TOTAL:	$r_{tt}$	.979	.978	.923	.971
	$SE_M$	1.452	1.531	2.625	

TABLE 7.6  
RELIABILITY COEFFICIENTS FOR THE FOUR SCALES  
OF KPAG SECTION II AND TOTAL SCORE

	$r_{kr}$
Cognitive	0.925
Physical	0.830
Social	0.792
Language	0.898
KPAG Total	0.951

## Discussion

The results obtained suggest that the KPAG Section II has fairly good internal consistency reliability, which is comparable with that quoted for some standardised psychometric tests e.g. The McCarthy Scales of Children's Abilities (McCarthy, 1970). The validity of the items is assessed in the next study.

### Study 7.4: Section II: The validity of the items.

The aim of this study was to assess the validity of the items contained within Section II of the KPAG by means of comparison with a criteria test, viz The McCarthy Scales of Children's Abilities (McCarthy, 1970).

### Subjects.

Eighteen children (10 boys, 8 girls) in 2 nursery schools.

### Procedure.

The subjects were initially assessed by their own class teacher by means of the KPAG. They were subsequently tested by two researchers (the author and a colleague) by means of the McCarthy Scales of Children's Abilities (M.S.C.A.). Testing was carried out between 2 and 6 weeks after the initial assessment, and the testers were unaware of the results obtained on the KPAG.

### Results

Analysis of the assessment and the test was carried out by the author. Raw scores were obtained for each scale and for the General Cognitive Index of the M.S.C.A. for each child. From the KPAG two sets of measures for each subject were obtained:

1) the total number of items passed in each part of Section II and in the section as a whole, and

2) a score for the same, calculated by the arbitrary weighting procedure described in the previous chapter.

Rank-order correlation coefficients for each of the two sets of KPAG measures with the measures obtained from the M.S.C.A. were calculated. Inspection of the 147 coefficients obtained revealed that those for the weighted scores were superior to those for the total number of items in 75 instances (52%), were equivalent in 49 instances (33%) and were inferior in only 23 (16%). The correlation coefficients for the weighted scores are presented in Table 7.7.

Examination of the items of the KPAG and the M.S.C.A. revealed a reasonably close similarity of content in 16 cases. Comparison of the results on these items on the assessment and the test revealed acceptably high levels of agreement. For example, comparison of 4 items in the KPAG subsection 'memory' with 4 items of the M.S.C.A. subsection 'numerical memory' yielded an average agreement on scoring of 83.3%. Similarly, comparison of 5 items from the KPAG subsections concerning 'properties of objects' and 'sorting and classification skills' with 5 M.S.C.A. items concerned with 'conceptual grouping' gave an average level of agreement of 75%. Examination of cases in which disagreement between scores occurred provided no evidence of a trend on the part of the teachers to under or over estimate the children's abilities when assessing them by means of the KPAG.

TABLE 7.7.  
CORRELATION BETWEEN MCCARTHY SCALES  
AND KPAG SCALES

KPAG Scales	McCarthy Scales (Raw Scores)				GCI
		Verbal	Perceptual Performance	Quantitative	
COGNITION:	Total items	.682***	.677**	.628**	.695***
	Score	.726***	.700***	.663**	.741***
PHYSICAL SKILLS :	Total items	.734***	.669**	.663**	.724***
	Score	.761***	.702***	.736***	.743***
SOCIAL- IZATION :	Total items	.812***	.658**	.736***	.774***
	Score	.868***	.722***	.638**	.832***
LANGUAGE SKILLS :	Total items	.741***	.748***	.747***	.795***
	Score	.737***	.746***	.757***	.796***
ALL SCALES :	Total items	.777***	.720***	.740***	.799***
	Score	.799***	.740***	.764***	.818***

\*\* p < .005

\*\*\* p < .001



### Discussion

The results of the present study suggest that the items of the KPAG possess an acceptably high level of validity. The coefficients quoted are comparable with those cited for comparisons between other standardised psychometric tests designed for use with young children (e.g. McCarthy, 1970). The results should be interpreted with caution, however, because of the small size of the sample employed.

### Conclusions

The KPAG is a flexible system of assessment designed for use by nursery staff possessing a variety of qualifications and experience. It should not be expected, therefore, that the results of the assessment will show the same level of reliability and validity as a standardised psychometric test. However, the studies presented in this chapter suggest that the measure of reliability and validity that have been obtained for the KPAG are of an order that may be deemed satisfactory.

The reliability of Section I in its original form is rather poor, although in the revised form shown in Appendix D it may be improved upon. Nevertheless, this section is useful in that it provides a brief, global description of the child which can form a focal point for staff discussion. It should be recognised, however, that the results of this section present data that are qualitatively different from those of Section II. In particular, it is likely that Section I will contain information that is subject to error

introduced by variations in the personality and perceptions of the assessors. This view is supported and extended by the findings of Roper and Hinde (1979), who suggest that the ratings given to each child on a questionnaire by teachers in a nursery school may be guided by an implicit personality theory held by the rater. They conclude that the structure yielded by an analysis of questionnaire ratings must be regarded as an indication of how observers assess individual differences, which is not necessarily identical with the structure of the differences that actually exist. This point is an important one and will be elaborated upon later (see Chapter 9).

The studies of the present chapter concerned with the reliability and validity of Section II of the KPAG suggest that it attains a satisfactory level in both these areas. In particular, they suggest that the results obtained from this section of the KPAG may be broadly comparable to those furnished by a standardised psychological test. However, some variance in the results remains unexplained. In part, this may be attributed to the flexibility of procedure recommended by the Guide. Such flexibility may lead to a degree of inconsistency in the results. Yet it is equally possible to argue the reverse case, that standardisation of procedure is likely to distort the child's performance. Children of the nursery age group are notoriously sensitive to the test situation, and it is possible that in some cases performance will differ markedly according to the exact nature of the situation. The results

obtained by a teacher and a psychologist testing the same child are, therefore, likely to be somewhat different and it is difficult to argue convincingly that one set are necessarily superior to another. Instead it may be stated, and should be recognised, that they fulfil different purposes. However, the fact that there is a considerable overlap in the findings suggests that the KPAG may usefully serve as a facilitator of dialogue between nursery staff and the psychologists with whom they come into contact.

Unlike the majority of psychometric tests the KPAG does not supply a score which can be used to describe the child. Where a score is required for research purposes it would seem from the final study of this chapter that a score obtained by the arbitrary weighting system is superior to that obtained by simple summation of the items passed. Use of the former scoring system occurs in some of the studies which follow.

## CHAPTER 8

### THE ASSESSMENT OF CHILDREN'S DRAWINGS

#### Introduction

The assessment system that has been devised for use by nursery staff emphasises observation of the individual child and the testing of his abilities in an informal play setting. Traditionally, systems of assessment in education concentrate rather more upon the child's achievements than upon his behaviour or abilities. Could a different approach to the assessment of the child's cognitive development be adopted, whereby products of the child's behaviour, e.g. his drawings, are used as an index of his conceptual level? If so, then the amount of time spent making the assessment during the nursery day might be reduced, allowing the teacher or nursery nurse more time to engage in instruction. Even if the answer to the question posed above were in the negative it would be possible that a detailed system for the evaluation of a child's drawings could add useful information to that already obtained through observation and testing.

That a child's drawings somehow reflect his mental capacity or functional level is an idea that has been in contention among educators and psychologists for many years. Children often devote a considerable portion of their time and effort to drawing and painting and it has often been claimed that the results of their endeavours furnish an insight into the ways in which they perceive and react to the world. At

the nursery stage such an insight would be of particular value since drawings and paintings are amongst the few products of the child's behaviour that a member of the nursery staff might reflect upon and analyse at leisure. An observation or a test is a transitory phenomenon. What remains for analysis is usually a summary of the event itself and important information may be omitted. A picture, whether painted or drawn with pencil, is permanent and available for repeated and varied analysis. If the claims for children's art could be substantiated, collection and examination of paintings and drawings would perhaps be worthwhile for nursery staff intent upon understanding the individual child and analysing his progress. The present chapter, therefore, considers various aspects of the development of the child's drawings, presents empirical studies of drawing in the nursery and infant school, and discusses the inferences that may be drawn from these studies and related work.

#### Developmental stages in children's drawing.

Piaget's theory, as is so often the case, represents a useful starting point for a discussion of development in the form of children's drawings. Piaget envisages drawings as containing elements of symbolic play as well as incorporating the child's attempts to represent the world around him. For Piaget 'graphic images' occupy a position midway between play and mental images. Thus, drawings manifest various interactions between the child's conception of the world (his schemata) and his attempts to accommodate to it (through

imitation).

"Drawing is a form of the semiotic function which should be considered as being halfway between symbolic play and the mental image. It is the symbolic play in its functional pleasure and autotelism, and like the mental image in its effort at imitating the real....Yet even in the initial forms there is no question of a free assimilation of reality to the subjects own schemes. Like the mental image it is closer to accommodation."

(Piaget and Inhelder, 1969 p.63)

For Piaget, the very first form of drawing, i.e. scribbling, has characteristics of pure play, albeit play of exercise. Very soon, however, the subject comes to recognise forms in his aimless scribble. Thereafter, he may attempt to render a model from memory and as soon as the intention to do so exists, drawing becomes imitation and image.

Piaget's account of the development of children's drawings through a series of hierarchical stages is congruent with his global theory of the development of intelligence. At an empirical level it is highly reliant upon the work of G.H. Lucquet (1927). Lucquet suggests, and the point is commonly accepted (e.g. see Eng, 1931; Kellogg, 1969), that drawing starts with a stage of scribbling, which is initially composed of purposeless, disordered and relatively uncontrolled strokes. Gradually, the child perceives the connection between his actions, involving the movement of the pencil or the brush, and the marks produced upon the paper. The child then enters the stage of 'fortuitous realism', in which he discovers that his scribbles contain meaning, each discovery being made afresh in the course of the drawings production.

For the observer, this stage is identified by the child's naming of the scribble and at the end of it the child attempts his first representational drawings. At the beginning of the subsequent 'preschematic stage' the child's drawings are characterised by what Lucquet terms 'failed realism', brought about by 'synthetic incapacity' in which the elements of the picture are juxtaposed instead of being co-ordinated into a whole. This phase is followed by one typified by 'intellectual realism' in which the child appears to draw 'what he knows' rather than 'what he sees'. Piaget gives the example of a face seen in profile having a second eye because a man has two eyes (Piaget and Inhelder, 1969, p.64).

The phenomenon is also shown in 'transparencies' e.g. when a navel appears on a clothed figure. Thus the child can be said to be portraying what he knows to be present rather than making a direct visual representation. Opinions concerning the origins of intellectual realism differ. Lucquet (idem) suggested that children possess 'internal memories' of objects. In this view, even when attempting to copy a model, children execute their own idiosyncratic 'internal models' of the object supposedly being portrayed. Another, more recent view is that these 'errors' of representation are more probably caused by problems of production (Hargreaves, 1978).

It is not until the child is approximately seven years old that the transitional stage of schematic drawings is reached: children attempt to produce genuinely depictive, non-

egocentric drawings, but these still include a number of idiosyncratic, visually unrealistic pictures. The pictures frequently contain reference lines such as groundlines and skylines, which are constructed to order elements in a common spatial framework (Hargreaves, 1978). It is only in the final stage of 'visual realism' (which is reached at approximately 9 - 10 years) that children spontaneously produce 'photographic' representations of objects. The child is now able to draw objects as they would be seen from any perspective and can represent three-dimensional relationships.

The work of Piaget and Lucquet provides a useful framework in which to view children's art as a whole. However, the scheme is insufficiently detailed to enable the teacher or psychologist to evaluate the child's work other than in the broadest terms. An alternative approach is therefore required, and one may be found in the work of Kellogg (1969).

Like Piaget and Lucquet, Kellogg is also concerned with universal features of the development of children's art. However, whereas the former concentrate upon the drawing as a representation of the child's schemes, Kellogg focuses, in the main, upon the form and aesthetics of the representation itself. For Kellogg, whose work owes much to the Gestalt school of psychology, a child's art represents a manifestation of a search for order and balance. She believes that units and arrangements at any one stage of development reflect what has occurred at earlier stages.



Like Lucquet, she sees scribbles as the first stage. However, whereas Piaget emphasises the pleasure of movement in scribbling, Kellogg suggests that it is equally plausible that visual pleasure is primary. Kellogg identifies a series of basic scribbles; twenty kinds of marking that are made by two-year olds and by even younger children. They are the result of movements which show variations of muscular tension without the requirement of visual guidance and represent, for Kellogg, the building blocks of art. Any drawing may be analysed into basic scribbles, but scribbling can also be analysed in terms of the placement of marks upon the paper. Seventeen placement patterns are identified and are said to offer evidence of the perception that accompanies scribbling. The importance of the placement patterns lies in the developmental sequence that follows from them. The patterns are the earliest evidence of controlled shaping in children's work. The basic scribbles themselves suggest shapes, mainly circles but also rectangles and triangles. However, the scribbles do not necessarily indicate eye control of hand movement. The placement patterns do and suggest purposeful half-circles, quarter-circles, rectangles, triangles, arches and various odd shapes.

Kellogg (*idem*) argues that the placement patterns develop into simple shapes or basic 'diagrams' such as circles or rectangles. In the succeeding stage diagrams are put together in pairs to form 'combines' (e.g. two circles attached to one another), or in larger numbers to form 'aggregates'. Children are inclined to prefer and repeat

just a few combinations or aggregates and it is from these preferred designs that representations of objects and people develop. Kellogg argues that in each stage of this development children respond to the presence of order in a shape. Thus, although innovation occurs in drawings, the forms that are repeated are those that have good visual form or balance. Of especial importance is the form of the mandala, a circular or ovoid shape with cross lines, which appears frequently in children's art and in many historical and religious works. From the mandala develop similar forms, the sun and the radial. Kellogg believes that these forms are intrinsically attractive and suggests that the reason for this may lie in properties of the visual system.

From these early shapes develop forms of overtly representational art, including the depiction of objects and humans. Yet the child's preference for particular forms in his early development influences the overall arrangement of units in subsequent representations. Thus, Kellogg argues, a picture of a human with no arms may reflect a preference for an overall shape, such as an oval, rather than an inability to draw a more complete figure.

Kellogg's hypotheses are provocative and underline the importance of asking how children come to select particular units and their arrangement. For Kellogg, every child in its drawing of a mode of symbolisation follows a similar graphic evolution. Her analysis emphasises the value of scribbling and reveals order and worth where often judgments of disorder and meaninglessness are made. It also

provides the teacher or psychologist with a tool to examine the child's work at this and subsequent stages. Yet the emphasis on the need to see the progression of the child's art in terms of forms previously employed detracts from the use of the scheme in predicting and assisting future development. In addition, Kellogg's view that forms of art have sources and affects of their own, and that the development of children's art is independent of association or the social environment does little to help the nursery teacher or nursery nurse to integrate her perception of the child.

Kellogg's work emphasises the need to see patterns in the children's drawings. Often interpretations of pattern can only properly be made by observation of the drawing process: patterns formed in the initial stages of the process may be obscured by later work. Such observations may not always be possible. Another approach has been to examine the content of the drawing itself, especially where that drawing depicts the human figure.

#### Childrens' drawings of human figures.

The psychological study of children's drawings has a comparatively long history (Kellmer-Pringle and Pickup, 1963). In the course of this history much stress has been placed upon the use of drawings as indicators of the child's intellectual level or emotional state. The child's first representation (as opposed to scribbling) is often a formalised human figure (Eng, 1931) and much attention has been paid to ways of analysing human figure drawings in terms

of their component parts (Goodenough, 1926; Harris, 1963; Koppitz, 1968; McCarthy, 1972). Goodenough's idea that a 'Draw-a-Man-Test' can measure a child's mental capacity was based on her own perceptions that children's drawings of the human figure 'improve' with age, and her conception that such improvement was due to a basic increase of intelligence resulting from increased age and experience. In making a similar case for the use of human figure drawings as indicators of intellectual level, Harris (1963) suggests that it is useful to replace the notion of intelligence with the idea of intellectual maturity, and more specifically, conceptual maturity. This change, he argues, gets away from the notion of unitary intelligence and permits consideration of children's concepts of the human figure as an index or sample of their concepts generally. By intellectual maturity Harris means the ability to form concepts of an increasingly abstract nature. He suggests that the child's drawing of any object will reveal the discriminations he has made about that object as belonging to a class, i.e. as a concept. In particular it is hypothesised that the child's concept of a frequently experienced object, such as a human being, becomes a useful index to the growing complexity of his concepts generally. Not only do children draw human beings frequently but a particular importance is attributed to their production.

"Very possibly the child's conceptualisation of the human person is not greatly different, in process from his conceptualisation of other animate or inanimate objects in his experience. Because the human being is so

basically important to him, affectively as well as cognitively, it is probable that the human figure is a better index than, for example, a house or an automobile. The concept of a person as a concrete object undoubtedly undergoes a more elaborate differentiation with age. The human figure both in its parts and as a whole must come to include a richer store of associations or 'meaning' than most other complex objects." (Harris, 1963, p.7).

If Harris's arguments were valid it would mean that analysing human figure drawings obtained from children would be a useful exercise for staff in nurseries.

Goodenough (1926) devised a feature count method of analysis of human figure drawings. Her work was later revised by Harris (1963), who published normative data for the drawings of boys and girls from the age of three, and the test has been used extensively in both clinical and educational psychology. As further justification of the use of the test, high correlations are reported with a variety of standardised intelligence tests (Harris, idem).

Yet criticisms of the use of drawings of humans as indices of cognitive functioning abound. Hargreaves (1978) contends that the test necessarily implies the existence of an ideal, standard representation of a man with an invariant set of features and that children's drawings represent attempts to portray this ideal. From the previous discussion of the views of Piaget, Lucquet and Kellogg it is clear that such an assumption is open to question.

Kellogg criticises the ideal itself by suggesting that

"the adult's ideas about how 'a man' should be drawn are a hodgepodge of general conceptions and misconceptions."  
(Kellogg, 1969, p.181).

Freeman (1976) makes a criticism that is rather more fundamental, arguing that the 'Draw-a-Man-Test' approach short-circuits aspects of the process of drawing which are of central psychological importance.

"To read Goodenough (1926), one would not really understand how drawings are organisations of things involving real compositional choices, intended to be multi-dimensionally representational and open to real intra-cultural variation as well as stereotyping."  
(p.347)

If a child omits a particular feature from a drawing it does not necessarily mean that he has an immature concept of that feature. He may in fact have a mode of stylisation which is in advance of his fellows. Golomb (1973) is able to show that if names of body parts are dictated to the child, the child can draw them. Thus, it appears that although children often possess concepts they do not necessarily use them on all occasions. Freeman (idem) argues, therefore, that both Harris and Goodenough confuse availability and accessibility.

Kellogg makes a similar point when stating that the 'Draw-a-Man-Test' neglects the possibility that the mental images which children use in art may differ from those which are stored in the mind as a consequence of the observation of human beings. For Kellogg, children's drawings may or may not reflect either their percepts or concepts of living persons. She argues that children do not draw from 'life': they first learn to draw by observing their own drawings and those of their peers. Thus, she accuses proponents of the 'Draw-a-Man-Test' of neglecting critical features:

"Being unaware of the whole natural system by which children teach themselves to draw in childhood, Harris makes no allowances in the test for the Gestalt of this natural system, either as assets or liabilities in the scoring process."

(Kellogg, 1969, p. 181).

As well as being used as an index of cognitive development, children's drawings, especially those of people, have been widely used as projective devices in the analysis of self-concept, body-image, sex-role identity and so on. (e.g. Machover, 1949; Koppitz, 1968). These applications are of course prone to all the pitfalls normally associated with projective testing; interpretations are inevitably subjective, reliability is likely to be low and the projective hypothesis may not hold in every case. Koppitz (1968) cautions against interpretations that are over simple:

"No one-to-one relationship exists between any single sign on HFD (human figure drawings) and a definite personality trait or behaviour on the part of the boy or girl making the drawing. Anxieties, conflicts or attitudes can be expressed on HFD's in different ways by different children or by one child at different times.... The total drawing should always be considered and should then be analysed on the basis of the child's age, maturation, emotional status, social and cultural background and should then be evaluated together with other available test data."  
(p. 55).

Yet claims such as

"sketching of a body in a HFD reveals body anxieties."  
(p.57).

are made later. Such inferences are clearly not necessary ones, and as Swensen (1957) states, they are seldom supported by research in the literature. As Freeman (1976)

points out, much of the interpretative work on children's drawing falls back on to reliability and standardisation arguments as evidence for its value. Without validation no reasonable value can be placed upon it.

Yet interpretations of drawings as indices of either cognitive development or emotional state are still frequently made, and drawing tests constitute an important area in psychometrics. Swensen (1957) suggests that the opinions of clinicians that the 'Draw-a-man-Test' is of value as an instrument, despite a continual lack of experimental judgement, is due to the fact that the 'Draw-a-man-Test', in a few cases which impress the clinicians, does provide an indication of the individual child's problems. He goes on to state, however, that there is some evidence to support the use of the 'Draw-a - Man - Test' as a rough screening device and as a gross indicator of 'level of adjustment'.

The above discussion would suggest that in terms of psychological theory the analysis of children's drawings by means of an examination of the item content of a particular type of drawing (that of the human) has little to commend it. Yet it may still have something to offer the teacher or nursery nurse who seeks to describe the drawings of her charges and to assess in some way their worth. Kellogg's work would suggest that opportunity and encouragement alone are necessary for development in the field of art (Kellogg<sup>a</sup> 1969) but the teacher wants to know whether or not the child is availing himself of the opportunities provided.



The empirical studies presented below were carried out to see

- (1) whether a standardised form of analysis of human figure drawings could yield data of interest to nursery staff assessing the individual child.
- (2) whether such a system would be both reliable and valid.
- (3) whether drawings obtained in the setting of the classroom would resemble those obtained in the clinical situation.

#### Systems of analysing human figure drawings.

The most popular system for the analysis of human figure drawings is that proposed by Goodenough (1926) and subsequently revised by Harris (1963). In its revised form the child's drawing is inspected for the presence of 73 potential features. Harris suggests that scoring of the drawing takes approximately ten minutes and a similar figure is given by Kaufman and Kaufman (1977). For use in the nursery the procedure for scoring would seem to be unnecessarily protracted and <sup>complex. The drawings of pre-schoolers are usually</sup> of limited complexity (Di Leo, 1973; Koppitz, 1968), and many of the items listed by Goodenough and Harris never or only very rarely occur in their drawings. For example, Harris gives five items concerned with the depiction of the neck, when, as I shall demonstrate, 3 to 5 year-old children rarely draw a figure with a neck of any description. Such detail is therefore unnecessary. Moreover, the normative data provided by Harris appears to overestimate the abilities of 3 to 5 year-olds (Krohn and

Traxler, 1979). Harris himself admits that the sample of children from which the data was obtained may not be truly representative of the age group as a whole (Harris, 1963).

Koppitz (1968) provides two different objective systems for the evaluation of human figure drawings. The first consists of a set of developmental items related to age and the child's level of maturation but not to school learning. The second system is comprised of a set of emotional indicators. The latter would appear to be of limited value in the analysis of the drawings of pre-school children since, as Kaufman and Kaufman (1977) point out, the role of developmental and co-ordination factors is so important for pre-schoolers that it is often difficult to infer unequivocal projective meaning from their drawings. From the arguments above it would seem doubtful that such inferences can be made with any degree of assurance at any age level: at the pre-school level it seems advisable to refrain from making them altogether. The set of developmental items may be of use however.

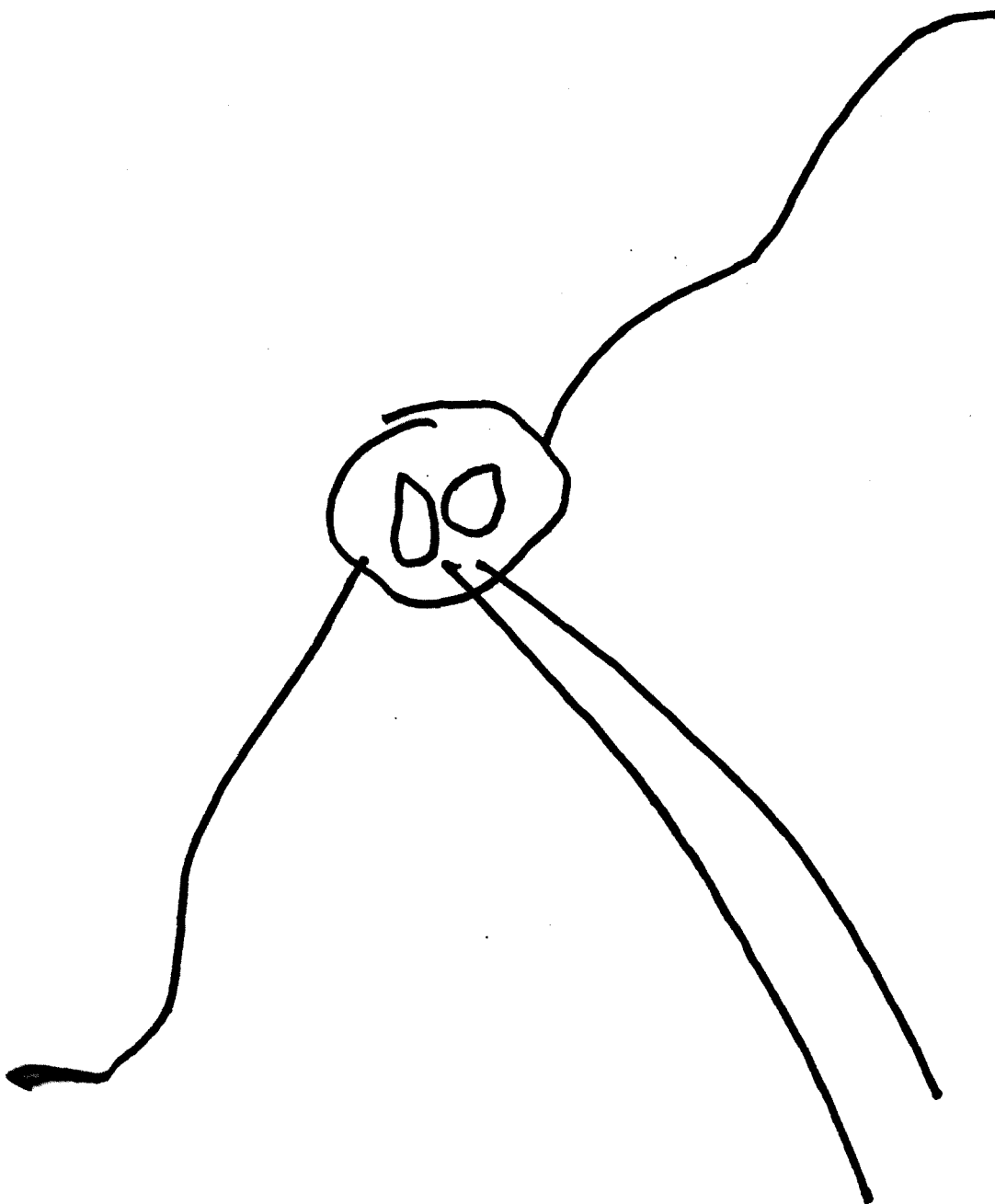
A broadly similar but alternative system is also available. The McCarthy Scales of Children's Abilities (McCarthy, 1972) contains a 'Draw-a-child' test, whose scoring system is short and objective, making it potentially suited to use by nursery staff. In addition the system emphasises the child's concepts to a greater extent than his co-ordination (Kaufman and Kaufman, 1977) which suggests that the system may yield insights into cognitive rather than motoric functioning.

Freeman (1976) suggests that the drawing of a human figure is a process which involves mastery over complex planning problems. The variant forms of the figure produced may serve as indices to the extent of this mastery. A common variant is the tadpole figure which seemingly has arms which originate from the head. Freeman (1975) has shown that children who spontaneously draw this variant will attach arms correctly to the trunk of an incomplete figure drawn by the tester if the head is small but will attach them to the head if it exceeds the trunk in size. Results of several further studies showed that the effect of body proportion upon other aspects of the drawing is a powerful one. Thus, a system of analysing human figure drawings which incorporates a measure of the relationship between the sizes of the head and the trunk may be of value.

In the studies which follow, three systems of analysing children's depictions of human figures were employed (see Appendix F). System A is based on the system of scoring described in the 'Draw-a-child' section of the McCarthy Scales of Children's Abilities (McCarthy, 1972). System B is a revised version of the Koppitz list of developmental items on human figure drawings. The revision decreases the emphasis on the child's co-ordination and the depiction of items of clothing. System C is an original means of describing the relationship between the component parts of the figure. For the sake of simplicity the ratio between the body and the trunk is computed in terms of the length of

FIGURE 8.1

EXAMPLE OF CHILD'S HUMAN FIGURE DRAWING (1)

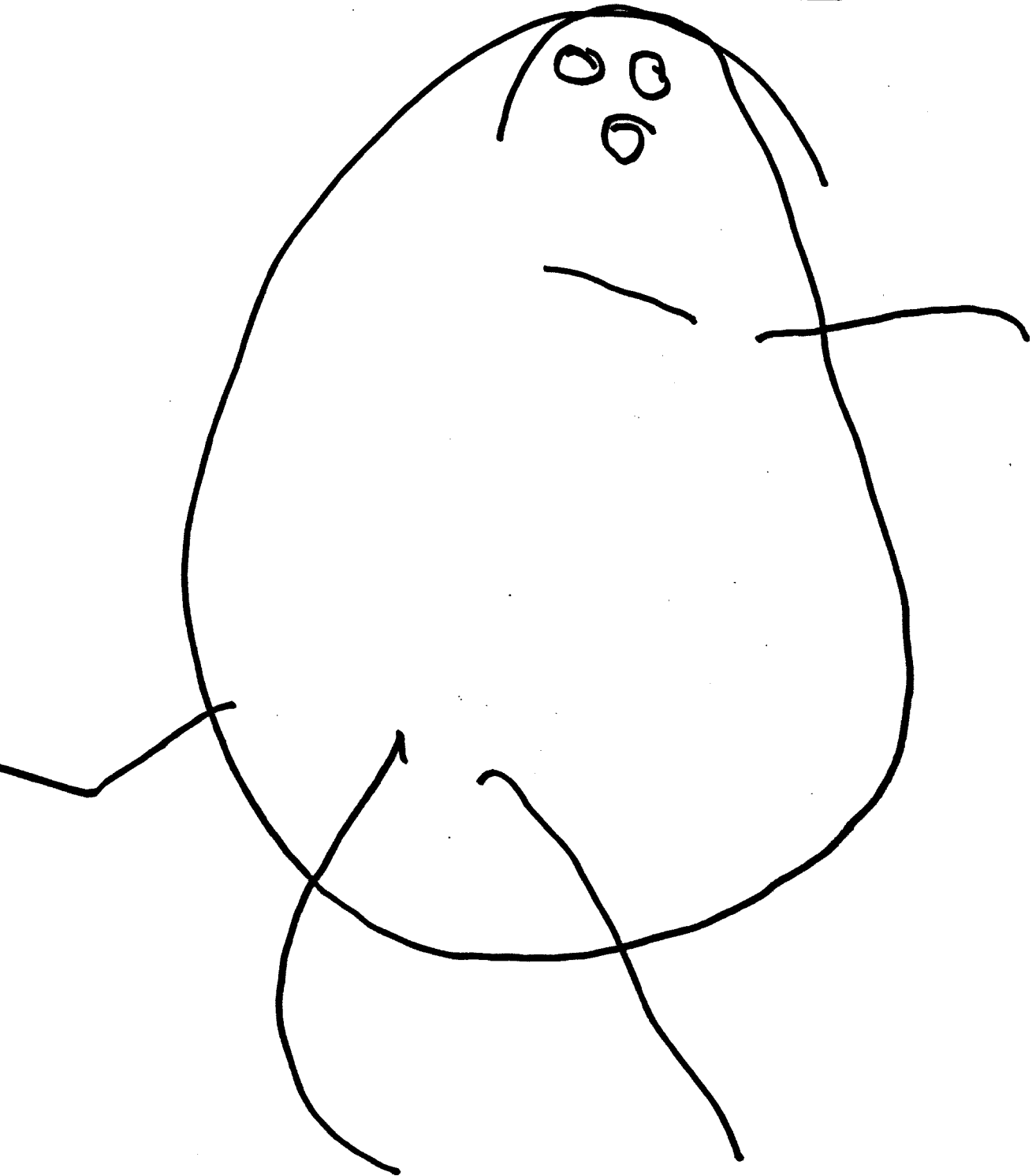


Sex : Female    Age: 3 years 5 mths.

Score:    System    A    4  
                      B    4  
                      C    1

FIGURE 8.2

EXAMPLE OF CHILD'S HUMAN FIGURE DRAWING (2)



Sex: Male Age: 4 years 8 mths.

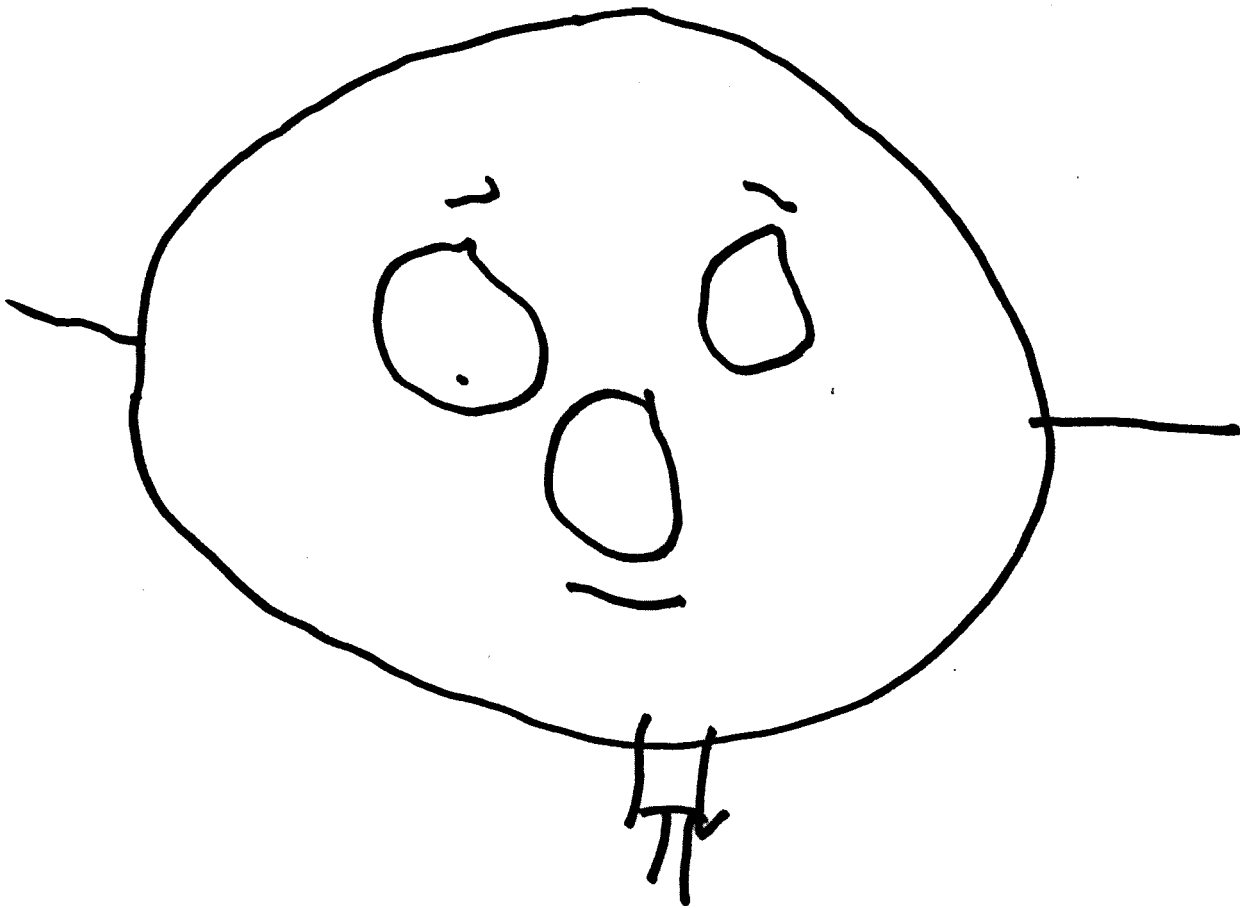
Score: System A 7

B 6

C 2

FIGURE 8.3.

EXAMPLE OF CHILD'S HUMAN FIGURE DRAWING (3)



Sex: Female Age: 4 years 7 mths.

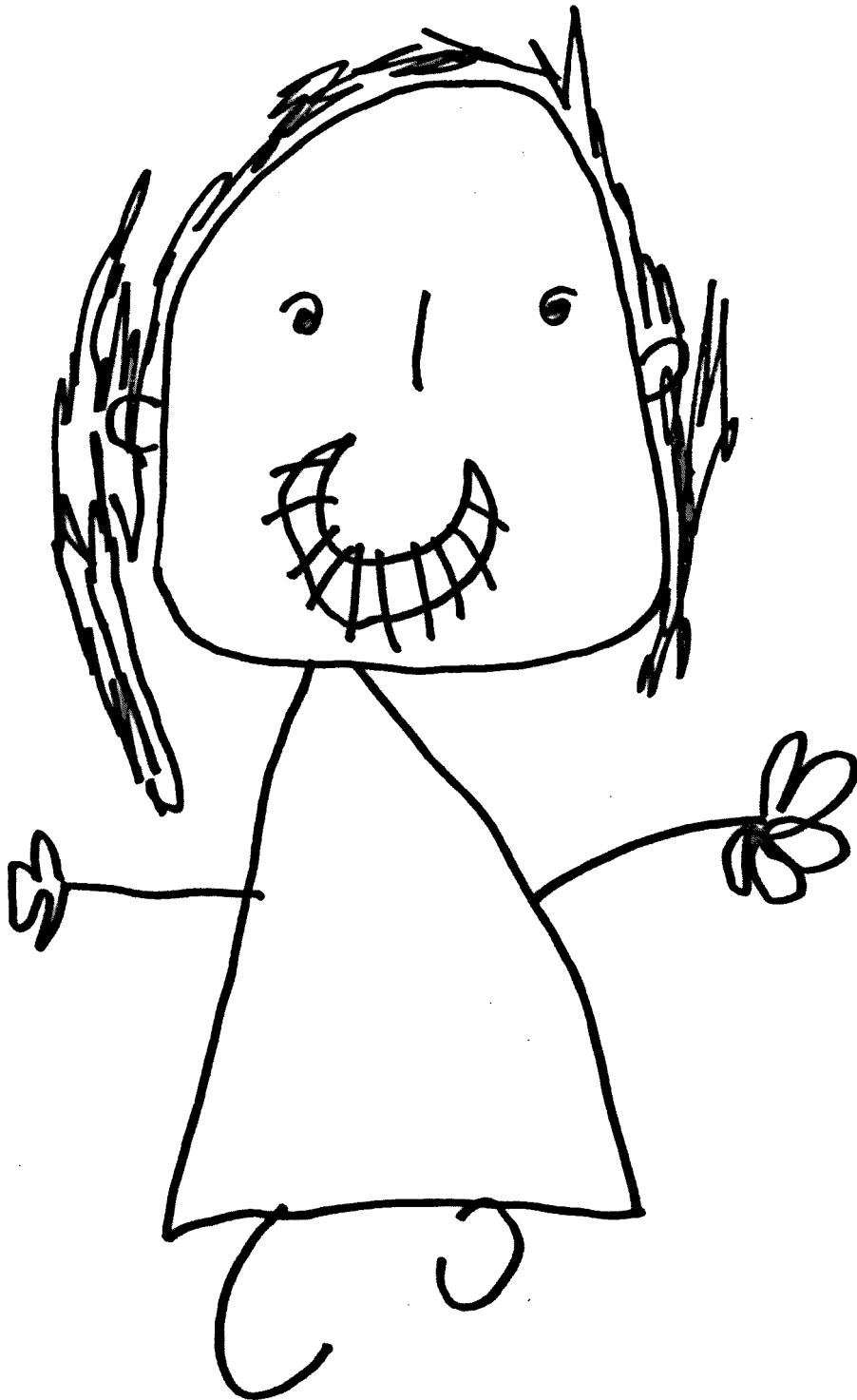
Score: System A 8

B 8

C 3

FIGURE 8.4.

EXAMPLE OF CHILD'S HUMAN FIGURE DRAWING (4)



Sex: Female Age: 4 years 9 mths

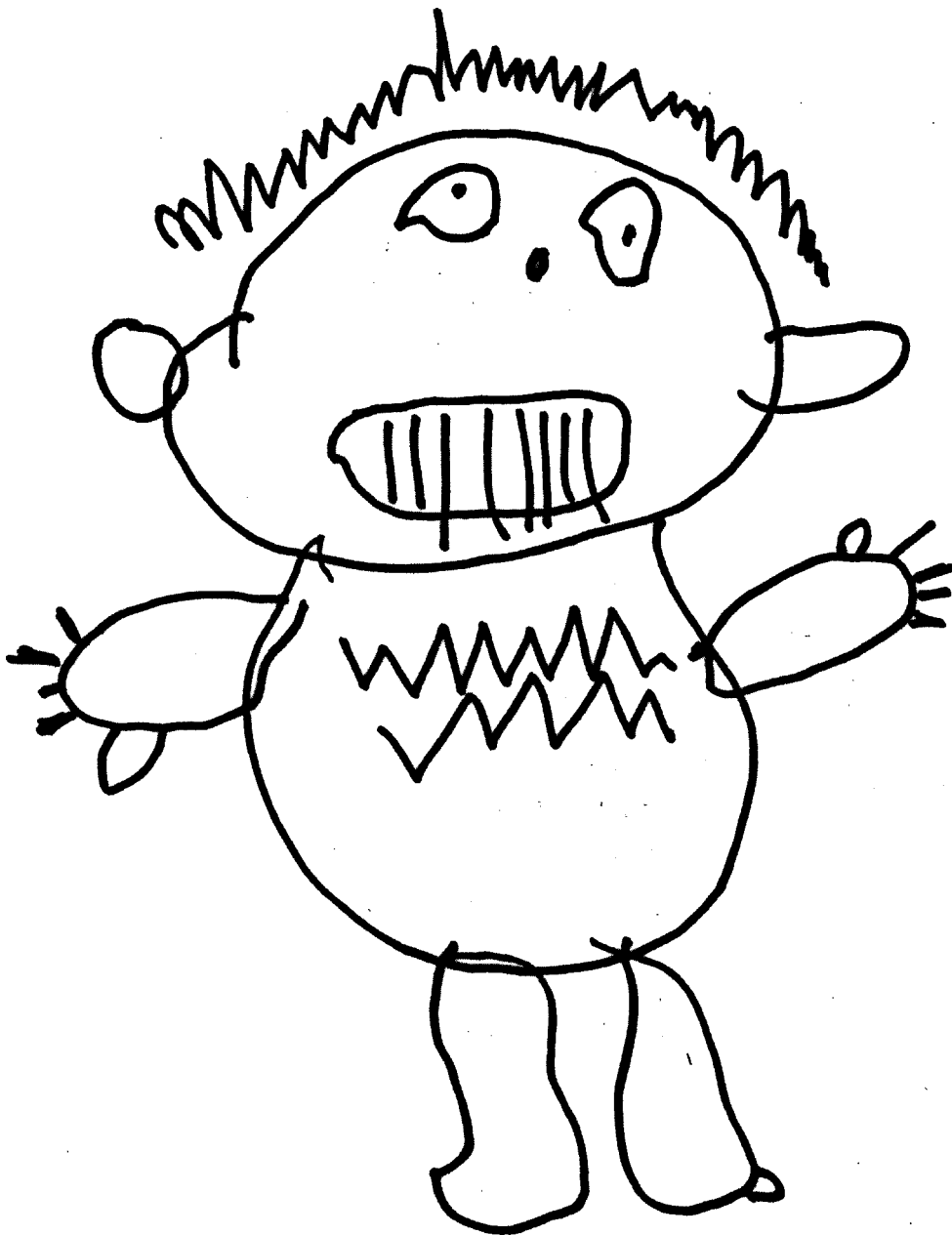
Score: System A 12

B 10

C 4

FIGURE 8.5.

EXAMPLE OF CHILD'S HUMAN FIGURE DRAWING (5)



Sex: Female    Age: 4 years 8 mths  
Score: System    A    11  
                    B    16  
                    C    4



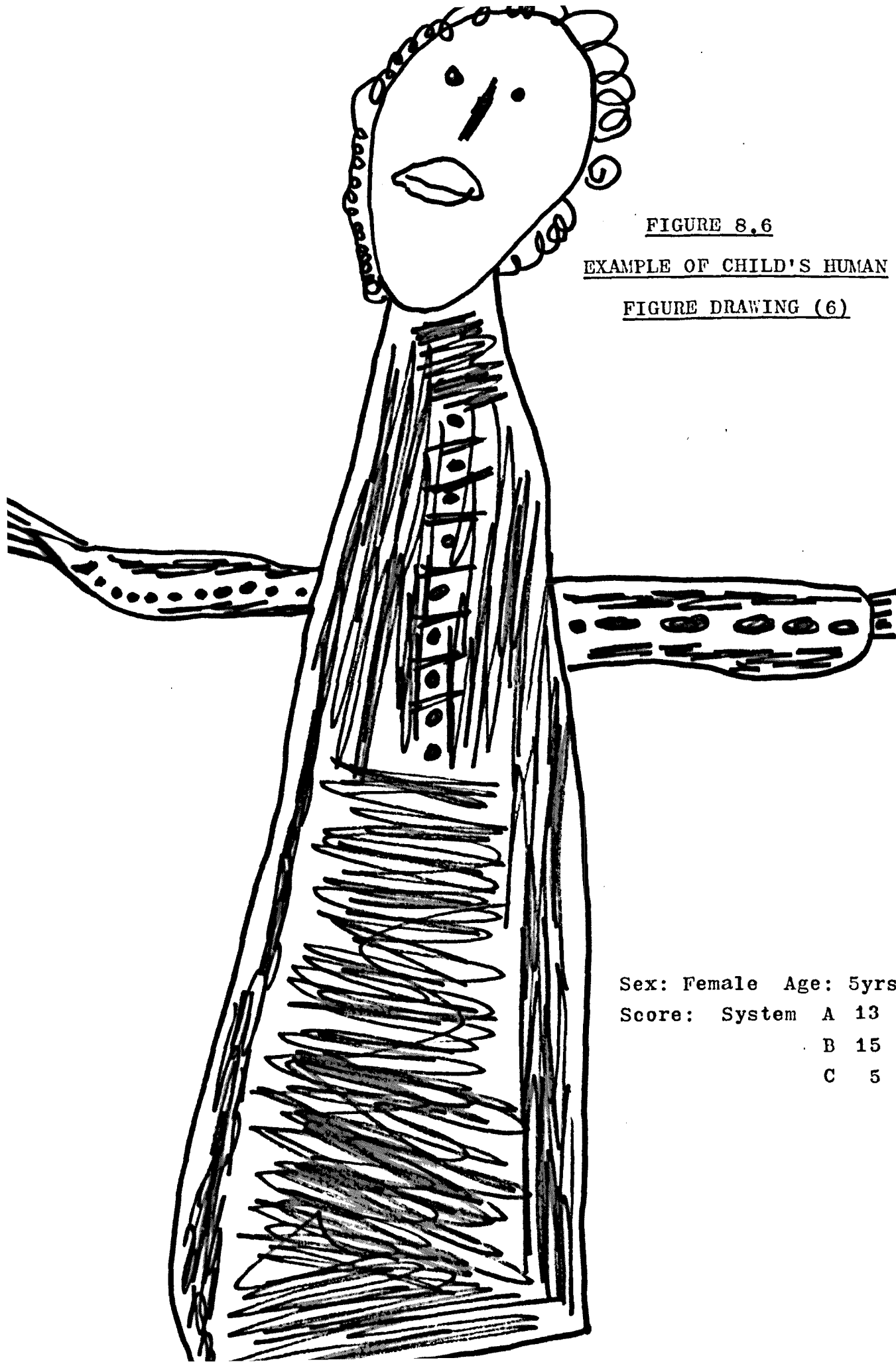


FIGURE 8.6

EXAMPLE OF CHILD'S HUMAN

FIGURE DRAWING (6)

Sex: Female Age: 5yrs 1mth  
Score: System A 13  
                  B 15  
                  C 5

these components. Scoring by means of each system is illustrated in figures 8.1 to 8.6.

#### Children's drawings and the medium employed

Before evaluating the form of children's human figure drawings it is necessary to consider the medium in which they are executed. Koppitz (1965) conducted a study in which human figure drawings of children aged between 5 years 6 months and 6 years 9 months in pencil and crayon were compared. The drawing medium seemed to have little effect upon the number of items included in the drawings of girls. However, it appears that boys tend to include more features in their drawings when allowed to use crayons rather than a thin pencil. Hair and clothing appeared more frequently in the crayon drawings of both sexes when compared with the pencil drawings and Koppitz attributes this finding to the medium employed. As a pilot project, a similar study was conducted with an opportunity sample of 14 boys and 10 girls aged between 5 years and 7 years 6 months. Human figure drawings in paint and pencil/crayon were obtained from each child and scored by means of the system devised by Koppitz (Koppitz, 1968). The results showed that the drawings in pencil/crayon contained significantly more developmental items than did those in paint ( $t = 4.731$ ,  $df = 22$ ,  $p < .001$ ). When a developmental score was obtained from 'expected' and 'exceptional' items (see Koppitz, 1968) a similar distribution between the drawings in the two media was found ( $t = 2.733$ ,  $df = 22$ ,  $p < .02$ ). Thus, although the results

of pencil and crayon are not significantly different from each other (Koppitz, 1965), those of pencil or crayon and paint are.

The results of the pilot study quoted above are in accordance with the thesis of Arnheim, who is mainly concerned with the means by which art is related to visual perception and thought. In summary, Arnheim (1954) proposes that what the child draws is not a replica but an 'equivalent' of the original. Equivalents are developed within the limits of the medium, i.e. in the first place within the limits of the graphic medium. Different media all give rise to different effects. For example, pencils appear to be particularly suitable for the drawing of lines, paint brushes for the application of large areas of colour. It may be argued, therefore, that the results obtained from the use of different graphic media are not necessarily superior, one to another, nor are they strictly comparable. Since pencil/crayon drawings contain more developmental items it would seem that drawings executed in such media are likely to furnish more accurate insights into the child's conceptual level of functioning according to the argument put forward by Harris (Harris, 1963).

Study 8.1. The human figure drawings of children receiving nursery education.

The study had three principal objectives. First to compare and evaluate the use of different schemes of scoring young children's human figure drawings. The second was to provide some normative data on the drawings

of children receiving nursery education. The third was to compare these drawings with a sample obtained from normal children within a clinical setting.

### Subjects

The subjects consisted of two groups of children. The first group comprised 225 children aged between 3 yrs 0 mths and 5 yrs 1 mth in four nursery schools. A breakdown of the subjects within this group by age and by sex is presented in Table 8.1.

The second group of subjects was composed of 66 children (33 boys and 33 girls) aged 4¼ yrs, who were interviewed in a clinical setting by a qualified psychologist as a control group in a study investigating the effects of febrile convulsions (Lynch et al. in preparation). As far as could be ascertained the social backgrounds of the two groups were broadly similar although it is likely that the clinical sample contains a higher proportion of children from Social classes I & II.

In the case of the nursery group, nursery teachers were instructed to supply the children with paper of a size not less than 8¼ x 11¾ inches, pencils and crayons. Each child was asked to draw a whole person (Koppitz, 1968). It was left to the child to determine the age and sex of the person he chose to depict. Where children did not understand the instruction to draw a 'person' teachers were told to give examples e.g. 'a man, or a woman, or a boy or a girl' or a 'mummy or a daddy'.

TABLE 8.1.

AGE AND SEX DISTRIBUTION OF  
SUBJECTS IN STUDY 8.1.

	<u>BOYS</u>	<u>GIRLS</u>	<u>TOTAL</u>
3 years	39	41	80
4 years	71	62	133
5 years	7	5	12
Total	117	108	225

Whereas the nursery children produced their pictures in an environment that contained other children, the children in the clinical group executed their drawings in a setting containing only the tutor. The procedure adopted in this case was that recommended by McCarthy (McCarthy, 1972), whereby the children are asked to draw a boy (or a girl) on a piece of paper  $8\frac{1}{2}$  x 11 inches.

For both groups the adult was instructed to refrain from prompting the child in the course of the procedure, although post hoc questioning of the child about potentially ambiguous features of the drawing was permitted with the clinical group.

The drawings were scored by means of each of the systems described in Appendix F. Scoring of a single drawing by each system occurred on a separate occasion.

#### Reliability of scoring procedures.

As the introduction to the previous chapter observes, the reliability with which the items of a test may be scored is an important measure of the usefulness of the test. In the evaluation of the three systems of analysing children's human figure drawings, the reliability of each system is an important factor for consideration. Measures of intra-scorer and inter-scorer reliabilities (marker error) were obtained for each system as described below.

Intra-scorer reliability was determined for 50 drawings selected at random from the complete sample. This subsample of drawings was scored by the author by each system,

and then rescored after an interval of two weeks. Comparisons of the scores for each drawing were made and a reliability coefficient for each system obtained by correlation of the scores (see Table 8.2). The correlation coefficients for each system were acceptably high. Inspection of the data did not reveal any systematic sources of error variance.

A further subsample of 50 drawings was selected at random from the main sample in order to assess the inter-scorer reliability of each scoring system. Two colleagues, one experienced in working with children and one with limited experience of this kind, independently scored the subsample of drawings by each of the scoring systems on separate occasions. Product moment correlations for each pair of scorers for systems A and B were obtained and are shown in Table 8.2. For each system the coefficient obtained is less than that for intra-scorer reliability. In each case, however, the coefficient is acceptably high and is comparable to those obtained in other studies (e.g. Harris, 1963; Yule et al., 1967; Evans et al., 1975). Examination of the data revealed no evidence of systematic error in the scoring of systems B and C. However, in the case of system A it appeared that a large degree of error variance was introduced by the items concerning the head and the trunk. Inspection of the criteria for scoring these items shows that in both instances the scorer is required to exercise a considerable degree of judgement. From Table 8.2., it would seem that although the

TABLE 8.2  
INTRA- AND INTER-SCORER RELIABILITIES;  
CORRELATIONS BETWEEN SCORES AWARDED BY  
THREE SCORERS OF CHILDREN'S HUMAN  
FIGURE DRAWINGS FOR SYSTEMS A & B

<u>System</u>	<u>Scorers</u>				<u>Average</u>
	<u>1 - 1</u>	<u>1 - 2</u>	<u>1 - 3</u>	<u>2 - 3</u>	
A	.957	.950	.941	.934	0.942
B	.982	.957	.972	.968	0.966



correlations obtained are of the same order, those of system B tend to be superior to those of system A.

Problems of interpretation of children's art abound. (Kellog, 1969). That the reliability coefficients quoted above reveal some error variance is an indication of these problems. Koppitz argues that human figure drawings represent a form of interpersonal communication (Koppitz 1968, p.5). The procedure and post-hoc systems of scoring employed in this study reduce the level of this communication to a minimum. It is possible that the reliability (and also the validity) of the scoring systems could have been improved had the scorers been able to question the children about the drawings. Nursery staff obviously have the opportunity to do this. However, problems of interpretation may persist even under these conditions, since adults may falsely attribute meaning to features of the child's drawing to which the child will agree.

A correlation coefficient would not be an appropriate measure of reliability for system C, which employs a system of categorisation. Reliability was measured in terms of the percentage of cases in which observers agreed upon the categorisation. An intra-scorer agreement of 94 percent was obtained for system C. Inter-scorer agreement showed an average of 74 percent between the three scorers. These figures are of an acceptable order and would suggest that this system meets the minimum requirement of reliability.

## Results

The proportion of children obtaining particular scores on items of system A are shown in Table 8.3. Inspection of this table shows that depiction of the neck and attachment of arms to the trunk in the required manner are comparatively rare in the drawings of three to five year olds. Other items show good discrimination between children at this age. Comparison of the mean scores by agegroup in the present study with those of the normative study of the McCarthy Scales of Children's Abilities (McCarthy, 1972) shows that the former are consistently superior to the latter. (Table 8.4). However, in only one instance (that of the 4 year olds) does the difference between the two groups reach significance ( $t = 2.777$ ,  $df = 137$ ,  $p < .01$ ).

The proportion of drawings depicting items scored on system B for three and four year old boys and girls is shown in Table 8.5. Comparison with the data furnished by Koppitz for children above the age of 5 years (Koppitz, 1968) shows that the order of items by frequency of occurrence is similar but that the occurrence of each particular item is greatly diminished. Of the 28 items in the system, 5 were not scored in any picture, and a further 5 were seen in less than 10 percent of the drawings when the sample was divided by age and sex. For the small group of 5 year olds in the sample the results obtained were similar to those presented by Koppitz (Koppitz, idem).

TABLE 8.3 (i)  
PERCENTAGE OF CHILDREN OBTAINING SCORES  
ON ITEMS OF SYSTEM A, AND MEAN SCORES  
BY SEX AND AGE

		<u>B O Y S</u>						
		SCORE	0	<u>3 yrs</u>		0	<u>4 yrs</u>	
				1	2		1	2
I T E M	M01	Head	33	64	3	6	62	32
	M02	Hair	67	33	0	63	35	1
	M03	Eyes	46	49	5	10	75	14
	M04	Nose	59	41	0	37	61	3
	M05	Mouth	59	41	0	27	65	9
	M06	Neck	100	0	0	94	4	1
	M07	Trunk	59	23	18	31	39	30
	M08	Arms & Hands	85	13	3	41	30	30
	M09	Attach- ment of Arms	100	0	0	96	4	0
	M10	Legs & Feet	54	41	5	13	48	39
Mean Scores:			3.72			7.44		

TABLE 8.3(11)

PERCENTAGE OF CHILDREN OBTAINING SCORES  
ON ITEMS OF SYSTEM A, AND MEAN SCORES  
BY SEX AND AGE

		<u>G I R L S</u>					
		<u>3 yrs</u>			<u>4 yrs</u>		
	SCORE	0	1	2	0	1	2
I T E M	M01 Head	20	59	22	0	69	31
	M02 Hair	56	44	0	39	58	3
	M03 Eyes	24	66	10	3	71	26
	M04 Nose	54	46	0	31	68	2
	M05 Mouth	29	71	0	18	74	8
	M06 Neck	98	2	0	100	0	0
	M07 Trunk	56	20	24	31	29	40
	M08 Arms & Hands	68	22	10	44	22	34
	M09 Attach- ment of Arms	98	2	0	98	2	0
	M10 Legs & Feet	44	42	15	10	48	42
Mean Scores:		5.37			8.13		

TABLE 8.4.  
COMPARISON BETWEEN MEAN SCORES ON SYSTEM A  
AND THOSE QUOTED IN NORMATIVE STUDY OF  
McCARTHY SCALES OF CHILDREN'S ABILITIES  
(McCARTHY 1972)

Age	<u>PRESENT STUDY</u>		<u>McCARTHY NORMS</u> <u>(McCarthy, 1972)</u>	
	Mean	S.D.	Mean	S.D.
3½	3.3	3.4	2.3	2.9
4	7.1	2.8	5.2	3.8
4½	7.3	2.6	7.2	3.1
5	9.9	2.2	9.1	3.7

TABLE 8.5. (1)  
PERCENTAGE OF CHILDREN SCORING ON  
PARTICULAR ITEMS OF SYSTEM B  
BY SEX AND AGE

<u>B O Y S</u>					
3 years		%	4 years		%
1.	K01 Head	67	K01 Head		94
2.	K02 Eyes	54	K02 Eyes		92
3.	K21 Legs	49	K21 Legs		86
4.	K07 Mouth	46	K07 Mouth		75
5.	K05 Nose	41	K12 Body		68
6.	K10 Hair	33	K05 Nose		63
7.	K12 Body	28	K13 Arms		59
8.	K13 Arms	15	K10 Hair		39
9.	K24 Feet	5	K24 Feet		39
10.	K09 Ears	5	K19 Fingers		25
11.	K04 Brows	5	K22 Legs 2-d		16
12.	K22 Legs 2-d	3	K14 Arms 2-d		14
13.	K18 Hands	3	K18 Hands		13
14.	K03 Pupils	3	K27 Clothing		11
15.	K19 Fingers	0	K25 Feet 2-d		11
16.	K14 Arms 2-d	0	K09 Ears		10
17.	K27 Clothing	0	K03 Pupils		10
18.	K25 Feet 2-d	0	K04 Brows		7
19.	K11 Neck	0	K11 Neck		6
20.	K20 N. fingers	0	K15 Arms down		6
21.	K08 2 Lips	0	K20 N. fingers		3
22.	K15 Arms down	0	K06 Nostrils		3
23.	K06 Nostrils	0	K08 2 lips		1
24.	K16 Arm at shoulder	0	K16 Arm at shoulder		0
25.	K17 Elbow	0	K17 Elbow		0
26.	K23 Knee	0	K23 Knee		0
27.	K26 Profile	0	K26 Profile		0
28.	K28 Proportion	0	K28 Proportion		0

TABLE 8.5 (11)  
PERCENTAGE OF CHILDREN SCORING ON  
PARTICULAR ITEMS OF SYSTEM B  
BY SEX AND AGE

<u>G I R L S</u>					
3 years			%	4 years	
					%
1.	K01	Head	81	K01	Head
2.	K02	Eyes	76	K02	Eyes
3.	K07	Mouth	68	K21	Legs
4.	K21	Legs	54	K07	Mouth
5.	K05	Nose	51	K12	Body
6.	K10	Hair	44	K05	Nose
7.	K12	Body	42	K10	Hair
8.	K13	Arms	29	K13	Arms
9.	K24	Feet	15	K24	Feet
10.	K04	Brows	10	K19	Fingers
11.	K03	Pupils	10	K14	Arms 2-d
12.	K09	Ears	7	K22	Legs 2-d
13.	K19	Fingers	7	K09	Ears
14.	K18	Hands	2	K27	Clothing
15.	K11	Neck	2	K03	Pupils
16.	K14	Arms 2-d	0	K04	Brows
17.	K22	Legs 2-d	0	K18	Hands
18.	K27	Clothing	0	K25	Feet 2-d
19.	K25	Feet 2-d	0	K15	Arms down
20.	K15	Arms down	0	K20	N. fingers
21.	K20	N. fingers	0	K08	2 lips
22.	K08	2 lips	0	K11	Neck
23.	K06	Nostrils	0	K06	Nostrils
24.	K16	Arm at shoulder	0	K16	Arm at shoulder
25.	K17	Elbow	0	K17	Elbow
26.	K23	Knee	0	K23	Knee
27.	K26	Profile	0	K26	Profile
28.	K28	Proportion	0	K28	Proportion

The proportion of children obtaining particular scores on system C is shown in Table 8.6.

The number of children drawing pictures which cannot be recognised as drawings of human figures diminishes with age and the percentage of children drawing heads and bodies in approximate proportion tends to increase with the same variable.

Analysis of variance on the results shows a significant age effect for each system of scoring (Tables 8.7 - 8.9). For systems A and B an effect attributable to the sex of the subject is also found, girls tending to include more items (thereby obtaining higher scores) than boys in their figure drawings. No effect of sex of subject was found for system C.

Results for the clinical sample were obtained for systems A and B only. Comparison with the nursery sample of children shows that in general the drawings obtained from the clinical sample were superior to those obtained in the nursery for each scoring system (Table 8.10). However, the differences between the two groups reached significance in the case of the girls alone. Koppitz (1968) reports a marked difference in the observed behaviour of boys and girls during the course of a drawing test conducted by a psychologist in a one-to-one setting. She reports that many of the boys were awkward and shy, while the girls were apparently quite at ease and well poised. Girls produce drawings which are significantly better than those produced by boys as



TABLE 8.6.

PERCENTAGE OF CHILDREN OBTAINING PARTICULAR  
SCORE ON SYSTEM C, BY AGE & SEX

Score	BOYS		GIRLS	
	3 years %	4 years %	3 years %	4 years %
0	33	6	20	0
1	26 ] — 39 13 ]	25 ] — 31 6 ]	37 ] — 39 2 ]	31 ] — 33 2 ]
2				
3	0 ]	7 ]	7 ]	11 ]
4	10 — 28	27 — 64	15 — 42	34 — 68
5	18 ]	30 ]	20 ]	23 ]

TABLE 8.7.

ANALYSIS OF VARIANCE OF SCORES ON HUMAN FIGURE  
DRAWINGS (SYSTEM A) BY AGE AND SEX

<u>Source of</u> <u>Variance</u>	<u>Sum of</u> <u>Squares</u>	<u>df</u>	<u>Mean</u> <u>Square</u>	<u>F</u>	<u>Sig.</u>
Main Effects	686.511	3	228.837	28.086	.001
Sex	60.287	1	60.287	7.399	.007
Age	645.005	2	322.502	39.582	.001
2 Way Inter- actions	11.595	2	5.798	.712	.492
Sex by Age	11.595	2	5.798	.712	.492
Explained	698.106	5	139.621	17.136	.001
Residual	1784.356	219	8.148		
Total	2482.462	224	11.082		

TABLE 8.8

ANALYSIS OF VARIANCE OF SCORES ON HUMAN FIGURE  
DRAWINGS (SYSTEM B) BY AGE AND SEX

<u>Source of Variance</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Main Effects	856.628	3	285.543	28.583	.001
Sex	54.882	1	54.882	5.494	.020
Age	821.652	2	410.826	41.123	.001
2 Way Interactions	7.073	2	3.537	.354	.702
Sex by Age	7.073	2	3.537	.354	.702
Explained	863.701	5	172.740	17.291	.001
Residual	2187.828	219	9.990		
Total	3051.529	224	13.623		

TABLE 8.9

ANALYSIS OF VARIANCE OF SCORES ON HUMAN FIGURE  
DRAWINGS (SYSTEM C) BY AGE AND SEX

<u>Source of Variance</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Main Effects	75.586	3	25.195	8.323	.001
Sex	1.543	1	1.543	.510	.476
Age	74.953	2	37.477	12.380	.001
2 way Inter- actions	1.453	2	.727	.240	.787
Sex by Age	1.453	2	.727	.240	.787
Explained	77.039	5	15.408	5.090	.001
Residual	662.943	219	3.027		
Total	739.982	224	3.303		

N.B. For the purposes of this analysis system C was treated as a scale.

TABLE 8.10  
COMPARISON OF SCORES OF DRAWINGS FROM  
NURSERY AND CLINICAL SAMPLES BY  
SYSTEMS A AND B

<u>Scoring</u> <u>system</u>	<u>Sex of</u> <u>Subj.</u>	<u>Nursery**</u> <u>sample</u>			<u>Clinical</u> <u>sample</u>			<u>t</u>	<u>df</u>	<u>Sig</u>
		<u>N</u>	<u>Mean</u>	<u>S.D.</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>			
A	Boys	19	6.74	3.07	33	7.39	2.22	0.818	50	NS
	Girls	22	6.91	1.74	33	8.85	2.49	3.397	53	p < .01
B	Boys	19	6.58	3.29	33	7.03	1.86	0.549	50	NS
	Girls	22	6.77	2.05	31	9.07	2.19	3.902	51	p < .001

\*\* Subsample of children aged 4yrs 3mths drawn from main sample.

adjudged by scoring systems A and B in both the nursery and the clinical settings. This effect may be a maturational one and has been found before (e.g. Harris, 1963; Koppitz, 1968). That the girls of the clinical sample tend to produce human figure drawings which are superior to those of the girls of the nursery sample is a difference that may be attributable to the difference in setting. Hutt (1972) has suggested that boys are 'object orientated', whereas girls are 'person orientated'. It seems possible, therefore, that girls respond to the closeness of the relationship in a one-to-one setting to a greater extent than boys.

Study 8.2. The stability of pre-school children's human figure drawings.

Koppitz (1968) suggests that in clinical practice there are occasions when it is helpful to compare several drawings of a single child, but that for screening purposes it is sufficient to take a single example of the child's work. This view is supported by other authors (e.g. Harris, 1963; Brown 1977). However, Kellogg voices a different opinion, suggesting that, on the basis of her own work, children's drawings may vary considerably in the course of a single week (Kellogg, 1969). Thus, one drawing would be inadequate for the evaluation of a child's conceptual level. In the present study the stability of pre-school children's drawings was examined, using each of the systems of scoring described in Appendix E.

### Subjects

Twenty-nine children (13 boys, 16 girls) who participated in Study 8.1 were requested to draw a second picture of a person.

### Procedure

The procedure followed was as described for Study 8.1. The second set of pictures, drawn two weeks after the first set, was subsequently scored by each of the three scoring systems.

### Results

Test - retest correlations (or stability coefficients) were obtained for each system of scoring and are quoted in Table 8.11. Boys drawings appeared to be rather more stable than those obtained from girls on systems A and B, but the reverse is the case for system C. No effect of age was discernible for systems A & B, but older children's drawings appear more stable in system C. The coefficients obtained for systems A and B are very similar but that for system C is rather poorer.

### Discussion

The temporal stability coefficients obtained in the present study for three to five year olds for systems A and B are broadly comparable to those obtained with older children using similar systems (see Table 8.12). Previous authors have considered such figures acceptable. However, it is clear that a fairly large amount of variation in young children's figure drawings does exist. As Kellogg (idem) points out, a single picture obtained from a child

TABLE 8.11

STABILITY COEFFICIENTS FOR EACH SYSTEM  
OF SCORING BY SEX AND AGE

		System of Analysis		
		A	B	C
Sex:	Boys	.82	.80	.10
	Girls	.69	.69	.36
Age:	3 years	.68	.65	.03
	4 years	.66	.59	.23
Overall		.76	.75	.22



TABLE 8.12

SOME STABILITY COEFFICIENTS REPORTED FROM  
RECENT STUDIES OF THE DRAW-A-MAN TEST

<u>Version</u>	<u>Reference</u>	<u>Age Group</u>	<u>Time Interval</u>	<u>N</u>	<u>Stability Coefficient</u>
Goodenough	Kellmer, Pringle & Pickup (1963)	7-11 yrs	1-4 yrs	37	0.40
Harris	Harris (1963)	5 yrs	1 week	104	0.60 - 0.86
Harris	Strumpfer & Mienie (1968)	11 yrs	4 mths	69	0.73
Harris	Evans <u>et al.</u> (1975)	5 yrs	2 weeks	90	0.74
Harris	Stanley & Pershin (1978)	2-5 yrs	1 week	26	0.59

may serve as a guide to that child's minimum level of performance in this area. It does not, however, necessarily indicate his optimal level of performance. A similar point could be made for the result of most I.Q. tests, which assume that at the time of testing the child is performing as well as he is able. The findings suggest, therefore, that it would be desirable for staff to collect several examples of the child's work before drawing any conclusions as to his level of functioning.

Study 8.3. The relationship between the scoring of children's human figure drawings and the child's performance on the KPAG.

The previous pair of studies have suggested that a comparatively simple and reliable system of analysing children's human figure drawings for use in the nursery could be furnished, although several drawings from each child would be necessary for the assessment of individual children. The present study set out to examine whether the information thus furnished would duplicate or compliment that obtained from the KPAG.

Subjects

The subjects consisted of an opportunity sample of 38 children (24 boys, 14 girls) aged between 3 yrs 3 mths and 5 yrs 1 mth attending a single, large nursery school.

Procedure

The subjects were assessed on the KPAG by their teachers. After an interval of approximately a fortnight, a human

figure drawing was obtained from each child in the sample in the manner of the previous pair of studies. This drawing was then scored by systems A and B. System C was not used in this study because of the poor stability coefficient obtained in the previous study.

### Results

Product moment correlations were obtained for scores on the drawings with items and sections of the K.P.A.G. (see Table 8.13). The table includes those items of the K.P.A.G. assumed to be most closely connected with the child's abilities on human figure drawings. Not surprisingly, although reassuringly, correlation is greatest with those items concerned with the child's ability to draw and write. Inspection of the other correlation coefficients obtained suggests that, although the relationship between the various scores are significant, much variance remains unexplained. This is particularly the case for the relationship between the child's cognitive abilities, as assessed by the K.P.A.G., and his scores on the human figure drawing task.

### Discussion

The correlation coefficients obtained between scores on the children's human figure drawings and their performance on the K.P.A.G. are similar to but rather lower than those quoted for standardised tests (cf. Evans et al., 1975). However, Stanley and Pershin (1978) found that teachers' simple ratings of the child's cognitive development correlate

TABLE 8.13

CORRELATION OF HUMAN FIGURE DRAWING SCORES  
WITH SCORES ON RELEVANT SECTIONS OF THE  
KEELE PRE-SCHOOL ASSESSMENT GUIDE

## System of scoring figure drawings

<u>KPAG Item</u>	<u>System A</u> <u>(McCarthy)</u> <u>correlation</u> <u>coefficient</u>	<u>signif-</u> <u>icance</u>	<u>System B</u> <u>(Koppitz)</u> <u>correlation</u> <u>coefficient</u>	<u>signif-</u> <u>icance</u>
Imagination rating	.4523	.002	.4662	.002
Cognitive total	.4282	.004	.3741	.010
Drawing & Writing				
Item 1	-	-	-	-
Item 2	.3689	.011	.3409	.018
Item 3	.6081	.001	.5329	.001
Item 4	.5006	.001	.4983	.001
Item 5	.5074	.001	.5977	.001
Total	.6741	.001	.7040	.001
Physical total	.6290	.001	.6249	.001
KPAG total	.6473	.001	.6059	.001

with scores on human figure drawings at the 95 percent level of confidence. The correlations obtained with the K.P.A.G. are superior to this finding. The results of the present study would suggest, therefore, that detailed analysis of children's human figure drawings may be profitable for members of the nursery staff but that such an analysis would compliment rather than replace the use of sections of the K.P.A.G.

### Conclusions.

The results of the studies above suggest that detailed analysis of human figure drawings does not represent a simple alternative to a broader system of assessment as represented by the K.P.A.G. In particular, it seems highly dubious to suggest that a single picture may serve to represent a child's conceptual level of functioning. As Kellogg points out:

"Each child develops individual varieties of typical Humans, all in basic formulas. The child does not lose interest in earlier formulas as he develops more complex ones, and for this reason one drawing of a human does not necessarily reflect his ability to draw them." (Kellogg, 1969, p. 106)

It would also appear that the results obtained in the nursery may differ from those obtained in a clinical setting, girls tending to perform better in the latter context. In the evaluation of girl's drawings in the nursery account should be taken of the context in which they were drawn.

However, it may still be useful for nursery staff to examine series of children's human figure drawings. The

'test' requires little or no administration and the results may cause nursery staff to consider more carefully the implications of the children's art work.

Examination of the different systems for the evaluation of human figure drawings in the above set of studies would suggest that a modified form of System B, excluding some of the items that occur very infrequently, would be most satisfactory for use by nursery staff. Yet staff should also be aware of the processes which are involved in the child's drawing (Goodnow, 1977; Hargreaves, 1978).

Ultimately, what is important is not the individual picture but the progression made by the child in his art work. A system of evaluating one kind of children's drawing may help nursery staff to understand and appreciate the child's art more fully and provide a means of assessing the progress made.

## CHAPTER 9

### A MULTIFACTORIAL ANALYSIS OF THE KPAG

The principal components analysis of the repertory grids supplied by nursery staff in the study described in Chapter 3 suggested that staff working in nursery education make implicit judgements about the children in their care. In the main, their judgements would appear to focus upon the overall level of maturity displayed by the child. As such they are global rather than specific in nature and, in addition, are based primarily upon characteristics pertaining to the child's social behaviour. Examination of the data on the first section of the KPAG furnished by the studies of Chapter 7 suggests that similar implicit perceptions of the children may affect ratings on this first section. The relationship between the two sections of the KPAG reported in Study 6.1 suggested that this might be an area worthy of further investigation. As a consequence, a multifactorial analysis of the first section of the KPAG was performed as described below.

#### Study 9.1: Multifactorial analysis of the KPAG.

##### Subjects and Method.

Two groups of children were employed in this study. The first consisted of 145 children in 16 nursery schools and classes whose performance had been assessed by means of the KPAG as described in Study 6.1. The second group

consisted of 140 children rated on Section I of the KPAG as described in Study 7.1. The data from the records of these two groups of children was subject to various forms of multivariate analysis as described below.

### Results

Of the 145 records obtained in Study 6.1, 136 contained sets of scales on Section I which had been satisfactorily completed. The data from these records were inter-correlated and a principal component analysis was carried out using a standard programme (Statistical Package for the Social Sciences). The six variables of the first section of the KPAG were entered into the analysis and the initial correlations matrix obtained is shown in Table 9.1. As may be seen, several of the variables are highly correlated with each other. The correlation coefficients attain significance at the 99.5 percent level of confidence in all cases with the single exception of that for the relationship between ratings of concentration and aggression. The results of the principal components analysis are shown in Table 9.2. In all 6 components were obtained of which two have Eigen values which exceed unity and account for most of the variance. The solution provided is mathematically unique and involves no manipulation of the data by the experimenter. Although this form of analysis seems most appropriate for an exploratory study of the kind carried out here (Smith, 1972), alternative factor analytic treatments of the data were also employed. A classical factor analysis



TABLE 9.1  
CORRELATION MATRIX FOR VARIABLES FROM  
SECTION I OF KPAG

	<u>Ability to mix</u>	<u>Aggressive- ness</u>	<u>Confidence</u>	<u>Leader- ship</u>	<u>Concen- tration</u>	<u>Imagin- ation</u>
Ability to Mix	1.00					
Aggressive- ness	0.41	1.00				
Confidence	0.54	0.62	1.00			
Leadership	0.67	0.54	0.73	1.00		
Concentration	0.30	0.00	0.29	0.38	1.00	
Imagination	0.56	0.29	0.58	0.70	0.64	1.00

TABLE 9.2

RESULTS OF PRINCIPAL COMPONENT ANALYSIS  
OF SECTION I OF THE KPAG

<u>Component</u>	<u>Eigen Value</u>	<u>Percentage of variation explained</u>	<u>Cumulative Percentage</u>
1	3.51	58.5	58.5
2	1.17	19.5	78.0
3	.52	8.7	86.7
4	.33	5.5	92.2
5	.26	4.3	96.5
6	.21	3.5	100.0

was performed by use of a standard package (S.P.S.S.) and the results are presented in Table 9.3., As in the case of the principal components analysis, two factors accounted for the major part of the variance. Category loadings on the first two factors are shown in the table. For the data shown a structure of mutually orthogonal axes is imposed. Rotation of the axes was carried out but the results yielded no further clarification of meaning. Correlation of factor scores with scores on subsections of Section II of the KPAG showed high correlations with most variables for both factors.

Examination of the factor loadings obtained suggested that the first factor, which loaded heavily on all six scales, might be interpreted as a dimension of social maturity. The second factor which loads heavily on the scales concerned with aggression and concentration may be interpreted as a dimension of social acceptability or conformity. Similar interpretations could be applied to the first two components of the principal component analysis.

In order to determine whether groups of children were distinguished by nursery teachers along the dimensions discussed above, a euclidean cluster analysis of the data was undertaken. The analysis was performed by means of an interactive computer programme developed by Dr. Frances Grundy at the University of Keele. Visual inspection of the plots on the axes of the first two principal components obtained from the previous analysis indicated a four cluster

TABLE 9.3

RESULTS OF CLASSICAL FACTOR ANALYSIS OF  
SECTION I OF THE KPAG (UNROTATED  
SOLUTION WITH ITERATIONS)

	<u>Factor Loadings</u>		<u>Estimate of Communalities</u>	<u>Factor Score Coefficients</u>	
<u>Variable</u>	<u>F1</u>	<u>F2</u>		<u>F1</u>	<u>F2</u>
Ability to Mix	.695	-.046	.485	.094	.019
Aggression	.579	-.514	.600	.339	-.231
Confidence	.807	-.242	.709	.345	-.086
Leadership	.890	-.086	.799	.390	.068
Concentration	.502	.564	.571	-.171	.314
Imagination	.831	.383	.837	-.100	.673

<u>Factor</u>	<u>Eigen Value</u>	<u>Percentage of variation explained</u>	<u>Cumulative percentage</u>
1	3.204	80.1	80.1
2	.798	19.9	100.0

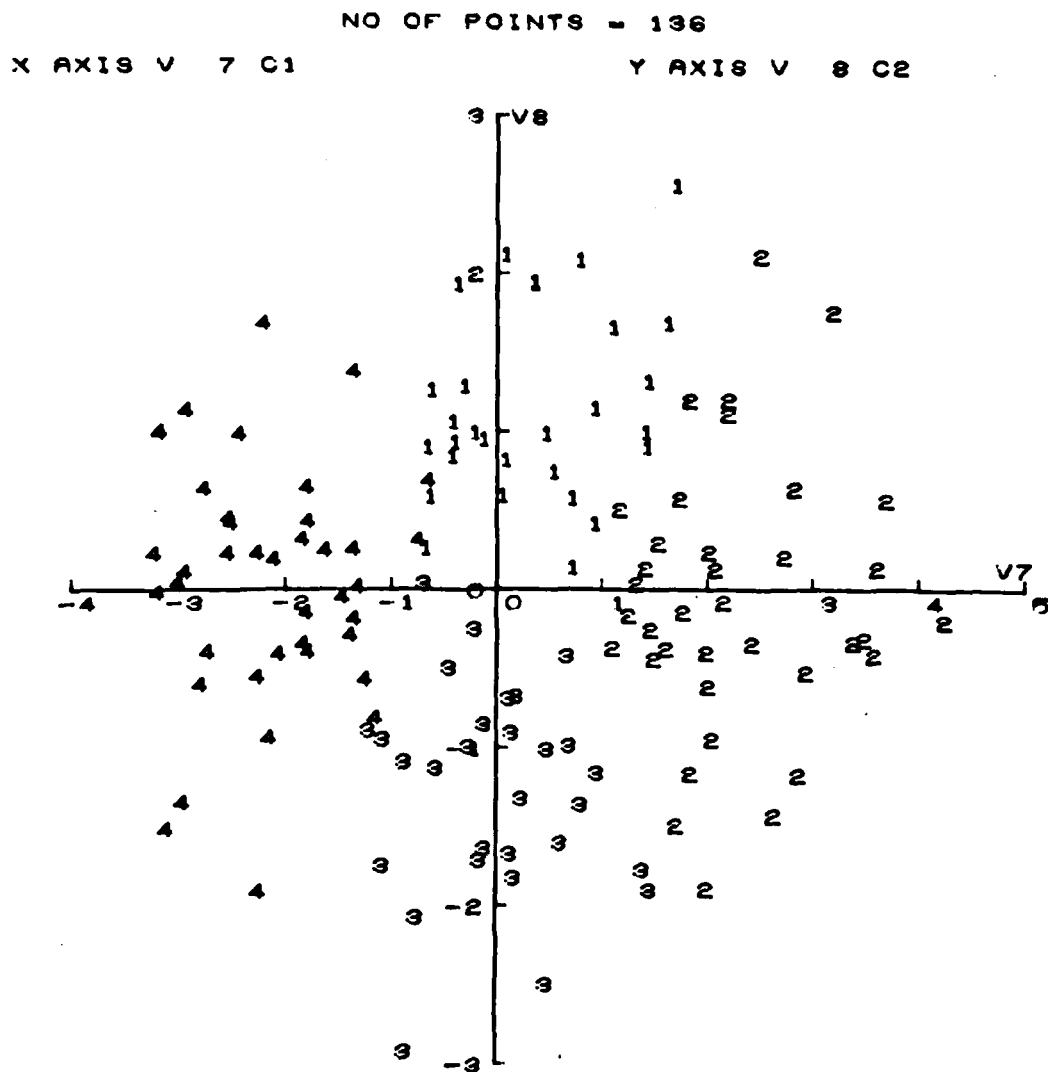
solution to be most satisfactory. Group membership of one of the four cluster groups was attributed to each case. Figure 9.1. shows the clustering of the 136 cases on the axes of the first pair of principal components. The characteristics of the four cluster groups may be identified as in Table 9.4. The frequency distributions of the cluster groups on each of the six variables of Section I of the KPAG is shown in Figures 9.2 - 9.7.

Subsequent analysis of the four cluster groups revealed no sex differences in group composition, but significant differences with age, children in group 4 tending to be the eldest and children in group 2 the youngest ( $\chi^2 = 15.65$ ,  $df. = 3$ ,  $p < .005$ ). Since groups 2 and 4 vary along the dimension of the first principal component, previously interpreted as social maturity, it may be seen that this component is closely related to, but not synonymous with, chronological age. No significant difference in age exists between groups 1 and 3. Analysis of subsections of Section II of the KPAG revealed significant differences between the cluster groups at each age level on each subsection. Mean values for each cluster group on each subsection are presented in Table 9.5. Inspection of the table shows that the performance of groups 1 and 4 tend to be superior to those of groups 2 and 3.

To discover to what extent allocation of a child to a particular cluster group is an artefact of individual perceptions of the child, the ratings of children by nursery teachers and nursery nurses obtained in Study 7.1. were

FIGURE 9.1.

SCATTERGRAM SHOWING DISTRIBUTION OF  
CLUSTER GROUPS WITH FIRST TWO  
PRINCIPAL COMPONENTS AS AXES



SCALE MULTIPLY X BY E 0  
 MULTIPLY Y BY E 0

KEYS: 1 PLOT - 2 GRID - 3 WINDOWING -  
 7 NEXT VARIABLE ON Y AXIS - 8 OPTIONS

TABLE 9.4  
CHARACTERISTICS OF THE FOUR CLUSTER GROUPS

S C A L E

<u>Ability</u> <u>to Mix</u>	<u>Aggress-</u> <u>iveness</u>	<u>Confidence</u> <u>          </u>	<u>leader-</u> <u>ship</u>	<u>Concen-</u> <u>tration</u>	<u>Imagin-</u> <u>ation</u>
---------------------------------	-----------------------------------	--	-------------------------------	----------------------------------	--------------------------------

L E V E L

Group 1	Medium	Low	Medium	Medium	High	Medium
Group 2	Low	Low	Low	Low	Low	Low
Group 3	Medium	High	Medium	Medium	Low	Medium
Group 4	High	Medium	High	High	High	High

Group 1: moderately sociable, rather timid but not diffident, tending not to initiate activities but concentrating well with a moderate degree of imagination.

Group 2: solitary, timid, dependent children who follow the lead of others, concentrate poorly and show little imagination.

Group 3: moderately sociable, but aggressive children, who flit from activity to activity with moderate imagination, confidence and leadership ability.

Group 4: highly sociable, moderately aggressive but very confident children who tend to initiate activities while showing well developed powers of concentration and imagination.

UADWHEE UEOJA

**FIGURE 9.2**

### DISTRIBUTION OF CLUSTER GROUP MEMBERS

ON FIRST SCALE, ABILITY TO MIX

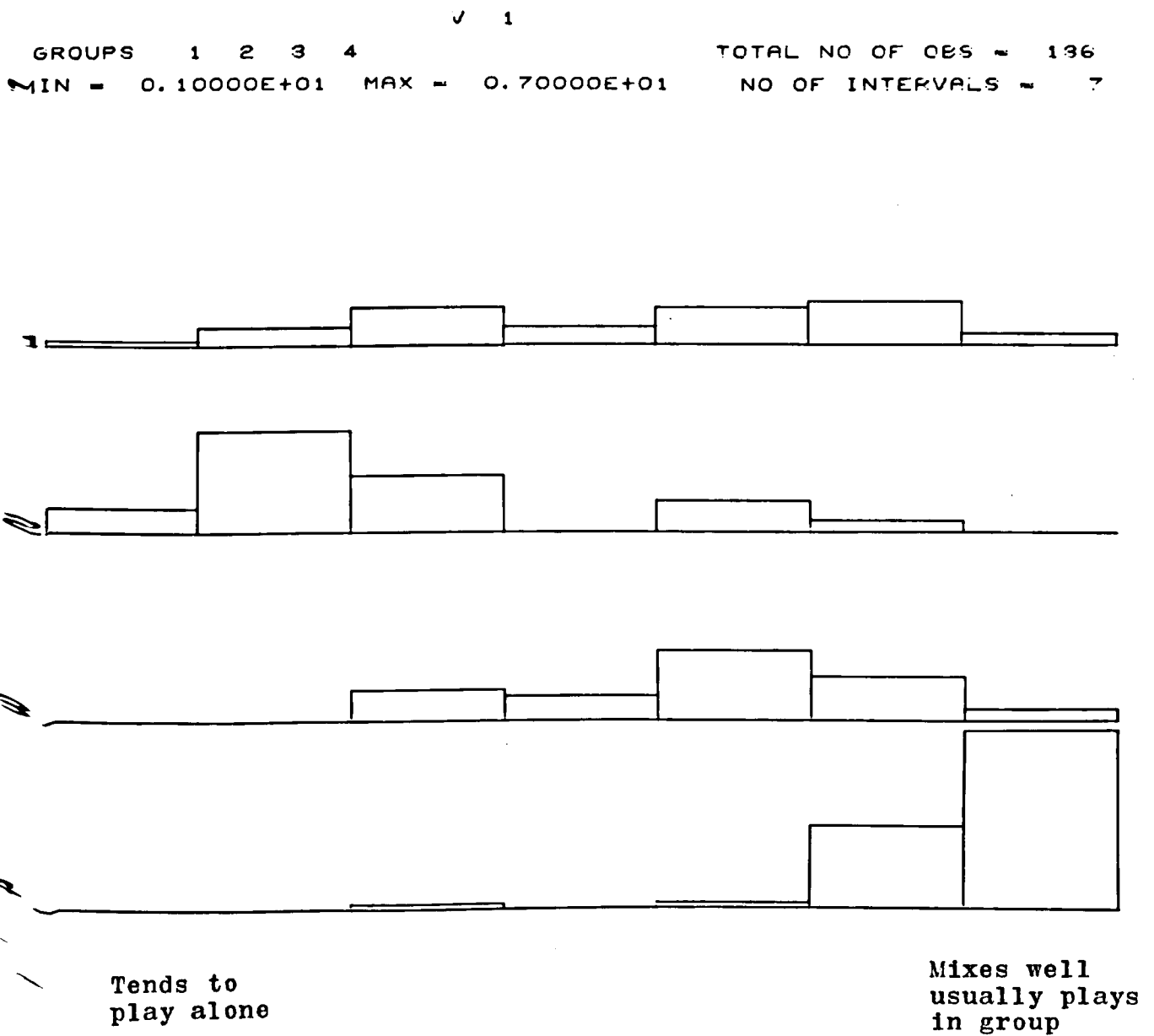


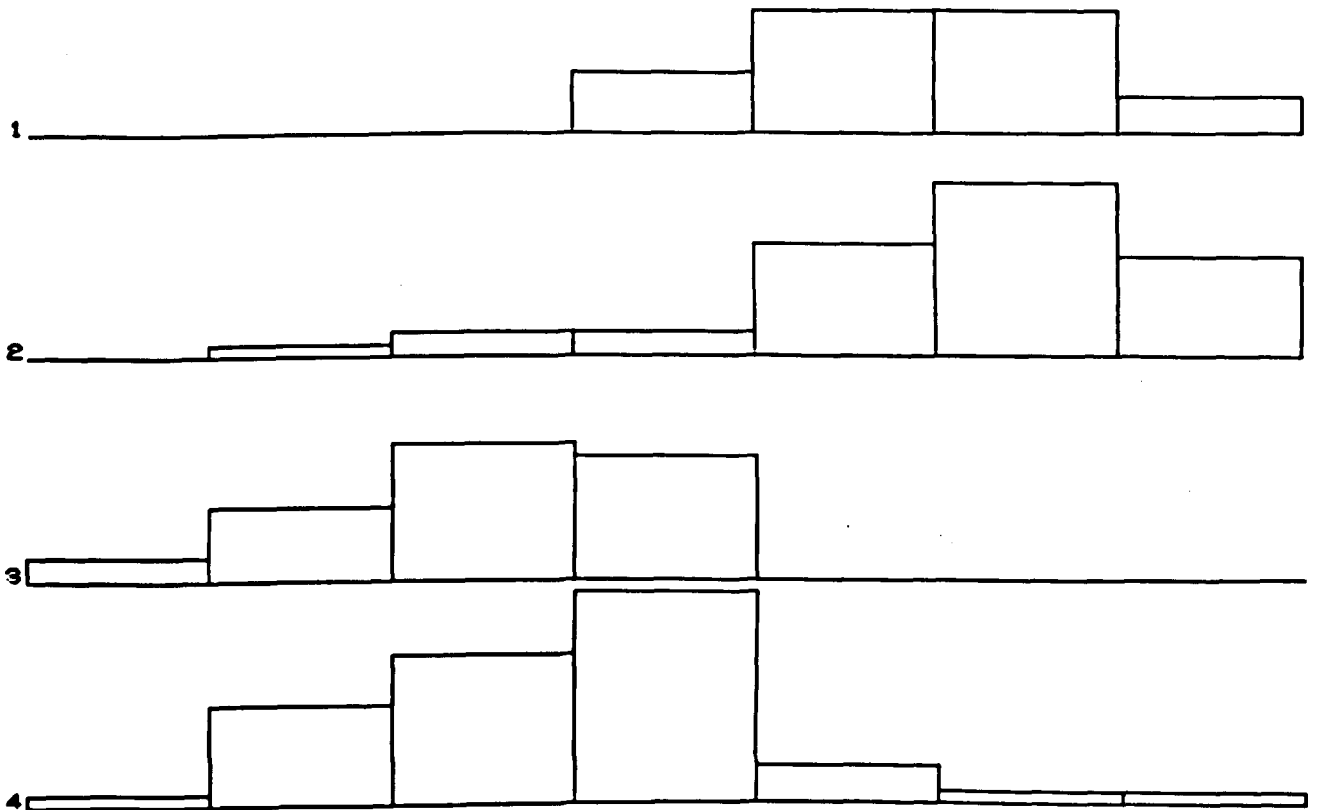


FIGURE 9.3.

DISTRIBUTION OF CLUSTER GROUP MEMBERS  
ON SECOND SCALE, AGGRESSIVENESS

v 2

GROUPS 1 2 3 4 TOTAL NO OF OBS = 136  
 MIN = 0.10000E+01 MAX = 0.70000E+01 NO OF INTERVALS = 7



Aggressive,  
often involved  
in quarrels

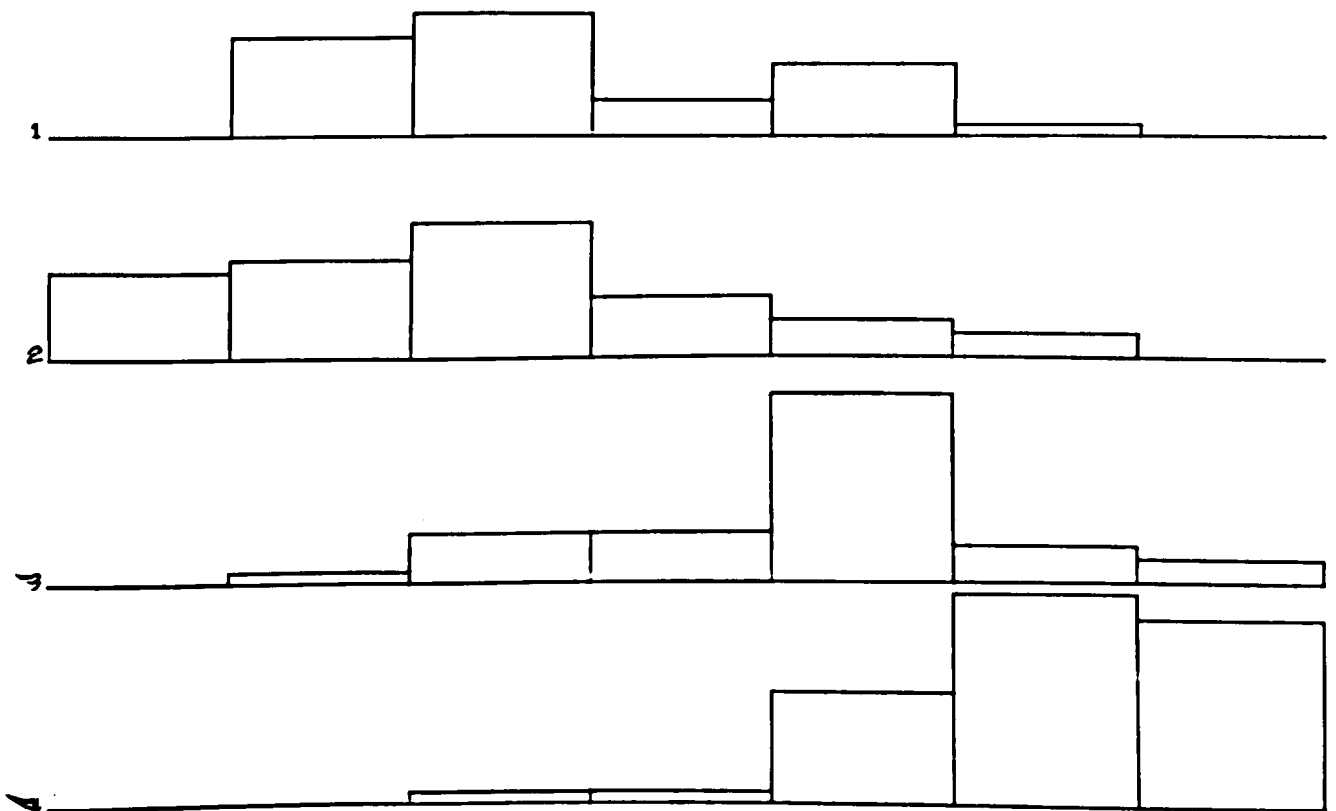
Timid,  
avoids conflict

FIGURE 9.4.

DISTRIBUTION OF CLUSTER GROUP MEMBERS  
ON THIRD SCALE, CONFIDENCE

✓ 3

GROUPS    1    2    3    4                      TOTAL NO OF CBS = 136  
 MIN = 0.10000E+01    MAX = 0.70000E+01            NO OF INTERVALS = 7

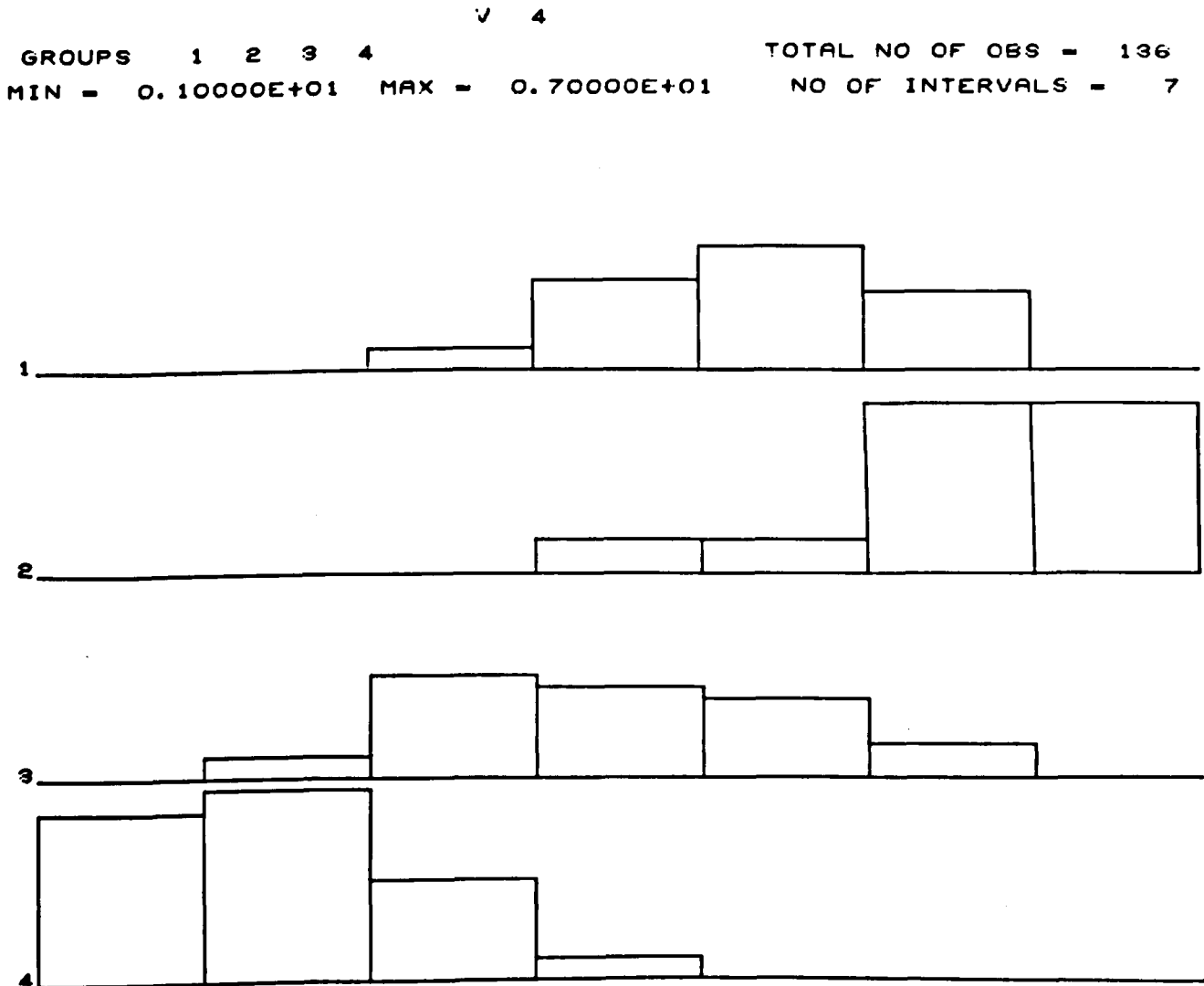


Tends to be  
cautious,  
dependent.

very confident,  
independent.

FIGURE 9.5.

DISTRIBUTION OF CLUSTER GROUP MEMBERS  
ON FOURTH SCALE, LEADERSHIP

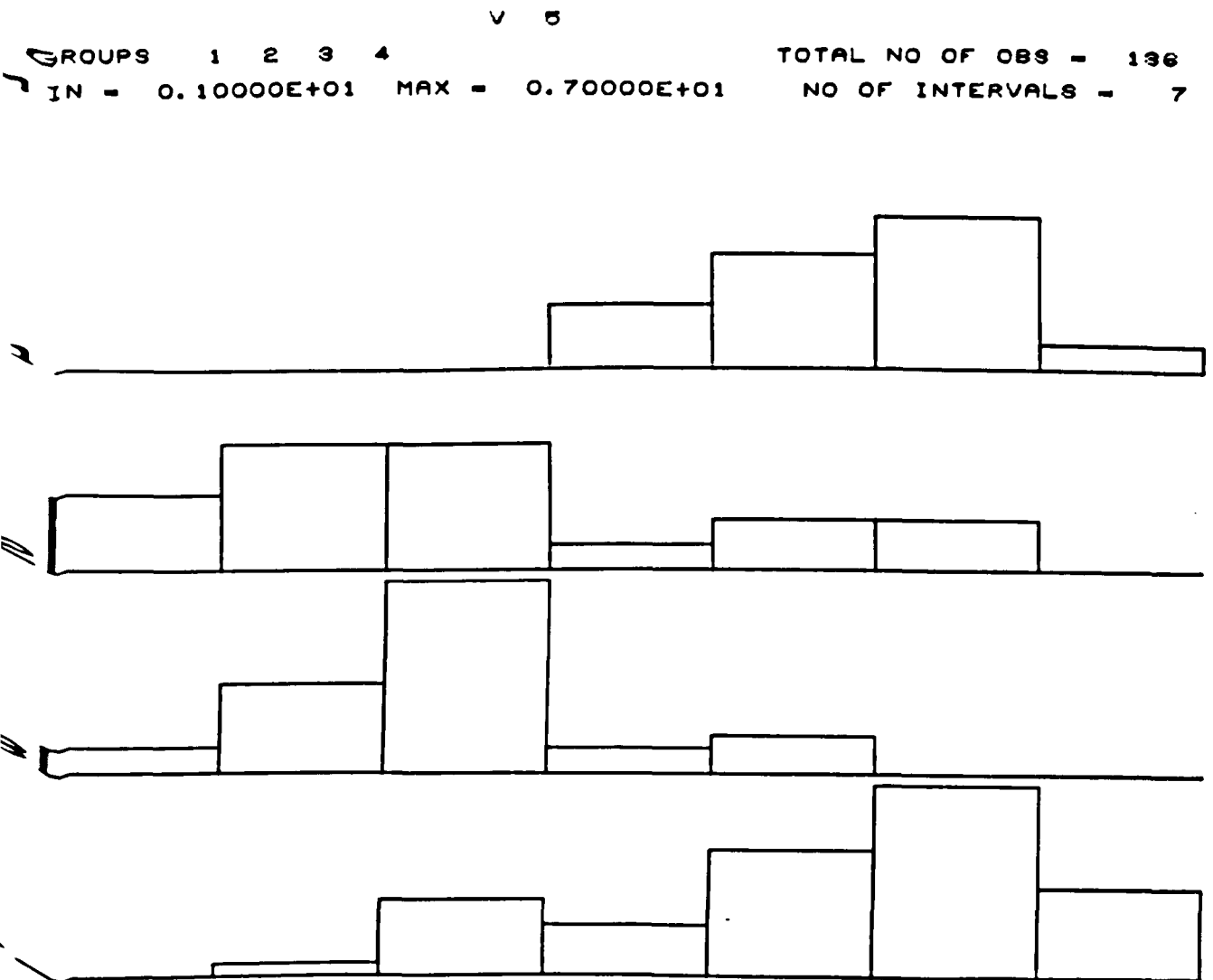


Frequently initiates  
group activities.

Tends to follow  
lead of others.

**FIGURE 9.6.**

DISTRIBUTION OF CLUSTER GROUP MEMBERS  
ON FIFTH SCALE, CONCENTRATION



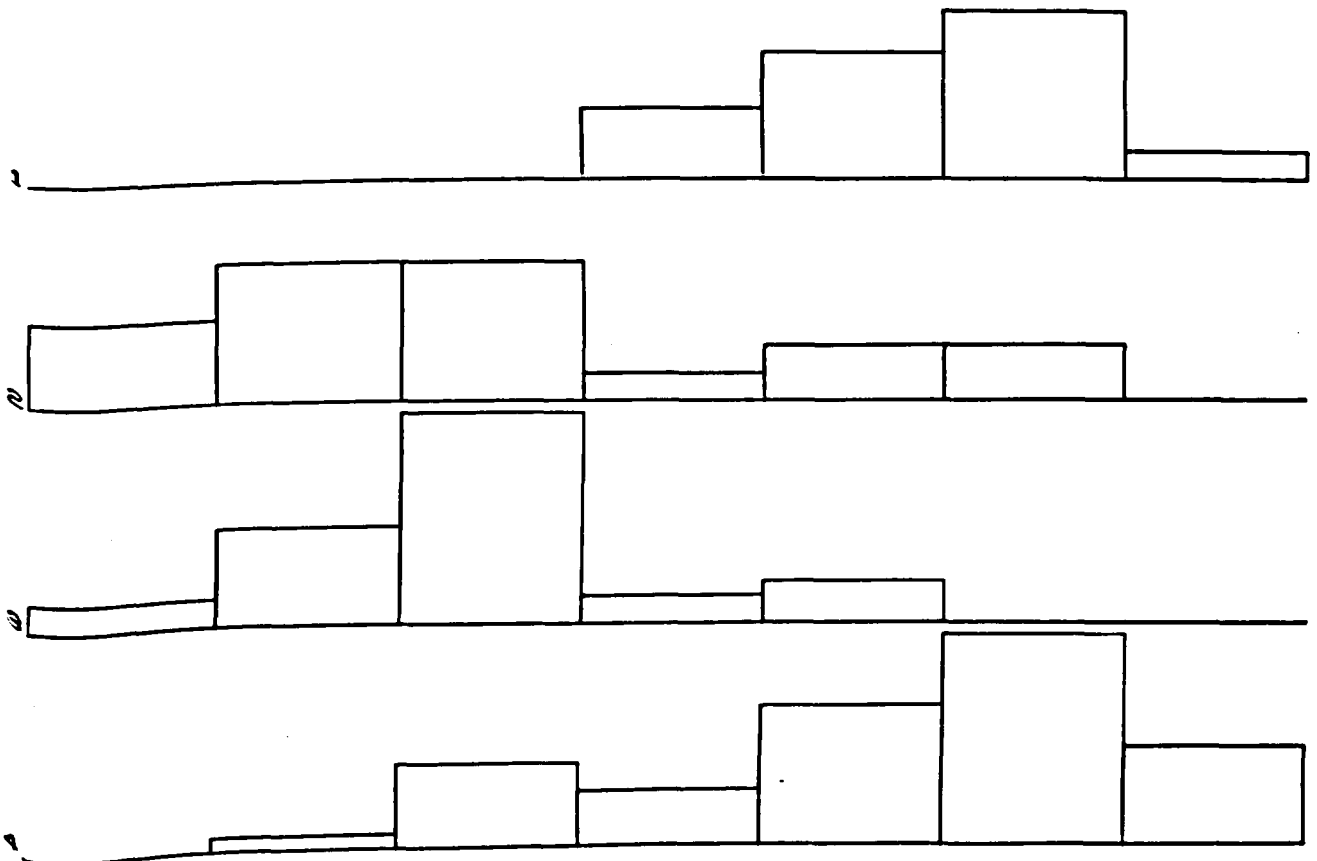
Constantly moves  
from activity to  
activity.

Often concentrates  
for long periods.

FIGURE 9.6.DISTRIBUTION OF CLUSTER GROUP MEMBERSON FIFTH SCALE, CONCENTRATION

V 5

GROUPS	1	2	3	4	TOTAL NO OF OBS - 136
MIN -	0.10000E+01				MAX - 0.70000E+01
					NO OF INTERVALS - 7



Constantly moves  
from activity to  
activity.

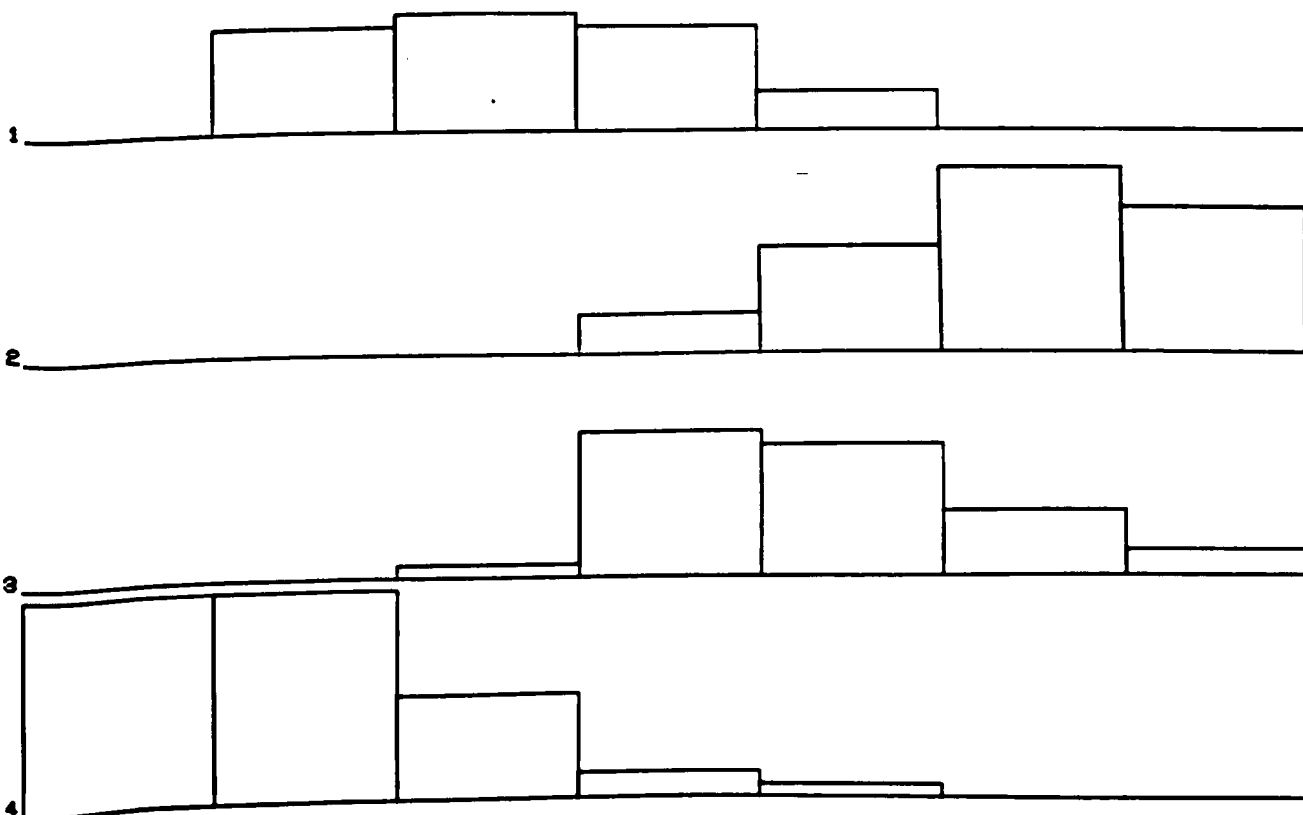
Often concentrates  
for long periods.

FIGURE 9.7.

DISTRIBUTION OF CLUSTER GROUP MEMBERS  
ON SIXTH SCALE, IMAGINATION

V 6

GROUPS    1   2   3   4                      TOTAL NO OF OBS = 136  
 MIN = 0.10000E+01   MAX = 0.70000E+01       NO OF INTERVALS = 7



Creative  
Imaginative.

Usually repetitive,  
and unimaginative  
in activities.

TABLE 9.5(i)MEAN SCORES FOR EACH GROUP ON EACH ITEMOF SECTION II OF THE KPAG

	Age	<u>Group 1</u>		<u>Group 2</u>		<u>Group 3</u>		<u>Group 4</u>		<u>All</u>	
		3yrs	4yrs	3yrs	4yrs	3yrs	4yrs	3yrs	4yrs	3yrs	4yrs
C O G N I T I O N	Item										
	C1	4.1	6.8	2.6	3.0	2.8	6.0	4.5	9.5	3.3	7.3
	C2	5.7	7.3	3.2	3.8	3.8	7.4	6.7	10.3	3.1	8.1
	C3	5.4	9.4	4.4	5.9	2.3	8.1	3.8	11.4	4.6	9.5
	C4	5.0	9.4	2.6	3.4	3.1	6.6	6.3	10.6	3.8	8.5
	C5	4.3	7.6	1.8	3.9	1.5	5.1	5.2	9.4	2.8	7.4
	C6	<u>3.5</u>	<u>9.8</u>	<u>2.8</u>	<u>4.7</u>	<u>2.4</u>	<u>6.0</u>	<u>4.6</u>	<u>10.3</u>	<u>3.2</u>	<u>8.5</u>
	CT	26.9	50.2	17.3	24.7	15.8	39.1	35.6	61.5	22.0	49.1
P H Y S I C A L	P1	2.5	9.1	1.7	4.4	2.3	4.8	3.6	9.8	2.3	7.9
	P2	4.0	10.0	1.8	4.4	3.8	6.3	6.7	10.4	3.6	8.7
	P3	<u>3.0</u>	<u>9.1</u>	<u>4.2</u>	<u>5.2</u>	<u>5.1</u>	<u>8.6</u>	<u>5.7</u>	<u>9.8</u>	<u>4.4</u>	<u>8.8</u>
	PT	9.5	28.2	7.6	14.3	11.2	19.8	16.1	30.0	10.3	25.5

TABLE 9.5 (ii)MEAN SCORES FOR EACH GROUP ON EACH ITEMOF SECTION II OF THE KPAG

	Age	<u>Group 1</u>		<u>Group 2</u>		<u>Group 3</u>		<u>Group 4</u>		<u>All</u>	
		3yrs	4yrs	3yrs	4yrs	3yrs	4yrs	3yrs	4yrs	3yrs	4yrs
S O C I A L	Item										
	St	5.4	9.9	4.2	6.2	5.1	11.1	8.9	12.5	5.5	10.8
	S2	<u>5.5</u>	<u>10.6</u>	<u>3.3</u>	<u>7.4</u>	<u>2.8</u>	<u>9.6</u>	<u>10.6</u>	<u>11.6</u>	<u>5.0</u>	<u>10.4</u>
	ST	10.9	20.9	7.5	13.6	7.9	20.8	19.5	24.2	10.5	21.3
L A N G U A G E	L1	4.6	7.4	1.2	2.1	2.2	7.3	9.5	11.5	3.6	8.4
	L2	3.2	7.8	2.1	1.9	2.5	5.4	9.3	10.1	3.7	7.6
	L3	3.1	7.8	3.0	3.9	2.2	6.8	5.9	10.1	3.4	8.1
	L4	<u>3.1</u>	<u>6.5</u>	<u>1.6</u>	<u>2.6</u>	<u>1.7</u>	<u>4.5</u>	<u>6.7</u>	<u>10.2</u>	<u>2.8</u>	<u>7.1</u>
	LT	14.0	30.2	7.9	11.1	8.6	24.0	31.4	41.8	13.6	31.4



compared. Discriminant analysis of the teachers and nursery nurses ratings by means of a standard programme (S.P.S.S.) enabled each child to be allocated to a cluster group according to the definitions of the groups obtained from the original cluster analysis. Comparison of group allocations by the two sets of staff is afforded by inspection of Table 9.6. Overall agreement on cluster group allocation is at the 54 percent level and the distribution differs significantly from that expected by chance ( $\chi^2 = 81.36$ , df. = 9,  $p < .001$ ). That agreement is not higher may be due in part to the vagueness of the definition of the cluster groupings. However, disagreement may also reflect genuine differences in the staff's perceptions of the children.

### Discussion

The findings of the multivariate principal component and factor analyses performed above are congruent with those of earlier studies. Smith (1970) in an examination of the component structures of repertory grids obtained from nursery teachers identified five main types of component. The two most frequent and most important components were identified as representing social maturity and conformity respectively. Similar conclusions may be drawn from the results of the repertory grid analysis described in an earlier chapter. Reviews of other studies which have analysed teachers ratings of children suggest that such findings are common (cf. Smith, 1972; Behar and Stringfield, 1974; Roper and Hinde, 1979). Smith (1970) cautions,

TABLE 9.6  
COMPARISON OF NURSERY TEACHERS AND  
NURSERY NURSES ALLOCATION OF  
CHILDREN TO CLUSTER GROUPS

		<u>Nursery nurses</u>				
		<u>Cluster group</u>				
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Total</u>
<u>Nursery</u> <u>Teachers</u>	<u>1</u>	21	6	5	5	37
	<u>2</u>	12	12	1	0	25
	<u>3</u>	4	7	16	4	31
	<u>4</u>	3	4	13	27	47
	<u>Total</u>	40	29	35	36	140

however, that accounts given by researchers may be oversimplified, and that subtle differences between the factors obtained in different analyses may be masked by the tendency to seek agreement and uniformity of nomenclature. Cluster analysis was undertaken after preliminary inspection had suggested the presence of patterns in the data in Section I. The solution provided by the cluster analysis (i.e. the division of the cases into four groups) contains a factor of inherent arbitrariness, since the analysis could have furnished a solution with a larger or smaller number of groups that would have been equally satisfactory mathematically (Marriott, 1974). However, the subsequent significant differences between the groups in terms of performance on the second section of the KPAG, which is concerned with the acquisition of skills and concepts would appear at least partially to justify the solution adopted.

One difficulty of the above approach is the considerable interaction of the rater with the ratees. It is interesting to note that the variables of Section I used in the multivariate analysis are closely related to the type of constructs teachers and nursery nurses frequently use to describe the behaviour of the young children in their care. With the exception of the scale recording the degree of aggression shown by the child, each scale may be interpreted as having a positive and a negative end. It is possible that the ratings on these scales reflect a teacher's global assessment of the child. Provided that

this evaluation of the child is reasonably accurate such a manner of recording would not be subject to any major objections. However, it would be disturbing if the record of the child's behaviour on Section I coloured the examination of the child's abilities on Section II. It is possible to interpret the information provided here in the light of such an effect, hypothesising that the grouping of the children into clusters in the manner described is an artefact of the nursery staff's stereotyped views on children's personality and performance.

An alternative hypothesis would suggest that the groupings do contain a degree of validity in the sense that they are free of computational and observational artefacts. Support for this view comes from the analysis of an observational study of nursery children (Smith, 1972). Principal component analysis of observational data produced three main components. The first was clearly identifiable as social maturity. The second involved a contrast between nursery activities that are highly sessile (e.g. block play) and those that are highly mobile (e.g. running, chasing). In part this second component may be seen to resemble the second component in the above study, if one considers also the evidence that suggests that highly mobile activities indoors are discouraged by nursery staff (Hutt et al., in preparation). Thus the underlying components of the rating scales may reflect actual behavioural differences. Firstly, it would appear that there is wide variation in children's performance

in the nursery at a given age, and that this variation is closely related to factors of personality as manifested by the child's performance on the items covered in the first section of the KPAG. The relationship is not necessarily a simple one. As Roper and Hinde point out (Roper and Hinde, 1978), in the past, degree of sociability has been closely linked in a linear fashion with other aspects of the child's performance. Roper and Hinde go on to state that social maturity may be displayed both by competence in playing with peers and by confidence and interest in playing periodically in a solitary fashion. Figure 9.2 shows that both groups 1 and 2 tend to mix less well with their peers than the other groups. In the case of group 2 this tendency to solitary play is linked with other indicators of social immaturity. However, this is not necessarily the case with members of group 1. Thus it would appear that not only do socially mature children sometimes play alone as Roper and Hinde argue, but that some children who in many other respects are at least average for their age, prefer to be less gregarious.

When one looks at the variable that deals with the child's ability to concentrate on an activity it may be seen that those children who do concentrate well (groups 1 and 4) are also those who tend to perform best in other areas. Thus, the constructs outlined in Section I and commonly used by teachers may be important indicators of other aspects of performance.

The first component in the principal components analysis was identified as one of social maturity. The second component was identified as a factor of social acceptability. Children scoring highly on this component tended to be unaggressive and to concentrate well. Children with low scores tended to flit from task to task and to behave aggressively towards their peers. In the main the latter children are found in group 3. Further weight is given to the interpretation of the meaning of this component by the failure of the children in group 3 to score well on items relating to sharing, turn-taking and co-operation with peers in Section II. Effects of teacher expectancy are perhaps more likely to occur on this dimension than on that of social maturity.

Ultimately, the two hypotheses presented above are not mutually exclusive. As Roper and Hinde (1979) conclude, nursery teachers ratings of children may show considerable agreement with the observed behaviour of the child while still yielding indications of the use of an implicit personality theory when completing the ratings. The question presents itself, however, as to whether other factors which are independent of the child's behaviour or which comprise only limited components of it affect teachers perceptions of the children and their consequent ratings of them.

The findings of several studies conducted in the recent past suggest that several characteristics of the child may affect the teachers assessment of his performance and/or the customary mode of interaction with the child. These

factors may relate to the child's sex, his physical attraction and features of his behaviour in the classroom.

Hartley (1979) describes a study of two large infant schools of different social class composition in which it was found that there was a between school agreement in the ways in which teachers defined the differences they saw between boys and girls as pupils. Boys were defined as rougher, noisier, more immature and more lacking in concentration. These were not the types of behaviour the teachers associated with the hypothetical successful pupil. Girls, on the other hand, were typically defined as showing greater concentration, tidiness, quietness and maturity. These findings are in agreement with those of previous studies and similar tendencies may be found in the study of Chapter 6, where boys were rated to be more aggressive than girls, although in this case the difference did not reach significance. A supportive and related finding is that teachers tend to prefer pupils whose behaviour reflects rigidity, conformity, dependancy and acquiescence to those whose behaviour reflects flexibility, non-conformity, untidiness, independence and assertiveness. A body of research also exists which suggests that teachers are influenced by the linguistic skills of their pupils in the assessment of their performance in other areas and by information concerning the child's home background (Goodacre, 1968; Nash, 1976; Eurstall, 1979).

That adults perceptions of the child are influenced by his physical attractiveness is a finding of several studies. Dion (1972) found that women attributed more favourable personal characteristics to attractive than to unattractive children. In a second study, (Dion, 1974) women were found to behave more leniently towards an attractive boy than towards either an attractive girl or an unattractive boy. These results were interpreted as representing a cross-sex leniency effect mediated by a child's physical attractiveness. Teachers do not appear to be immune to this effect. For example, Clifford and Walster (1973) demonstrated that elementary school teachers rated attractive children as having greater intellectual potential than their unattractive counterparts.

Consideration of the findings of the previous study suggested that, contrary to the ethos of the nursery, similar factors may affect the nursery staff's perceptions of children. The study described below was carried out to investigate this possibility.

Study 9.2: The relationship between factors of physical attractiveness and likeability and nursery staff's ratings of children.

#### Subjects.

130 children (65 boys and 65 girls) rated by 13 teachers and 13 nursery nurses, as described for Study 6.1.



### Method

The instrument used is that used in Study 6.1 and is shown in Appendix E. Whereas Study 6.1 reports findings for the reliability of the six scales of Section I of the KPAG, the present study is concerned with the relationship between these scales and the pair of scales concerned with the child's physical attractiveness and 'likeability', which were presented on a separate part of the form. Since it was felt that nursery staff would not readily own to finding children unattractive or unlikeable the wording of the scales was designed to bias the scales towards the positive end of the spectrum, thereby enhancing their discriminatory potential. Reasons for the inclusion of the scales were not elaborated upon and only one set of staff refused to complete this section of the form.

### Results

Inspection of the data showed that the ratings of both teachers and nursery nurses were markedly skewed towards the positive ends of the scales for attractiveness and likeability. Both teachers and nursery nurses tended to rate girls as being more likeable and attractive than boys but in neither case did the differences reach significance. (Table 9.7). Subsequently, a discriminant analysis procedure was used to allocate the children to cluster groups for the ratings of both the teacher and the nursery nurse as previously described. Ratings on the attractiveness and likeability scales were compared with the attributed cluster group membership obtained from the previous set of scales

TABLE 9.7  
NURSERY TEACHERS AND NURSERY NURSES RATINGS  
OF BOYS AND GIRLS FOR PHYSICAL  
ATTRACTIVENESS AND 'LIKEABILITY'

		<u>Attractivness Rating</u>						
		Low						High
		1	2	3	4	5	6	7
		n	n	n	n	n	n	n
Nursery Teachers	Boys	1	2	4	3	15	17	23
	Girls	0	1	1	4	11	11	26
Nursery Nurses	Boys	0	4	3	7	17	18	16
	Girls	0	1	2	3	13	25	20

		<u>Likeability Rating</u>						
		Low						High
		1	2	3	4	5	6	7
		n	n	n	n	n	n	n
Nursery Teachers	Boys	1	2	3	10	11	16	22
	Girls	0	1	3	5	14	22	20
Nursery Nurses	Boys	0	3	6	6	17	16	17
	Girls	0	3	2	4	16	21	18

(Table 9.8). Statistical analysis revealed significant differences between nursery staffs ratings of children within different groups on the attractiveness and likeability scales. Effects were most marked for nursery nurses, where highly significant differences between the groups were found on both scales. Teachers did not rate the groups as differing in physical attractiveness, but differences between them were revealed on the likeability scales. Generally groups 4 and 1 were rated favourably on both scales by both teachers and nursery nurses. Nursery teachers tended to rate children of group 2 least favourably on both scales whereas nursery nurses tended to accord children of group 3 the lowest ratings.

### Discussion

Few of the children were awarded highly unfavourable ratings on the physical attractiveness and likeability scales. This finding is consistent with the stated attitudes of the nursery staff described and discussed in Chapters 2 and 3 of this thesis and should be taken into consideration in the discussion of the meaning of the results of this study.

In general, the staff would appear to prefer children displaying behaviour patterns that may be interpreted as being indicative of maturity. The finding that some groups are rated more highly than others tends to confirm the validity of the original cluster groupings. That teachers and nursery nurses should respond more favourably to the more mature child, who tends to concentrate on particular tasks,

**TABLE 9.8**  
**COMPARISONS BETWEEN NURSERY STAFF'S PERCEPTIONS**  
**OF CHILDREN AND THEIR RATINGS FOR PHYSICAL**  
**ATTRACTIVENESS AND LIKEABILITY**

		<u>Attractiveness</u> <u>Rating</u>		
	<u>Cluster-</u> <u>group</u>	<u>Low</u> <u>(1 - 5)</u>	<u>High</u> <u>(6 - 7)</u>	
Nursery Teachers	1	11	26	
	2	11	12	$\chi^2 = 5.534, df = 3,$ $p > .05$
	3	11	17	
	4	9	33	
Nursery Nurses	1	10	28	
	2	13	10	$\chi^2 = 23.474, df. = 3,$ $p < .001$
	3	22	12	
	4	5	29	
		<u>Likeability</u> <u>Rating</u>		
	<u>Cluster-</u> <u>group</u>	<u>Low</u> <u>(1 - 5)</u>	<u>High</u> <u>(6 - 7)</u>	
Nursery Teachers	1	14	23	
	2	13	10	$\chi^2 = 9.887, df = 3,$ $p < .02$
	3	14	4	
	4	9	33	
Nursery Nurses	1	11	27	
	2	13	10	$\chi^2 = 22.756, df = 3,$ $p < .001$
	3	25	9	
	4	8	26	
	5			

is hardly surprising when one considers the nature of the environment in which nursery staff are required to work. A setting in which the children pursue activity in a relatively orderly fashion is obviously more attractive to staff than one in which the children are constantly moving from task to task and frequently engaging in agonistic interactions. Not only is the former environment more pleasant to work in physically, but it also enables staff to work with particular children more intensely. Arguably, a setting containing a preponderance of children of groups 2 and 3 would militate against the provision of an optimal learning environment for all children including those in groups 1 and 4.

More disturbing is the finding that physical attractiveness may be associated with nursery staff's judgements concerning a child's behaviour. This factor approached significance for nursery teachers and was highly significant for nursery nurses. The finding is of particular concern since several studies have shown that teachers' perceptions of their pupils may affect their interactions with them. (e.g. Good, 1970; Rist, 1970; Garner and Bing, 1973). Some evidence exists to show that a similar effect may be operating in the nursery. In a pilot study, Cashdan and Philips (1975) found that nursery teachers sometimes talked more to pupils whom they considered to be functioning well, even when they thought of themselves as working especially hard with children who were in particular need. Bourdeau and Ryan (1978) report a study involving nine teachers and 80

preschool children in three Canadian nursery schools. The aim of the study was to determine whether teaching attitudes such as "attachment", "concern", "indifference", and "rejection" towards the children as measured from responses to a questionnaire, were related to the manner in which the teachers made instructional, social and disciplinary contacts with the children. It was shown that more instructional contacts were made with the attachment students than with those in any other attitude group. Also, an attitude of concern led to more instructional contacts than did the attitudes of indifference or rejection. By contrast, most disciplinary contacts were made with the concern and rejection children as compared with the attachment or indifference individuals. A further finding, that ratings of the appearance and behaviour of the children indicated that the attachment children were perceived most favourably, is consistent with the present study. In both studies there is a relationship between staff attitudes and achievement. As Bourdeau and Ryan (*idem*) point out, possible causal networks are not easy to unravel. Nursery staff may develop certain attitudes towards children which influence the quantity and nature of contacts with them, which may then affect a child's level of achievement. Alternatively, staff may readily detect high achieving children, resulting in a positive attitude towards them which then influences the contacts. It seems highly probable that both processes occur.

CHAPTER 10  
A LONGITUDINAL STUDY OF PROGRESS  
IN THE NURSERY

The previous chapters have described synchronic studies of the KPAG. The present chapter describes a longitudinal study which examines the usefulness of the Guide in its primary role of charting the developmental progress of children attending a nursery.

Study 10.1: Assessment of the progress made by children in a nursery school.

Subjects

An opportunity sample of 32 children (20 boys, 12 girls) attending a single nursery school was obtained. The mean ages of the sample at the commencement and completion of the study were 3.69 years and 4.75 years respectively.

Procedure

The children in the sample were assessed by their class teacher using the KPAG at intervals over a period of approximately one year. Records were collected and analysed after each assessment by the researcher and the results for the initial and final assessments are presented below.

Results

In order to summarise the findings for the first section of the KPAG a discriminant analysis by standard

programme (S.P.S.S.) was employed to allocate the children to the cluster groupings defined in Chapter 9. This analysis was performed for the first and last assessments independently. Table 10.1 shows the distribution of the children by cluster group at the commencement and completion of the study. Initially, the majority of children were assigned to cluster groups 2 and 3, which have previously been interpreted as the less mature forms. In the initial assessment only four children are allocated to cluster groups 1 and 4 which display characteristics which may be interpreted as indicating maturity. However, approximately one year later, at the final assessment, the majority of children were rated as members of these more mature groups. Movement between groups tends to occur from the less mature forms to the more mature forms. No child moves from a more mature to a less mature form of cluster group. However, the trend towards ratings indicating greater maturity with time is not uniform and twelve children are indicated as remaining within a less mature form of cluster group. The results suggest that this first section is useful for describing in broad outline aspects of the general progress made by children in the nursery, although it must be recognised that the ratings may also contain an element that is impressionistic.

Results from the second section of the KPAG suggest that all children make progress through the course of the year and that this is adequately charted by the KPAG. Inspection of the data revealed some evidence to suggest



TABLE 10.1

DISTRIBUTION OF CHILDREN BY CLUSTER GROUP  
AT COMMENCEMENT OF LONGITUDINAL STUDY

		<u>Final Assessment</u>				
		<u>Cluster Group</u>				
		1	2	3	4	
Initial Assessment Cluster Group	1	1	-	-	1	2
	2	5	4	3	4	16
	3	3	-	5	4	12
	4	-	-	-	2	2
		9	4	8	11	32

that the progress made by girls on the items contained within this section is greater than that made by boys but the difference does not appear to be a significant one.

For the purposes of further analysis of the data contained in this section children were assigned to one of three groups according to their rated progress on the first section of the KPAG . . . , as described below.

	Cluster group on initial assessment	Cluster group on final assessment	n
Group A	1 or 4	1 or 4	4
Group B	2 or 3	1 or 4	16
Group C	2 or 3	2 or 3	12

The results for each group of children are shown in Table 10.2. No significant differences in age existed between the groups at either the start or the finish of the study. Examination of the information contained within the table suggests that grouping in this manner according to ratings obtained on Section I reflects performance on Section II. Generally, the performances on the scale pertaining to aspects of socialization are similar for each group, although most progress in the area is made by Group B. Initially, on the other three scales of Section II, Group A tends to exhibit a performance that is superior to that of the other two groups. Over time convergence between groups on the cognitive scale occurs, the most rapid progress being made by members of Group B. A similar trend emerges in the scale for physical skills where Group B overtakes Group A. Differences between the groups tend to be maintained on the scale for language

TABLE 10.2

RESULTS ON SECTION II OF THE KPAG IN A  
LONGITUDINAL STUDY OF CHILDREN'S  
PROGRESS IN THE NURSERY SCHOOL

Group	Mean Age		Cognition		Physical Skills		Socialization		Language	
	<u>1st</u> <u>Asst.</u>	<u>2nd</u> <u>Asst.</u>	<u>1st</u> <u>Asst.</u>	<u>2nd</u> <u>Asst.</u>	<u>1st</u> <u>Asst.</u>	<u>2nd</u> <u>Asst.</u>	<u>1st</u> <u>Asst.</u>	<u>2nd</u> <u>Asst.</u>	<u>1st</u> <u>Asst.</u>	<u>2nd</u> <u>Asst.</u>
A n 4	3.8	4.8	38.8	65.0	15.8	37.2	12.5	25.3	24.7	49.5
B n 16	3.6	4.7	25.8	63.3	11.9	38.5	10.9	26.2	15.4	42.0
C n 12	3.7	4.8	21.3	56.3	12.6	31.9	11.9	24.6	12.2	34.6
Total	3.7	4.8	25.7	60.9	12.7	35.9	11.4	25.5	15.4	40.2

development. Overall, in comparison with the other two Groups, most progress is made by Group B.

### Discussion

The findings described above are based upon a small sample of children within a single nursery and any conclusions that may be drawn from them can only be tentative. The results tend to show, it may be argued, that the KPAG is capable of fulfilling the primary role for which it was designed. Both sections of the Guide allow a child's progress in the nursery to be charted, although there is some evidence of a ceiling effect for the most mature children. In future revisions of the KPAG consideration should be given, therefore, to the inclusion of additional items of a higher order of difficulty.

The discussions of the previous chapter suggest that staff perceptions of children may be affected by factors which are not necessarily related to the children's abilities or attainments. The ratings of children on the first section of the KPAG, although containing a degree of validity, may also reflect differences in the attitudes of staff towards particular children. Nursery staff may be seen as key components of the nursery environment (Hutt et al., in preparation). If differences in their attitudes exert an influence upon their interactions with children, it seems probable that the progress made by groups of children will be differentially affected accordingly. The results of the

present study fail to show marked divergence between the groups of children following initial assessment and so do not provide evidence for such an effect. It may be hypothesized that either 1) the effect of staff attitudes towards children upon their progress in the nursery is negligible or 2) that a system of assessment, and recording, as represented by the KPAG, provide staff with feedback which may alter their perceptions of the child. Unfortunately, the present study does not allow a choice to be made between these alternative hypotheses.

However, some indication of trends within the data may be discerned, since some children appear to make greater progress in the nursery than others. In any set of children there is likely to be some variability in motivational rate and differential rates of progress in skill and concept attainment may be anticipated. However, on the basis of the findings of the present study it may be tentatively suggested that the nursery environment may not be optimal for learning processes in all children. The results imply that children who are initially rated as being more mature than others (Group A), and who perform comparatively well on the second section of the KPAG, tend to lose their advantage over other children on the cognitive and physical scales in the course of the nursery period. In part, this finding may reflect a ceiling effect that is an artefact of the system of assessment rather than an aspect of reality. However, since the items included in the highest level of difficulty of the KPAG also tend to

represent the limits of achievement aimed for within the average pre-school curriculum, it is possible that the range of the nursery curriculum exerts a constraint upon the development of these children. By contrast, it would also appear that for a second group of children (Group C) the nursery environment does not facilitate development at the same rate as for a third group (Group B) although initially performance as measured on Section II of the KPAG . . . is not significantly different. Here it may be the case that without further assistance from staff these children are unable to take full advantage of the nursery environment.

The conclusions drawn above must remain tentative for the reasons given at the outset of this discussion. Nevertheless, they are of sufficient importance to suggest that further consideration and investigation of this area is required. Future analysis might, for example, consider the social backgrounds from which the children come since nursery staff see this as a key construct in their perceptions of the child (see Chapter 3). Certainly it is important that nursery staff should consider the implications of their attitudes towards nursery practice and the children in their care and it is clear that a system of assessment and recording may be invaluable in this process.

## CHAPTER 11

### SUMMARY AND CONCLUSIONS

The findings of the series of studies described in the initial chapters of this thesis are broadly consistent with the research that has been carried out on pre-school provision over the past decade. Despite research criticism of traditional nursery practice it would seem that the tradition itself still exerts a powerful influence on the attitudes of staff working within various forms of pre-school provision. In part, this influence may be attributable to the existence of what may be seen as an implicit ideology of the pre-school. Sharp and Green (1975) define a teaching ideology as a 'connected set of systematically related beliefs and ideas about what are felt to be the essential features of teaching' (p.68). In summary, an ideology comprises a broad definition of the task and a set of prescriptions for its performance, all at a fairly high level of abstraction. It involves both cognitive and evaluative aspects, and includes general ideas and assumptions about the nature of knowledge, human nature, and in particular of the course of child development. Finally, according to Sharp and Green, an ideology contains assumptions about the methods of teaching that have to be employed and specifies criteria for the assessment of adequate performance. King (1978), after observation of several infant school classrooms, outlines and discusses the ideology of the infant school. The studies presented in

Chapters 2 and 3 of this thesis would suggest that the pre-school possesses an ideology that resembles that of the infant school in many respects. The two forms of establishment share an emphasis on a child-centred approach, which stresses the essential innocence of childhood. In both institutions the child is seen as the principal agent in his own development, learning being viewed as occurring largely through practical experience. However, whereas the infant school asserts the value of play in learning, in the nursery the claim is exaggerated. Infant school teachers frequently differentiate between work and play but for the nursery teacher, nursery nurse or playgroup supervisor these two concepts are usually inextricably fused. Thus, an emphasis on a child-centred environment in which children learn through play at their own pace with a minimum of external constraint pervades much of current pre-school practice.

The definition of a teaching ideology cited above suggests that it should contain criteria for the evaluation of performance. In the infant school, assessment of the child's performance (and consequently, in part, that of the teacher) may be comparatively precise and objective. The stage reached by the child on a reading or number scheme may readily serve as an index of the skills and concepts acquired by the child and of the operations of which he is capable. At the nursery level such simple, yet specific and relatively objective, indices of a child's level of performance are customarily lacking. Where



evaluation occurs it is usually on a more global basis, and emphasis is placed upon socio-emotional rather than cognitive or physical development. Such a form of assessment may be seen to be based upon an implicit assumption of a hierarchy of needs. Where assessment of the staff's performance is made, this tends to focus upon the quality and variety of the provision made for play and learning, rather than upon a detailed analysis of the observed consequences of that provision for the children.

In many ways, a freedom from the obsession with individual or class attainment that is characteristic of parts of the compulsory educational system may be viewed as desirable. The absence of a detailed, formal and rigid curriculum and syllabus allows for experimentation, improvisation and spontaneity, which may enhance the learning environment, thereby benefitting the child. However, this approach and the ideology that underlies it contains certain inherent dangers.

In its extreme form the nursery ideology would suggest that assessment of the quality of play is not strictly necessary, since children, it is argued, play at the level that is optimal for their developmental progress. Such a view minimises the value of the adult's contribution to the nursery environment and leads to a circularity of argument. If it is accepted that the adult is a key factor in the active stimulation of the child's learning processes within

the nursery environment (cf. Hutt et al., in preparation), then the retention of such views by nursery staff may be seen to be disadvantageous. The arguments presented within the fourth chapter of this thesis question the value of particular forms of play, and challenge the assertions of the nursery ideology that learning in the pre-school years is a necessary consequence of play. Differences in the quality of different episodes of play are admitted by nursery staff (Parry and Archer, 1974). However, consideration of the objective criteria for the differentiation of play of high quality from play of low quality, suggests that an analysis of children's play within the constraints of the nursery environment would present nursery staff with many problems. Staff evaluation of play may, therefore, operate at a level that is largely intuitive. These intuitions may be more or less accurate. However, without an objective system of assessment there is a distinct danger that staff perceptions of children may suffer distortions from reality. Contrary to the nursery ideology, the data presented in these pages suggest that nursery staff do make implicit judgements of the children. This finding is supported by those of other studies (cf. Smith, 1970; Cashdan and Philips, 1975; Roper and Hinde, 1979).

Such judgements may reflect an implicit personality theory and may be influenced by factors which do not necessarily relate directly to the child's abilities.

The criticism here is not that these judgements are made. Rather, it is that without an objective system of assessment they may not be subject to reappraisal and that the assumptions that underly them may remain implicit. Moreover, without such a system the nursery ideology itself remains largely unchallenged and immutable.

It should not be assumed that all pre-school workers subscribe equally to the nursery ideology. Just as King (1978) found teachers in infant schools who were not in complete agreement with all aspects of the infant school ideology, so in the nursery it may be possible to identify a group who do not strictly adhere to the nursery ideology. Some nursery teachers, for instance, would accept the case put forward by research workers for a more structured approach. However, others would clearly find the suggestion of a greater degree of structure in the nursery totally unacceptable. If the nursery ideology is to change it is, perhaps, most desirable that this change should be effected from within the system rather than from outside pressure. Unless, however, nursery staff accept the need for reappraisal it is difficult to see how this change will be brought about.

The argument contained within this thesis is not that nursery provision in this country should adopt a highly structured approach in the manner of Bereiter and Engelmann (Bereiter and Engelmann, 1966), although research would indicate that some form of programme may be desirable (Woodhead, 1976). Instead, it is proposed here that the

structure should be transparent rather than opaque, taking the form of planning, assessment and recording by the staff. It may be argued that only when each child's individual needs are fully considered can the nursery environment truly be said to be child-centred.

Planning for future provision can only occur when the child's present developmental level has been accurately identified. It is my contention that a systematic means of assessment and record keeping is required to make this identification. The form that such a system may take is limited by constraints which operate within the nursery. Detailed observation of play, although instructive, is often too time-consuming for nursery staff to perform. A system which includes ascertainment of the skills and concepts acquired by the child through relatively informal testing in semi-structured situations in combination with a limited amount of direct observation would appear to be more appropriate. Such procedures form the basis of the Keele Pre-School Assessment Guide. The KPAG represents an attempt to devise a system of assessment and recording which meets the requirements of the nursery staff and which is consistent with the ideology of the nursery. In addition, it is designed to satisfy some of the criteria of the standard psychometric test. The diversity of the various constraints upon the system has ensured that the final form of the system represents a compromise between a number of alternate patterns. As with most compromises its performance on any particular measure is unlikely to be completely satisfactory.

However, ultimately it should be judged by its ability to satisfy the requirements for which it was designed within the particular context of the nursery.

The final form of the KPAG is divided into two sections, the first based on rating scales, the second on structured test items. The first section deals with aspects of the child's customary behaviour which, it may be argued, are closely related to the constructs employed by nursery staff in their perceptions of children. Although the use of rating scales may be problematic, their continued inclusion in the KPAG may be justified on several grounds. First, since the items contained within it are familiar to staff and are congruent with their own perceptions of children, it may encourage acceptance of the system as a whole. Only where staff are enthusiastic about a particular innovation in education, is that innovation likely to prove successful. Secondly, the requirement of this section, that staff discuss the children prior to the act of recording, may lead to the sharing of observations on and opinions of the child under scrutiny. Such a procedure may help to make staff more aware of processes that are occurring within the nursery. Thirdly, the items contained within the section may give an important insight into the child's performance on the second section, despite the probable lack of complete accuracy and reliability of recording in the former. The above benefits it is argued justify the retention of this section, although its limitations should also be recognised.

The items of the second section of the KPAG, based largely on informal testing in a semi-structured setting, appear to cover the general range of skills and concepts acquired by children in the nursery. However, in some instances, it would seem that the inclusion of items of a higher order of difficulty than currently contained within this section might be desirable. From the studies outlined above, it would seem that the KPAG is generally adequate for the purpose of monitoring the progress made by the individual child within the nursery. However, since the system has been designed for the average nursery it may still prove too complex or too simple for implementation in all nurseries. In particular, where highly detailed information on a certain child is required the KPAG may prove to be inadequate. In this case, nursery staff may be advised to consider alternative systems of assessment designed for use in this environment (e.g. Lomax, 1977; Bate et al., 1978). Nursery staff may also be assisted in the evaluation of the progress made by a child by the collection and analysis of a series of human figure drawings, as described in Chapter 8. The use of such systems may be seen as being complementary to rather than necessarily alternative to the employment of the KPAG.

The benefits that may accrue from the implementation of a system of assessment and recording in the nursery are presented in the first chapter of the thesis. Experience of the KPAG in use suggests that it may be capable of providing some of these benefits. For example, anecdotal

evidence has been collected which shows that staff are sometimes surprised to discover that children whom they have assessed to be generally functioning well on the basis of their overt linguistic performance in conversation may show lacunae in their cognitive or physical development. By providing an objective system of assessment the KPAG may be said to have helped staff to identify the needs of these children more accurately.

It would appear also that the KPAG may be of use in the early diagnosis of handicap. From the data presented here, it would seem that the initial items of each subsection of Section II are comparatively simple for the majority of children receiving nursery education. Failure on one of these items may serve to identify problem areas in a child's development. In addition, the KPAG may enable nursery staff to communicate more precisely to others their observations upon the child's abilities.

Ultimately, however, the principal benefit of the KPAG may be to make staff more aware of their own strengths and weaknesses. There is a danger here that too much attention may be paid to the tuition of the particular skills and concepts assessed by the system to the exclusion of their generalisation. A second danger is that initial assessment may set up unwarranted expectations concerning the child's development and that subsequent staff behaviour may tend to encourage the predicted outcome. As Clarke (1978) points out, except in crude terms, long-term prediction of individual human development is not very impressive and

nursery staff should be encouraged to avoid using the system of assessment in this way. Yet used flexibly and sensibly a system of assessment may help staff to become more aware of the processes within child development that occur within the nursery years. Thus, the KPAG and similar systems may have a role to play in the training of nursery staff as well (Lomax, 1979).

In the final analysis, it is less important that staff adopt a particular system of assessment for implementation within the nursery than that they accept the need for assessment and appreciate some of the major principles that underly it. The present studies have suggested that nursery staff's assessment of children do contain a large degree of objective validity. Any particular system is unlikely to meet the particular requirements of an individual nursery at the level of the finest detail. As a consequence the assessment system described in this thesis has been termed a Guide, it being envisaged that nursery staff will adapt the system to meet the needs of the individual situation. Ultimately, the system of record-keeping implemented by a nursery will be dependent on a large number of factors. What is critical at the present stage of the development of practice within pre-school provision in this country is that nursery staff should be discussing the record-keeping needs of their own nursery and the way in which these needs may be met.



## APPENDIX A

### PRE-SCHOOL QUESTIONNAIRE

This questionnaire has been designed with the aim of gaining information from people working with children of pre-school age in a wide variety of contexts.

It would be of great value to us if you could answer all the questions. However, there may be some questions you prefer not to answer or which may not be applicable to your own particular situation. Perhaps you could indicate these by putting a line through them.

N.B. In the questionnaire the term 'nursery' is used to include all forms of pre-school provision.

1. Present post.....
2. Context in which you work.      Nursery ☐      Nursery ☐  
   School      Class  
   Play- ☐      Day ☐  
   group      Nursery  
   Other.....
- 3a) Area in which You work.....
- b) Would you describe the area as :      Urban ☐      Suburban ☐      Rural ☐
- c) We appreciate that it is often very difficult to classify people on socio-economic grounds. However, we would like you to try to indicate the approximate background of the children with which you work.

Working Class ☐

Mainly Working Class with  
some Middle Class ☐

Mainly Middle Class with  
some Working Class ☐

Middle Class ☐

4. Your age: 21 or under ☐

21 - 29 ☐

30 - 39 ☐

40 - 49 ☐

50 - 59 ☐

60 or over ☐

5. Marital status: Single ☐

Married ☐

6. Do you have any children of your own?

Yes ☐

No ☐

7. Do you possess any of the following  
qualifications?

Teaching Certificate ☐

N.N.E.B. Certificate ☐

Degree ☐

Other (please specify below)

.....

8a) Are you a member of any professional  
organisations concerned with pre-school  
children, e.g. B.A.E.C.E?

Yes ☐

No ☐

b) If YES, please name them.....

9. How long have you been working with children of under 5 years of age?

Under 1 year ☐

1 - 4 years ☐

5 - 10 years ☐

Over 10 years ☐

10. Some of the following motives may have led you to work with children of pre-school age. Please tick those motives which you feel applied to you and circle the boxes of the two you considered most important.

a) Interesting work	<input type="checkbox"/>
b) Security	<input type="checkbox"/>
c) Good hours and holidays	<input type="checkbox"/>
d) Work with children	<input type="checkbox"/>
e) Little or no alternative	<input type="checkbox"/>
f) To help disadvantaged children	<input type="checkbox"/>
g) Opportunity of going to College	<input type="checkbox"/>
h) Work you could do best of all	<input type="checkbox"/>
i) Salary	<input type="checkbox"/>
j) Worthwhile work	<input type="checkbox"/>
k) Family or school pressure	<input type="checkbox"/>
l) Any other (please specify below)	<input type="checkbox"/>

.....

11. A child's stay in a nursery may be a rewarding experience in many ways. Which of the following benefits do you feel children are deriving from your nursery? Please tick the appropriate boxes and circle the boxes of the two areas in which you think they are gaining most.

- |  |                          |
|--|--------------------------|
| a) The ability to mix with others                | <input type="checkbox"/> |
| b) A stimulation of their interests              | <input type="checkbox"/> |
| c) A good foundation for primary school work.    | <input type="checkbox"/> |
| d) An increased range of intellectual abilities. | <input type="checkbox"/> |
| e) Self-confidence                               | <input type="checkbox"/> |
| f) Training in good behaviour                    | <input type="checkbox"/> |
| g) Enhanced language development                 | <input type="checkbox"/> |
| h) Enjoyment                                     | <input type="checkbox"/> |
| i) Proper physical care                          | <input type="checkbox"/> |
| j) Wider experience than most homes can provide  | <input type="checkbox"/> |
| k) Emotional security                            | <input type="checkbox"/> |
| l) Opportunity to discover and use potential     | <input type="checkbox"/> |
| m) A favourable attitude to school               | <input type="checkbox"/> |

12. Below there are six statements about programmes which might be implemented in the running of a nursery. Some of the programmes are obviously compatible with each other, but we would like your views on their relative merits. Will you please read the statements carefully and when you have read them, indicate the order of priority you would give them by putting a 6 against the programme you would approve most, other things being equal, and number them all down to 1 for the programme you would stress least.

A nursery should have a programme :

- a) which develops within an overall plan those skills that children should acquire before they commence school. ☐
- b) of varied activities which effectively occupy the child's time. ☐
- c) which allows the child the opportunity for free expression and play with a little guidance from adults. ☐
- d) which concentrates on the social and emotional aspects of the child's development. ☐
- e) which allows the child to develop his potential at his own rate with a caring and supportative environment. ☐
- f) which actively involves parents in the development of the child's skills. ☐

- 13a) In your nursery, are the childrens' activities planned to some extent by the adult.

Yes ☐ No ☐

- b) If YES, are the activities planned

- 1) On a day-to-day or sessional basis ☐
- 2) On a weekly basis, so that a theme runs through the child's activities during the week ☐
- 3) On some longer term basis ☐

14. Probably all of us would agree that the primary role of the adult in a nursery is to create a safe, happy and stimulating environment. However, we may have differing views about other aspects of the role. Please tick the statement below which agrees most closely with your own attitude:

- a) The adult should assist the child to develop his potential by guiding, encouraging and instructing the child in the performance of desirable activities. ☐
- b) By guiding and encouraging the child in those activities that the child wishes to do. ☐
- c) By providing an environment with a wide range of materials and activities in which the child can play and explore in his own way. ☐

## APPENDIX B

### REPERTORY GRID ANALYSIS :

#### PROCEDURE & DEFINITIONS

Categorisation is hierarchical and the constructs are divided into super-ordinate and subordinate categories. Construct pairs are placed in the category felt to be most appropriate for the given poles. Both poles of the construct are given equal consideration, and constructs placed in the most specific category possible. If a construct (1) is more general than the subordinate categories or (2) contains aspects of two or more subordinate categories it is placed in the most suitable undifferentiated super-ordinate category.

#### Definitions:

##### 1. Child's relationship with children

###### (i) Ability to mix:

Constructs which refer to the child's ability to mix with other children, form friendships or play in groups.

Example: plays in group - solitary  
              mixes well - watches others

###### (ii) Aggression:

Constructs which describe the degree of aggression displayed by the child, his ability to stand up for himself against other children or his willingness to share toys or materials.

Example: competitive - acquiescent  
              aggressive - tolerant

## (iii) Leader - Follower:

Constructs relating to the child's strength of personality or his tendency to lead or follow others in activities.

Example: leader - tags on  
strong personality - weak personality

2. Child's personality

## (i) Confidence:

Constructs relating to the child's confidence and independence in dealings with other children.

Example: confident - shy, introverted  
independent - dependent

## (ii) Loquacity:

Constructs describing whether the child is generally talkative and outgoing, or silent and withdrawn.

Example: chatty - quiet  
extravert - withdrawn

## (iii) Boisterousness:

Constructs describing whether the child is normally noisy and rowdy or quiet.

Example: noisy - quiet  
boisterous - shy

## (iv) Disposition:

Constructs relating to the child's mood or general demeanour.

Example: happy - sullen  
concerned - insensitive  
thoughtful - slap-dash



## (v) Emotional adjustment:

Constructs relating to the child's degree of security and emotional stability.

Example: stable - insecure  
bounces back - easily upset  
needs care - extraverted

3. Child's relationship with staff

## (i) Independence:

Constructs which refer to the independence of the child from the staff.

Example: clinging - independent of staff

## (ii) Conversation:

Constructs which describe the child's willingness to converse with the staff of the nursery.

Example: talks to teacher - quiet  
sociable with adults - has difficulty talking to staff

4. Staff attitude

## (i) Eagerness:

Constructs describing the child's willingness to enter into activities with the nursery staff.

Example: eager - has to be called to activity  
eager to please - naughty  
approaches adult - waits for attention

## (ii) Co-operativeness:

Constructs referring to behaviour problems and the degree of co-operation or compliance shown by the child.

Example: good - naughty  
co-operative - unco-operative

## 5. Play

### (i) Play ability:

Constructs describing whether the child plays in the nursery or spends his time wandering aimlessly.

Example: plays - wanders about

### (ii) Play preference:

Constructs describing in practical detail the kind of play or activity the child prefers (excludes constructs referring to whether the child prefers to play in a group or not).

Example: physical play - table activities

### (iii) Play value:

Constructs describing the child's predilection for play as opposed to 'work'.

Example: plays all the time - likes to learn

### (iv) Play type:

Constructs which describe the child's play in theoretical terms.

Example: parallel play - co-operative play

## 6. Concentration

Constructs relating to the child's ability to sustain attention or interest in an activity.

Example: concentrates - flits

## 7. Ability

### (1) Intelligence:

Constructs referring to the child's overall level of ability or intelligence.

Example: bright - dull

## (ii) Awareness and Comprehension:

Constructs relating to the child's awareness of the nursery environment, his powers of observation and his ability to comprehend.

Example: observant - in a world of his own  
understands questions - does not  
comprehend

8. Language

## (i) Speech:

Constructs which refer to the child's speech production.

## (ii) Use:

Constructs which describe aspects of the child's language development other than speech.

9. Creativity

Constructs relating to the general degree of creativity or imagination shown by the child without reference to his play preferences.

Example: artistic - unimaginative

10. Self-Help

Constructs describing the child's ability to assist himself in maintenance activities, e.g. toileting.

11. Physical development

Constructs relating to the child's overall physical development and stature, or more specifically to his manipulative abilities or co-ordination.

Example: good manipulation - poor manipulative  
ability.

12. Age

## (i) Chronological age:

Constructs which refer to the child's age in chronological terms.

Example: old - young

## (ii) Maturity:

Constructs referring to the child's overall level of development with respect to his age.

Example: mature - immature

## (iii) Rate of development:

Constructs relating to the degree of progress or rate of development made by the child in the nursery.

Example: progressing - regressing

13. Sex

Constructs referring to whether the child is a boy or a girl.

14. Home Background

## (i) Stability and Security:

Constructs describing the relative security of the home environment.

Example: stable home - unstable home

## (ii) Physical care:

Constructs describing the degree of physical care afforded to the child in the home.

Example: clean - dirty

## (iii) Care and interest:

Constructs describing the degree of interest in the child shown by the parents and their general relationship with the child.

Example: caring - at risk

Mother possessive - mother not interested

**(iv) Expectations:**

Constructs which relate to the parents' interest in the nursery or in education generally and their expectations of the child.

Example: stimulating - unstimulating  
high expectations - low expectations

**(v) Status:**

Aspects of the financial or social position of the family or the employment of the mother.

Example: middle class - working class  
mother works - mother at home

**(vi) Family:**

Constructs which refer to the presence or absence of siblings in the family.

**(vii) Parting and Separation:**

Constructs which relate to the child's behaviour on entering the nursery each day or to his need to retain a link with the home during the session.

Example: cries when mother leaves - breezes in  
brings toys from home - independent

**15. Settling in**

Constructs which describe the child's behaviour when starting at the nursery.

**16. Miscellaneous**

Other constructs not defined above.

## APPENDIX C

### ITEMS USED IN PILOT STUDY

#### OF ASSESSMENT GUIDE,

#### SECTION II.

#### COGNITION

##### C1. Space and Time

##### 1. Differentiates "night" and "day".

(a) Scored if child answers correctly when asked "is it night time or daytime now?"

and (b) identifies night and day appropriately in pictures.

##### 2. Matches patterned arrangements.

Four objects (car, brick, doll, pencil) are arranged in the shape of (a) a line, (b) a square, (c) a diamond. The objects are screened from view. One of the objects is removed from its position, and given to the child who is asked to replace it in its correct place.

Scored if he does so correctly in all three trials.

##### 3. Appreciates past and present and future.

Scored if it is evident from the child's speech and behaviour that he understands concepts of past, present, future.

##### 4. Knows some of the names of the days of the week.

To score the child must be able to name four of the seven days, in any order, when asked to do so.

5. Differentiate between morning and afternoon.

Credit this item if the child is always able to answer correctly when asked whether it is morning or afternoon. The question should be asked on several occasions in different parts of the school day.

6. Differentiates between left and right.

This item is scored if the child responds correctly to all of the following commands or questions:

- (a) show me your right hand
- (b) which is your left ear?
- (c) point to your right foot
- (d) close your right eye
- (e) raise your left arm

7. Names the days of the week and recognises some.

To score the child must be able to name the seven days, although not necessarily in the correct order. He should also be able to associate at least one day with a particular event, e.g. Monday; return to school etc.

8. Knows today, tomorrow and yesterday.

Credit this item if the child is able to name correctly today and state either the name of yesterday or tomorrow.

C2. Properties of Objects

1. Can distinguish sexes.

This item is credited if the child can indicate sex appropriately on being shown pictures of man, woman, boy and girl. The child scores on this item if he is able to name the four pictures correctly, regardless of age, or points to the appropriate picture on request.

2. Can differentiate items by size.

Use three pairs of items, the members of each pair differing from each other in size (e.g. balls, blocks, pieces of plasticine). Present the child with each pair in turn and ask the child to indicate which is the bigger.

The item is credited if he answers correctly on all three occasions.

3. Can differentiate by weight.

Use three pairs of items which are similar in size but which differ in weight, e.g.

ping-pong ball, golf ball

light block, heavy block

plastic car, metal car

For each pair, the child is given the two objects to hold, one in each hand. Say "one of these is heavy and the other is light. Which one is the heavy one?"

The item is scored if the child answers correctly on all three occasions.

4. Can differentiate by length and thickness.

To score on this item the child must be able to:

- (a) indicate which of two pencils is short and which is long.
- (b) indicate which of two blocks is short and which is long.
- (c) point out which of two pencils is thick and which is thin.
- (d) point out which of two books is thick and which is thin.

To pass the child must answer all four questions correctly.



5. Can distinguish elementary properties of materials (soft/hard etc).

(a) Assemble a set of objects which differ in terms of softness or hardness.

Allow the child to feel each item of the set in turn and ask whether the object is hard or soft.

Credit if responses are correct or one error is made in ten items.

(b) Assemble a second set of objects differing in roughness.

Allow the child to hold each object in turn and ask whether it is rough or smooth.

Pass if the child responds correctly to all items or makes one mistake in ten objects.

Overall, the item is scored if the child passes on both sections.

6. Can distinguish full and empty.

Present three bottles; one full of water, one empty and one half full. Ask the child to identify the full one and the empty one. Repeat with three boxes filled with blocks or beads.

Item is credited if the child responds correctly to all questions.

7. Understands concept of transitivity.

Use three sticks or rods of different sizes and colours such that the red stick A is longer than the blue stick B which is longer than the yellow stick C. Present the sticks A and B. Say "which stick is the bigger?"

Change position of the sticks and repeat until sure that the child knows. Repeat with sticks B and C.

Then with all the sticks out of sight say, "which is bigger, the red stick or the yellow stick?"

Item is scored if the child responds correctly.

8. Can arrange in order of size and insert in series.

(a) Assemble six objects of the same type (e.g. blocks, pencils) but which differ in size. Ask the child to put the objects in order from the smallest to the largest. Where the child does not understand the instructions it may be necessary to demonstrate with a second set of objects. If a child makes one mistake ask him if the order is correct but give no further help.

This part is scored if the child successfully produces the correct sequence.

(b) Remove one object from near the middle of the series and arrange the objects so that the gaps between them are roughly equal again. Ask the child to replace the object in the correct place in the line.

This part is scored if the child does so successfully.

To credit this item scores on both parts must be achieved.

9. Understands concept of sinking and floating.

Obtain two small objects which float (e.g. cork, plastic block) and two which sink (e.g. stone, marble), and a bowl of water. Give the items to the child to hold in turn. Hold each object over the water and ask the child "what will happen if I put this in water? Will it stay on top of the water or will it go to the bottom?"

Repeat the question if necessary.

This item is passed if the child responds correctly for all four objects.

10. Conserves continuous quantity (solids).

Use two small balls of plasticine of the same size. The child is asked if both have the same amount of plasticine and is allowed to manipulate them until agreement is reached that they are the same. The assessor rolls one ball into a sausage and asks "Which has more plasticine now, or are they both the same?"

The sausage is rolled back into a ball and the experiment is repeated with the other piece of plasticine.

The item is scored if the child responds correctly on both occasions.

C3. Sorting and Classification Skills

1. Can match by colour.

Use eight blocks of different colours for this item (2 red, 2 blue, 2 yellow and 2 green). Ask the child to pick out the block like the one you pick up; say "Show me the one that is the same colour as this one". It is not necessary for the child to know the names of the colours. Credit the item if the child matches all four correctly.

2. Can match by form and size.

(a) Use eight shapes of different forms (2 circles, 2 triangles, 2 squares, 2 oblongs). Ask the child to pick out the shape similar to the one you pick up;

say "Show me the one that is the same shape as this one".  
The item is scored if the child matches all four correctly.

(b) Use eight blocks, 2 each of four different sizes.  
Ask the child to pick out a block that is the same size as the one you have picked up.  
The item is scored if the child matches all four correctly.

Overall credit is given if both parts of the item are completed successfully.

3. Can classify by colour.

Use the eight blocks used in C1. Ask the child to give you all the red ones; replace them. Then ask for all the yellow ones.

If the child picks out the right blocks on both occasions, credit this item.

4. Can classify by shape and size.

(a) Use the eight shapes used in C3.2(a). Ask the child to give you all the round ones; replace. Then ask for all the square ones.

Item is scored if both responses are correct.

(b) Use the eight blocks as in C3.2(b). Ask the child for all the very big blocks; replace. Ask for all the very small blocks.

Item is scored if both responses are correct.

Overall item is credited if both parts scored.

5. Can match complex geometric forms.

Draw figures shown in Appendix B on sheet of card.

Cut out shapes from second, similar card. Ask child to point out the shape identical to the one shown.

Item is scored if child makes one or no errors out of eight.

6. Can perform two-way classification.

Use eight shapes as before: ask for round red ones.

Use eight blocks as before: ask for large blue one.

Item is credited if child responds correctly in both parts.

7. Has acquired generic concepts.

In looking through picture books ask the child to identify "food" and "people" in the pictures.

Item is scored if child always responds correctly for both generic concepts.

8. Can perform three-way classification.

To the eight shapes used in C3.2(a) and C3.4(a) add four similar shapes which are larger (see Appendix B). Ask for the small square yellow one; replace. Ask for the large blue triangle.

Item is credited if child responds correctly to both requests.

9. Matches colours, differentiating between shades.

Use coloured squares of one colour but of various shades matched in pairs. Ask the child to point to a square that is just the same as the one you have picked up. If the child fails on the first attempt, indicate the right answer. Proceed to give four further trials.

To score the child must answer correctly on each occasion following the demonstration.

10. Can perform simple set discrimination.

(a) From the shapes used in 3.8 select 1 small circle, 1 small triangle, 2 small squares, 1 small oblong and 1 large circle. Place on a piece of paper in front of the child and say "Which one of these does not go with the other ones?"

Score if the child indicates the large circle.

(b) Place five small shapes on the paper. Present the child with the four large shapes and 1 small shape. Say "Which one of these shapes goes with the shapes on the paper?"

Score if child indicates small shape.

Item is credited if child responds correctly on both parts.

C4. Memory

1. Can repeat two digits, simple words and word groups.

Say "Let's see how well you can say things after me.

Listen. Say 1. (pause) Now say 4. (pause) Say 'car', say 'dog'".

These single digits and words are used as an introduction and are not scored.

(a) Now say 5-8, say 2-7.

(b) Now say 'ball', say 'cow'.

Item is credited if child responds correctly each time.

2. Can repeat three digits and identify objects from memory.

(a) Now say 1-4-6, say 5-8-3.

(b) Present the child with three objects (e.g. toy car, block, toy animal). Place objects behind paper for a few seconds and cover one with a box. Say "Which one have I covered up?" Child has to name the object.

Item is credited if child responds correctly each time.

3. Can repeat four digits and remember simple sound sequences.

(a) Now say 3-8-1-4, say 6-1-8-5.

(b) Say "Listen. I am going to clap. See if you can make the same claps as I do".

(i) one clap            (ii) clap (pause) clap.

Item is credited if child responds correctly to each part.

4. Can name objects from memory and repeat temporal order.

Place three objects (e.g. farm animal, car, doll) on a piece of card. Ask the child to name objects and then push slowly behind piece of paper so that they disappear from the child's view. Say "Now they are going behind the paper and they will come out the other side; which one will you see first?" Point to other side of paper. When child responds say "Good, and which one will you see next?" Repeat for last object.

Repeat whole procedure with three more objects.

Item is credited if child responds correctly by naming all six objects in their correct order.

5. Can repeat five digits and remember complex sequences.

(a) Say: 4-1-9-6-2, Say: 5-9-3-6-4

(b) Clap: clap (pause) clap-clap

Clap: clap-clap (pause) clap.

Item is credited if child responds correctly each time.

C5. Number.

1. Can differentiate between one and many.

(a) Use twelve blocks and divide into two groups: one with one block and one with eleven blocks. Say "Which group has one block: which group has many blocks?"

(b) Place blocks in pile. Say "Give me one block", "Now give me a lot of blocks" (Here 'many' or 'a lot' = 4 or more).

Child is credited with item if he responds correctly to each part.

2. Can count to two.

Say: "Now give me two of the blocks".

Item is credited if child hands assessor two blocks.

3. Can differentiate between a few and many.

Use twenty blocks: divide into three groups, one with two blocks in, one with six blocks and one with twelve blocks. Say: "Which pile has few blocks in it and which pile has many blocks in it?"

Item is scored if child responds correctly to both questions.

4. Can count to five.

Give the child five blocks and say "How many blocks do you have?"

Score a correct response.



5. Can count ten objects and count by rote to twenty.
  - (a) Give the child 20 blocks and ask him to count out ten of them. If there is any suspicion that he may have arrived at the right answer by chance the task should be repeated.
  - (b) The child is then asked "Let us see how high you can count" Say with the child "one-two-three-four....." and then allow the child to continue alone. Credit the item if the child successfully performs the first part and counts to twenty without errors or omissions for the second.
6. Can perform addition and subtraction with small numbers.
 

Using the blocks ask the child to do four additions and four subtractions using numbers from 1 to 4. If necessary the questions may be phrased in concrete fashion e.g. "You have got four blocks, if you take one away, how many do you have left?"

Credit the child if he performs 3 additions and 3 subtractions.
7. Can count twelve objects and count by rote to thirty.
 

Procedure as in C5 (5).
8. Understands concept of "a half".
  - (a) Say "If I cut an apple in half, how many pieces will I have?"
  - (b) Give the child four blocks. Say: "Now you have got four blocks; can you give me half of them?"

Item is credited if child responds correctly to both parts.

9. Conserves number.

Use 16 small blocks. Place them in two equal lines. Get the child to count the blocks in each pile and agree that the piles contain equal numbers of blocks. Re-arrange one line so that it is twice as long as the other. Ask the child if there are now more or less blocks in the extended line than in the other line, or if the number is still the same. Credit is given for a correct response.

10. Can perform simple arithmetic tasks.

Using the small blocks if necessary, ascertain, as in 6, whether the child can perform simple addition and subtraction with numbers up to ten, and simple multiplication with numbers up to four. Credit the point if the child can perform three of each type of task within the ranges given.

C6. Puzzles.

1. Can complete elementary puzzles.

This item is credited if the child can successfully complete three or four hole form boards.

2. Can perform simple patience tests and block designs.

(a) Cut a simple outline drawing of a circle in half. Place the two halves in front of the child (back to front) and ask him to put them together to make a ball.

Repeat with a picture of an animal.

(b) Use three small blocks, one yellow and two blue. Show the child the designs in appendix B and ask him to "put the blocks together to look like that". Credit this item if the child answers correctly on all parts.

3. Can complete simple jigsaws.

This item is scored if the child is usually able to complete puzzles such as inset picture trays containing approximately six items.

4. Can complete complex jigsaws.

This item is credited if the child is usually able to solve fairly complex jigsaws containing at least a dozen pieces, whether the pieces are fully interlocking or matched by shape.

5. Can execute complex block designs.

Using nine small blocks, four of one colour and five of another, child should be able to construct the designs in appendix B to score on this item. Procedure as in C6 2(b).

PHYSICAL SKILLSP1. Manipulative Skills

## 1. Builds tower of six blocks and train.

(a) Use twenty-four small blocks. Say "Watch. I am going to make a big tall tower." Build a tower of six blocks. Say: "Let's see if you can make a tower just like it right here." The assessor's model is left standing while the child attempts to build the tower.

(b) Using the same blocks say: "Now I am going to make a train." Align eight blocks and say "Let's see if you can make a train just like this." The item is credited if the child successfully completes both tasks.

## 2. Cuts with scissors.

This item is scored if the child has the ability to make a single long cut (i.e. he can open and close the scissors several times to make a continuous cut across the paper) or to make a short gash in the paper several times. The paper should be cut and not torn.

## 3. Builds tower of eight blocks and bridge.

(a) As in 1 with eight blocks..

(b) Build a bridge of three blocks as shown in appendix B, and request the child to build a similar structure. The child's attempt is scored if it stands and the baseblocks do not touch. The item is credited if the child completes both parts successfully.

4. Can string small beads and twiddle thumbs.

The item is scored if the child can thread several small beads on a string and can, after demonstration, twiddle his thumbs when the hands are folded and fingers intertwined.

5. Makes constructive use of building blocks.

This item is scored if the child often constructs things from blocks beyond the level of building towers and does so purposefully rather than just by chance.

6. Can fold paper twice and oppose thumb and fingers.

Item is scored if child can both

(a) fold a piece of paper lengthways and crossways when shown how;

(b) touch thumb with each finger of the same hand when shown.

7. Builds tower of ten blocks and two steps.

(a) As in 1 with ten blocks.

(b) Build steps as illustrated in appendix B and request the child to build a similar structure.

Item is credited if both parts are successfully completed.

8. Can cut out pictures accurately.

This point is credited if the child can cut out a simple shape or picture with reasonable accuracy and few errors.

9. Builds three steps and house of blocks.

Build both the steps and the house as illustrated in Appendix B. Request the child to build both in turn.

Credit this item if the child does so successfully.

10. Can fold paper into a triangle.

This item is scored if the child can fold a piece of paper diagonally after demonstration.

P2. Drawing.

1. Imitates horizontal line and circle.

Item is scored if the child produces a horizontal line and circle after being shown. The line does not have to be perfectly straight, or the circle perfectly round to gain credit.

2. Paints strokes, dots and circular shapes.

The item is credited if the child is able to manipulate a paint brush to produce the stated patterns.

3. Copies circle, vertical and horizontal lines.

Show child circle, vertical and horizontal lines as in Appendix B, and ask the child to draw each in turn.

Three attempts on each figure should be made. Results should be scored fairly leniently. The circle must be reasonably round and closed. The lines should be approximately straight and in the right direction.

4. Draws "man".

Credit is given if the child draws a person with a head and the indication of features and one other part e.g. legs. The child should also be able to name his drawing.

5. Copies cross, square and T.

Show the child the three figures illustrated in Appendix B and ask him to draw ones just like them. Three attempts on each figure are allowed. To credit this item the child must have made at least one reasonable attempt on each figure. Lines must be fairly straight and the corners unrounded.

6. Draws "recognisable" men and houses.

The point is credited if the child shows fair control of the pencil in drawing (i) a man with head, trunk, arms and facial features, and (ii) a house showing walls and roof and some indication of windows and a door.

7. Copies triangle and rectangle.

Procedure and scoring as in 5.

8. Draws complex house and many other pictures.

Successful performance on this item if the child often produces recognisable pictures of familiar objects such as people, houses, trees, animals, vehicles etc. House should be approximately rectangular with sloping roofs, windows, door, chimney etc. People should have some indication of clothing.

9. Copies star and diamond.

Procedure and scoring as in 5.

10. Prints a few letters and can write name.

To obtain credit on this item the child must be able to copy at least ten letters correctly and print own Christian name without a model.

P3. Co-ordination.

1. Jumps with both feet.

This item is credited if the child can jump up and down in the same place keeping feet together and landing on his toes.

2. Climbs easy nursery apparatus and uses play vehicles.

To score on this item the child must be able to climb on to and into nursery apparatus such as large boxes, slides etc. and be able to ride a tricycle or pedal car using the pedals.

3. Can stand and walk on tiptoe.

Demonstrate to the child what is required.

To gain credit on this item the child must be able to stand for several seconds and take at least five steps.

4. Can stand on one leg briefly.

Credit is given if the child can stand on one foot momentarily after demonstration of what is required.

5. Can walk on narrow beam.

This test may be assessed by getting the child to walk along a narrow beam (as on an up-turned school bench) or along a piece of tape on the floor.

Credit is given if the child walks along the beam for at least six feet without stepping off.



6. Uses nursery equipment expertly.

Credit is given if the child uses all pieces of apparatus in the nursery freely, safely and correctly. For this item the child should be able to use swings and see-saws without adult assistance.

7. Can stand on one leg for several seconds.

To score on this item the child must be able to stand on one leg for at least ten seconds after demonstration from the assessor.

8. Can hop on one leg and skip.

To gain credit the child must be able to hop on preferred leg at least five times and skip rhythmically using alternate feet after demonstration.

9. Plays ball games and throws and catches accurately.

To score child should join in simple ball games, and be able to throw and catch small balls accurately with a person at a distance of five feet.

10. Can stand on other leg.

To gain credit on this item the child must be able to stand for at least ten seconds on the non-preferred leg.

S1. Self-help.

1. Removes and puts on simple articles of clothing.

This item is satisfied if the child is able to put on clothing such as a dress, or coat without help or need of adjusting except for fastenings. When taking off clothing child should be able to undo large, easily reached buttons.

2. Buttons coat or dress.

Credit is given if the child can do up easy buttons or fasteners with little or no assistance.

3. Cares for self at toilet and washes hands satisfactorily.

To gain credit on this item the child must be free of day-time accidents and attend to the physical aspect as well as the flushing of the toilet etc. The child should wash and rinse his hands so that most dirt is removed.

4. Uses knife and fork correctly.

This item is satisfied if the child holds cutlery firmly and correctly and uses in the correct manner.

5. Ties shoelaces.

Credit is given if the child can lace shoes so that they need no attention from an adult.

S2. Play-Patterns.

1. Plays in parallel with others.

Scored if the child tends to carry on own games, paying little attention to others and not interfering with them when using the same materials.

2. Understands taking turns.

Scored if the child is sometimes able to take turns with other children when told to do so by an adult.

3. Understands concept of sharing; plays associatively.

To score the child should be able to share items occasionally with other children and be able to play side-by-side with them lending and borrowing objects but not co-operating fully.

4. Engages in make-believe play.

To gain credit the child must frequently engage in make-believe play that contains more than mere imitation of a single action. Examples are: going shopping, driving a bus, acting doctor etc.

5. Performs for others.

This item is scored if the child will perform in some way for others (reciting, singing, dramatising, dancing etc.) either spontaneously or upon adult prompting. The performance should be more than just "showing off".

6. Plays co-operatively with others.

To score the child should regularly participate with other children in play, such that common goals are shared (e.g. children co-operate to build a tower, or adopt complimentary roles such as mother and father). The point is scored whether the child initiates the play or follows the lead of another child.

7. Shows sympathy with playmates in distress.

Point is scored if the child occasionally shows concern for another who is injured and/or crying etc.

8. Plays competitive games.

To score the child should be able to participate in simple games such as hide & seek in which the rules are elementary but obeyed without adult supervision.

9. Plays simple table games.

To gain credit the child should be able to compete in simple table games e.g. picture lotto, with some appreciation of the rules and aims of the game and the patience to wait his turn.

10. Accepts losing.

To gain credit the child should show some competitiveness in games but accept losing without being upset. (The point is not scored if the child is indifferent to the outcome of the game).

L1. Language Use.

1. Knows full name and a few nursery rhymes.

Point is scored if the child can give his full name on request and repeat three simple rhymes accurately.

2. Able to relate experiences and knows several rhymes.

To score on this item the child should be able to talk coherently about a sequence of events e.g. the morning's activities, a shopping trip etc., and repeat the salient points of a simple story without prompting. The child should also be able to repeat six nursery rhymes accurately.

3. Gives full name, sex, age and address.

To score child must give these pieces of information accurately and comprehensibly.

4. Listens to and tells long stories.

To gain credit on this item the child must listen attentively to fairly long stories and be able to repeat the main elements of the stories in their correct sequence.

5. Able to hold coherent and lengthy conversations.

Credit is given if the child frequently holds conversations with adults and other children lasting several minutes on diverse subjects and with coherent expression of thoughts.

## L2. Speech.

1. Uses words other than nouns and verbs.

Credit is given for frequent use of adjectives and adverbs.

2. Uses pronouns, plurals and past tense.

This item is passed if the child is able to use pronouns, especially I, plurals and the past tense of some verbs; although usage in some instances may be inaccurate (e.g. says mouses instead of mice).

3. Uses complex sentence structures.

To gain credit on this item the child should frequently use sentences containing prepositions (of, in, on, beside etc.), conjunctions (and, but, because etc.) and questions.

4. Uses passive structures.

To score child must be able to use correctly passive sentence structures, e.g. it's been broken.

5. Frequently uses complex sentences with correct order of words.

To gain credit here the child must frequently use complex, grammatically correct sentences and rarely make elementary errors in speech.

### L3. Vocabulary.

1. Can name simple objects and identify parts of the body.  
To score the child should be able to name simple objects (e.g. car, chair, doll, bed etc.) from pictures and be able to point to parts of his body (nose, eyes, mouth, hair, feet, hands) when asked.
2. Can identify colours and name parts of the body.  
To gain credit on this item the child should be able to name colours (red, yellow, green, blue, black, white) from pictures and name parts of the body when pointed to.
3. Can name simple shapes and identify more complex objects.  
To score child is able to name circle ("round" is accepted) square and triangle when shown shapes, and identify more complex objects (e.g. key, knife, jumper, dress, arm etc.) from pictures.
4. Recognises own name when written.  
To score child should be able to identify his own full name from amongst several others.
5. Matches word configurations and recognises some letters.  
To obtain credit on this item child should be able to match simple words e.g. cat, dog etc. and name some letters when shown.

### L4. Comprehension.

1. Obeys simple commands.  
Point is scored if the child understands and acts upon simple verbal instructions containing prepositions,  
e.g.       Put the book on the table  
             Put the pencil in the box

2. Answers simple questions.

Credit is given if the child is able to respond correctly to simple questions, e.g.

What do we wear on our feet?

What do we drink from?

3. Can define simple words by use.

Credit this item if the child is able to define verbally simple words, e.g. chair, window, ball, cup, hat etc., either in terms of their use or the material used in their construction.

4. Comprehends stories and answers complex questions.

To score child should be able to select pertinent pictures and answer questions while listening to a story, and be able to answer more complex questions about objects e.g. What are houses made of?

Why do we have books? etc.

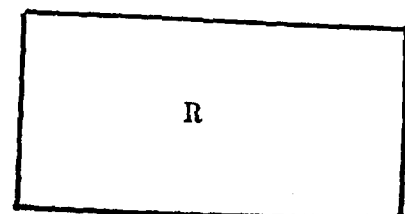
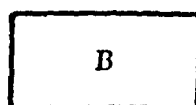
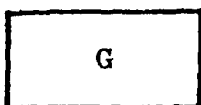
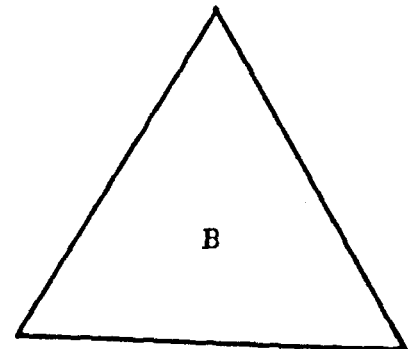
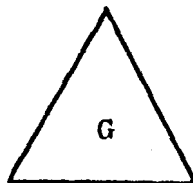
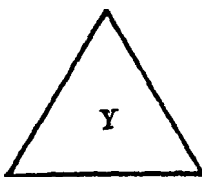
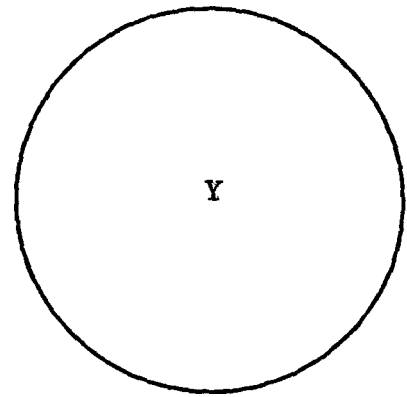
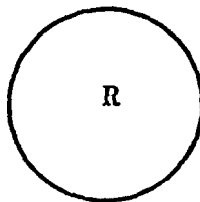
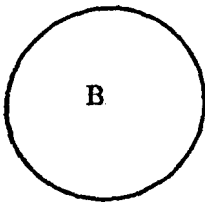
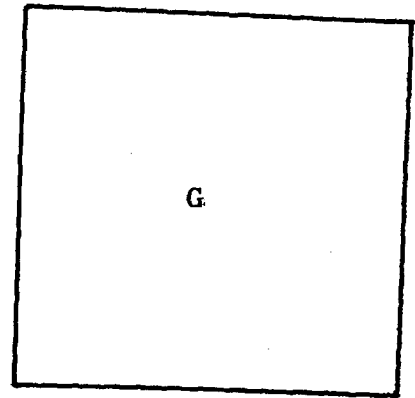
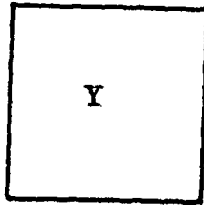
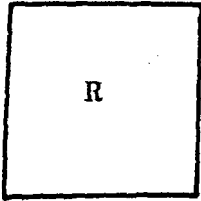
5. Can define differences between pairs of words.

To score child should be able to explain in what ways certain pairs of items are alike and unlike, e.g. apple and orange, bird and dog, ship and car.

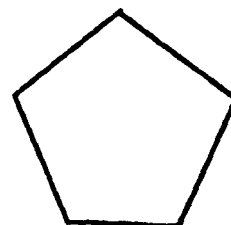
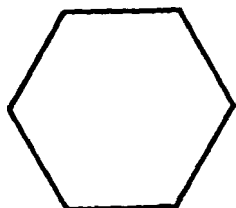
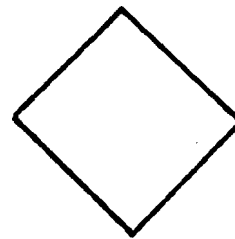
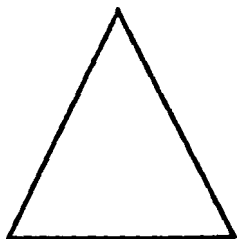
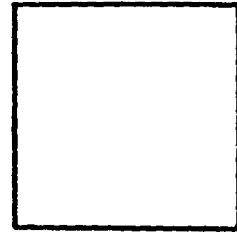
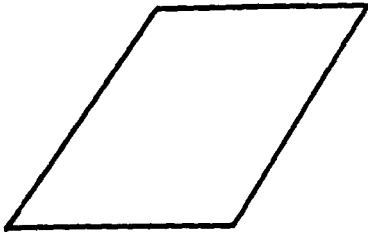
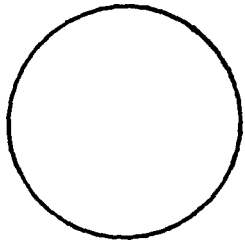
## C3. SHAPES

R = red. B = blue. Y = Yellow

G = green

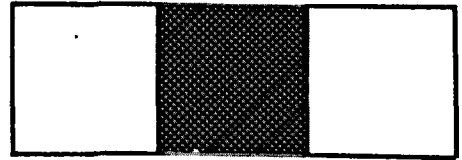
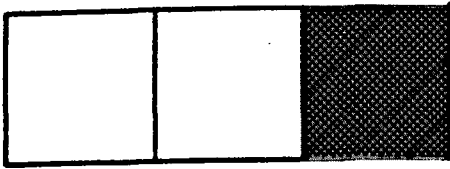




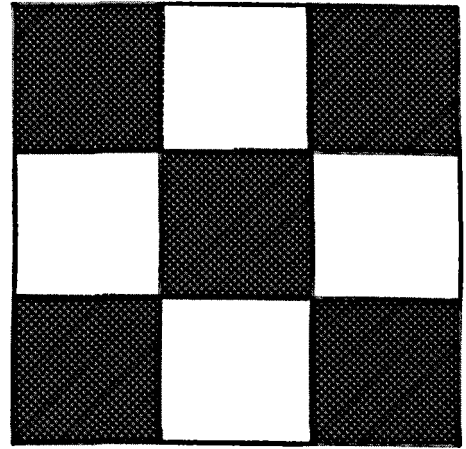
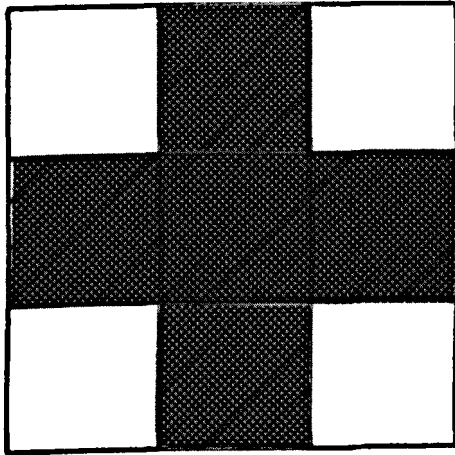


## C6. BLOCK DESIGNS

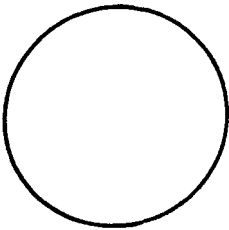
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5)



## P2 DESIGNS



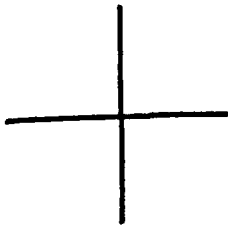
circle



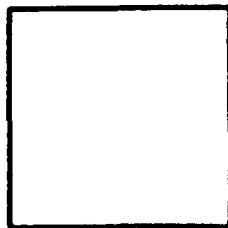
horizontal line



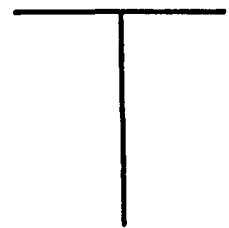
vertical line



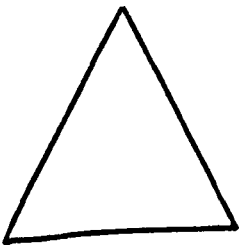
cross



square



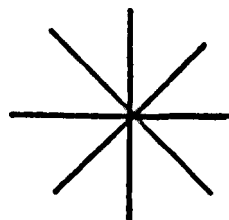
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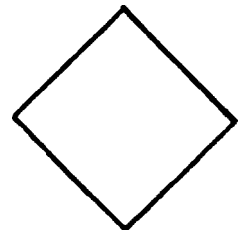
triangle



rectangle

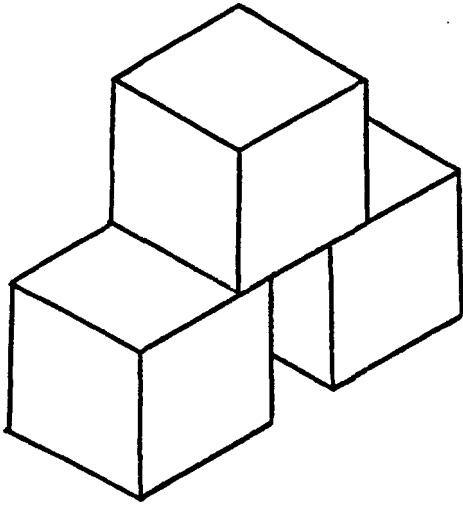


star

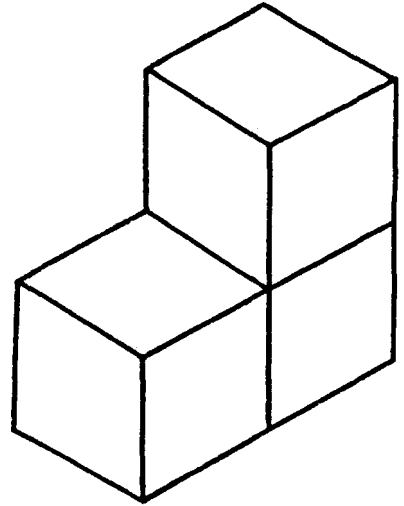


diamond

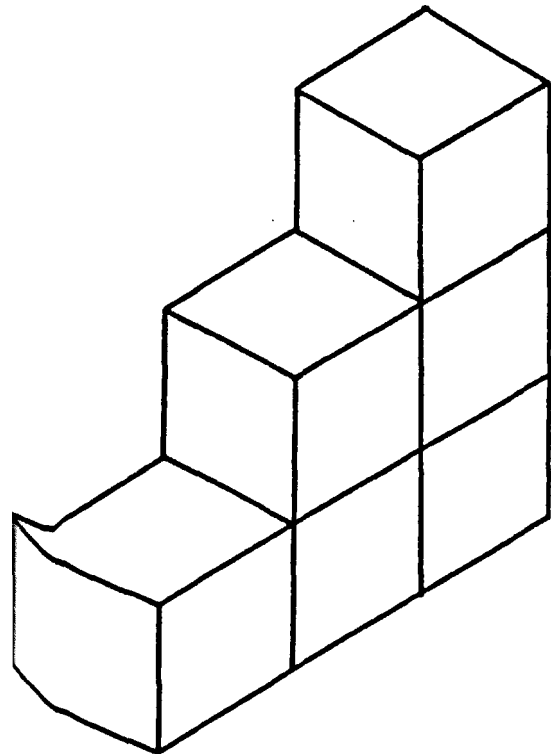
## P1. BLOCK BUILDING



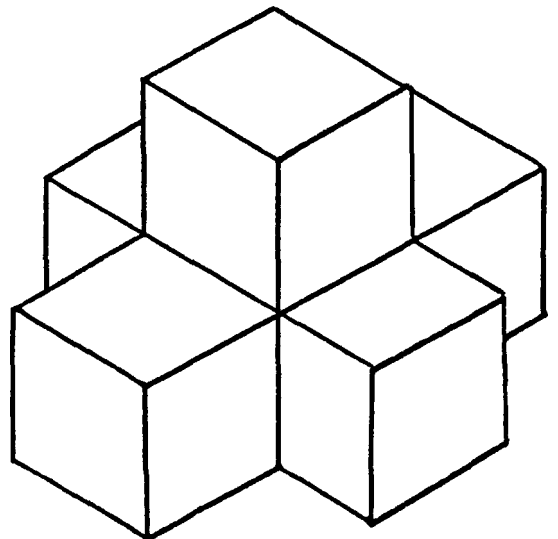
bridge



2 steps



3 steps



house

## APPENDIX D

### FINAL FORM OF ASSESSMENT GUIDE

#### (MANUAL AND RECORD FORM)

### INTRODUCTION

Traditionally, nurseries<sup>1</sup> in Britain have emphasised a relatively informal, child-centered approach within which the child is encouraged to play, explore and learn at his own pace. Various forms of record may be kept by nursery staff, but until recently the use of systematic, detailed records of individual children's development and progress has not been a common feature of nursery practice. The reasons for this are various. In some cases staff do not perceive the need for detailed records or have strong reservations about their suitability for use with nursery aged children. In other instances staff fear that the process of collecting information about the child will necessarily interfere with the spontaneity and enjoyment of play in the nursery. Alternatively, some nursery staff are concerned that records may be misunderstood or misused by other people who may have access to them after their collection. All these criticisms of individual records of children's progress may be valid under certain circumstances, particularly where assessment is applied inflexibly and the results interpreted in a rigid fashion. However, where the procedure of assessment is integrated into the normal nursery routine and the records

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<sup>1</sup>For the sake of brevity, 'nursery' is employed as a generic term to indicate the full range of pre-school provision - nursery school, nursery class, day nursery and play-group.

used as a flexible guide, several benefits may be derived. These benefits relate to the purposes for which the records are being kept.

1. Ascertainment of the needs of individual children.

Most nursery staff will encounter children who appear to be experiencing severe difficulties in one or several areas of their development. Assessment may help not only to confirm the adult's original opinion of the child, but also to identify the particular areas in which the child needs most help. A good system of assessment may also provide clues as to how that assistance might be furnished. Similarly, children with exceptional abilities in some areas may require help in others and assessment may serve to distinguish the latter.

However, assessment should also be of benefit to the 'average' child. Children who are unobtrusive and undemanding may nevertheless require the help of the caring adult to progress in certain spheres of development. A systematic means of appraisal ensures that every child is regularly monitored and his needs given consideration.

2. Identification of progress and the next step in the learning process.

Most nurseries will have aims and objectives for their children whether these are explicit or implicit, general or specific. Once objectives for the individual have been set, assessment should provide a solid basis for judging the child's progress towards achieving them. It should also assist in the planning of further goals and the means by which these are to be approached.

### 3. Transmission of information to other caring adults.

Record-keeping may facilitate the provision of continuity in the child's course at the nursery and in the transition from the nursery to the infant school. Where channels of communication between the child's last caretaker and his new one are good the information imparted can often be invaluable. An objective record of the child's progress, the meaning of which is shared by the adults concerned, may enable the new caretaker to work more effectively with the child in the period immediately following the transfer.

### 4. Provision of evidence of progress for parents.

In comparison with later schooling the results of a good pre-school programme may not be obvious. The acquisition of elementary concepts and skills, although vital, is not always apparent since their possession may be displayed in very subtle ways. As a consequence some parents may not understand or appreciate some of the possible benefits available to the pre-school child or the means by which these are obtained. A tangible record of the child's progress which can be shown to the parents may serve to make them aware of the nursery's aims and objectives and consequently heighten the rapport between nursery and home.

### 5. Evaluation of current practice.

A system of assessment may help staff to become more conscious of their own role in the nursery and provide a means by which the impact of innovations in materials or teaching styles can be reviewed. In this way staff may be helped to identify those areas in which their own efforts have been

particularly successful and those in which a change in approach might be advantageous.

These are some of the purposes for which records may be kept and the rewards that may be derived from them. It is unlikely that a single system of assessing the individual child will be entirely appropriate for every nursery and its group of children at the finest level of detail. However, it may be possible to develop a flexible system which can act as a framework within which nursery staff can adopt their own schemes to fit their particular objectives and practice. The Keele Pre-school Assessment Guide (KPAG) represents one attempt to develop such a framework. As a guide we hope that it will prove of value to the user.

#### AIMS

The KPAG has been designed for use in nursery schools and classes. However, it may also assist staff in a variety of other types of establishment dealing with the education and welfare of the pre-school child. The KPAG IS NOT A TEST OF INTELLIGENCE OR OF GENERAL APTITUDE.

The KPAG does not furnish a score or set of scores by which the child may be compared with others of the same chronological age, nor does it require a fixed format of presentation. Rather, it represents a series of items which may furnish an outline of the child's development at the time of completion and suggest areas in which the child is more or less proficient. The principal aim of the KPAG is to provide nursery staff with a flexible system capable of adaptation as

the need arises. To fulfil this objective the KPAG may be employed in several ways.

Firstly, it may be used to plot the progress of individual children throughout their stay at a pre-school establishment. Used in this way the assessment may be applied to all the children in the nursery or to a select few, and appraisal may be periodic or continuous.

Secondly, the KPAG may be used as a final record of the child's pre-school developmental level which, with other items of information concerning the child, may be passed on when he moves to another establishment or class.

Thirdly, the KPAG may provide an outline of and suggestions for activities in a pre-school setting. The suggested items may imply that certain forms of activity should be encouraged. Such implications appear to be inevitable in this form of guide. However, users are not encouraged to teach to the items and where these are at variance with the practice in a particular nursery they should be substituted. Nevertheless, the listing of items may stimulate ideas about the pattern of nursery activities and furnish the user with a means of describing them.

#### ITEMS

The KPAG is divided into two parts. In Section I the assessor is required to evaluate some aspects of the child's behaviour by marking the appropriate point on a line and adding a written description.



In the second section, cognitive, social, physical and linguistic skills have been itemised and arranged in ascending order of difficulty. The level of skill attained by the child in each area may be portrayed by plotting his performance on the circular chart at the end of the record form. Each segment of the chart represents a different area of skill and each concentric ring a particular level of difficulty. An item placed near the centre of the circle is therefore easier than one on the periphery. Items on the same concentric ring are of approximately equivalent difficulty. Shading those items of which the child is capable provides at a glance a global picture of the child's development.

The items and format of Section II have been derived from a variety of sources. Some have been adapted from existing psychological tests, assessment charts and developmental guides for the young child. Others stem from our own research and that of others in child psychology and early education e.g. Piaget, Kamii, Cazden. (References to some other sources of assistance for nursery staff are given on page 372 and the reader is encouraged to consult these as well).

All the items have been included in the guide after discussion with nursery staff and a pilot study of over one hundred children in pre-school settings. It is, therefore, hoped that most of the items will be consistent with the majority of pre-school curricula. However, it is likely that the user may have reservations about some sections or items and may wish to substitute others which are of greater relevance to the practice in a particular nursery. Since the

aim of the KPAG is to provide a flexible framework of suggestions, members of the nursery staff may freely adapt the items and chart to fit their own practice more closely. Indeed, assessors are encouraged to use the guide flexibly in this manner with the single caution that, if possible, substituted items should be of approximately equivalent levels of difficulty to the originals in order to maintain the overall structure of the assessment.

#### PROCEDURE

Assessment of a child's developmental level using the KPAG need not be completed on a single day. The assessment is designed to be performed during several school days within a period of approximately one to two weeks. The lengths of the intervals between assessments on the KPAG are left to the discretion of the assessor and depend in part upon the purpose for which the KPAG is being used. Where the chart is being used to register the progress of individual children throughout their time at a pre-school establishment, initial assessment should be made approximately one month after the child's arrival at the nursery, thereby allowing a brief period of acclimatisation. The exact duration of this period will depend upon the individual child and the method of introduction to the nursery. After initial assessment it is suggested that the KPAG should be completed at intervals of approximately 4-6 months (or 1-2 terms) as felt to be desirable and convenient. Alternatively, between the first and last assessments, the KPAG may be used in a continuous fashion, individual items being

appraised and entered upon the record form when appropriate to both the nursery curriculum and to the particular child. This second approach is probably more advantageous and should be the one adopted where circumstances permit. The first page of the record form allows the assessor to note the dates when major entries have been made.

Certain parts of the KPAG require precise knowledge of a particular aspect of the child's development whereas other items are comparatively general and may be answered more readily. If the assessor is in any way unsure of the child's ability on a particular item, careful observation for a few moments over several days or a simple structured play session may provide the necessary information. In addition, discussion with other members of staff in the nursery may prove worthwhile, since children sometimes behave differently in the presence of different members of staff.

Handedness: In order to ascertain whether the child is normally right handed, left handed or ambidexterous, observe the child in play with materials. If it is not obvious which hand is preferred, try simple experiments such as placing a block directly in front of the child and asking him to pick it up, or requesting him to try using each hand in turn when cutting with scissors.

Section I: Information for this section is gained primarily through observation of the child in the nursery setting, together with discussion between all members of staff concerned with the child. First, the child is rated on six scaled items. One of the crosses on each horizontal line

should be ringed as appropriate to the child's behaviour at the time of assessment. The meaning of the extreme points is given by the wording underneath each line, from which the value of the other points may be inferred. Space is provided under each line for a brief description of the child's behaviour in the given area, enabling the assessor to qualify his evaluation. After initial assessment the child's position on any of the scales may be reassessed and indicated by ringing a cross and adding a comment in an ink of a different colour. Other features displayed by the child may be similarly described and rated in the section on 'other characteristics'.

Section II: The suggested criteria for scoring items in this section are given below. It should be stressed that the assessor is not obliged to adopt these suggestions in their entirety. What is important is that the user should employ some form of explicit criterion when assessing a child's performance in a particular area. Consequently, blank pages are provided at the end of the manual for the user to add alternative items, notes and comments. Once criteria have been established, however, they should be adhered to reasonably closely in order to ensure the validity and consistency of reports, although minor variations in equipment and instruction are permissible.

The information required for most of the items in this section may be obtained from normal play settings within the nursery, although obviously some planning of the particular materials available may be required. Where the assessor is

unsure of the child's ability, even after periods of observation, the criteria given below indicate ways in which the information may be obtained from participation in play. It should be emphasised, however, that the KPAG is not a test. Ascertainment of the child's performance in any section should avoid the constrained atmosphere of the standard test yet refrain from providing the child with too many clues to the correct response. The assessor should also avoid the temptation to credit the child with the possession of a certain skill or concept simply by assuming he can do it because of the level reached in other aspects of his development. Many of the skills listed require mastery of preceding skills in the same area and in some cases earlier items may be credited automatically. However, this may not always be the case and care should be taken in the assessment at all levels. Items do not have to be assessed in the sequence given, e.g. it is suggested that all items using small blocks should be assessed at one time. Moreover, many items may be presented to groups of children and several different children assessed simultaneously (e.g. items in physical skills). Those items which the child has successfully completed should be ticked off on the list and then shaded in on the chart. Successive assessments should be completed in different colours in order that the child's rate of progression should be apparent.

On first impression, it may appear that the KPAG presents both the assessor and the child assessed with a task that is long and arduous. This need not be the case for two reasons. Firstly, it should be noted that if the child is

initially assessed on entry to the nursery, it is unlikely that he will be able to complete many of the items listed and assessment will quickly be terminated. Thereafter, upon reassessment, provided the interval is not too great, only a few items will need to be assessed before the child's level is ascertained. Only where the child is comparatively old upon first assessment (e.g. 4½) need the procedure be particularly time-consuming. Secondly, upon repeated use the assessor will become increasingly familiar with the items, thereby facilitating assessment and enabling the procedure to be readily integrated into the nursery day. Experience with the procedure should also enable the assessor to determine more accurately the point at which the limit to the child's abilities on any particular section has been reached.

#### INTERPRETATION OF THE RECORD

Just as the procedure requires a degree of flexibility on the part of the assessor, so too does the interpretation of the completed chart. Not all of the items in Section II are necessarily of vital educational importance in themselves. However, each may shed some light on the underlying developmental processes. The knowledge that a child 'fails' or 'succeeds' on a particular item may be of importance to nursery staff. However, of equal value will be the awareness of the nature of the child's response and the observation of how the child arrived at his answer. From these the adult can plan for the future progress of the child.

Although items are presented in discrete sections, performance in a single area may provide useful insight into others. For example, if a child fails on some of the self-help skills it may be because his manipulative ability is poor. Similarly, difficulties on some of the cognitive sections may be attributable to specific problems in the areas of memory or language comprehension, and inspection of the child's performance on the latter groups of items may reveal this.

Failure or unwillingness to respond to the provision of certain materials or questions should be noted and allowed for in any final review of the child's performance. This review should take into account all aspects of the child's development and should furnish a basis for deciding the child's future requirements. Throughout, the need for flexibility of approach is paramount.

#### ADDITIONAL MEANS OF RECORDING PROGRESS

Under certain circumstances nursery staff may find the framework presented in these pages inadequate for a number of reasons. In some instances the list of items in a section may ignore parallel aspects of development in that area or intermediate stages in the sequence of items may have been omitted. In addition, for some children the items in Section II of the KPAG may commence at too high a level, while for others the list may stop short of the highest range of their abilities. The exclusion of additional items has been necessitated by the requirement of a format that is

reasonably compact and manageable, and a chart that is clear and easily read. Aspects of the development of social knowledge and aesthetic awareness have also been excluded because these would seem to depend greatly upon the individual nursery and the community within which it is situated. Users of the KPAG should be aware of these omissions and limitations and make allowances for them. Record sheets devised by nursery staff containing supplementary information, whether in diary or checklist form, might be kept where it was felt to be desirable. Alternatively, nursery staff may care to adopt a more detailed system from those that are available. The crucial point is that whatever system is eventually implemented it should match as closely as possible the requirements of the individual nursery.

#### SUGGESTED CRITERIA FOR ITEMS IN SECTION II

##### COGNITION

#### C1. Space and Time.

##### 1. Differentiates night and day.

(a) Scored if child answers correctly when asked: "Is it night-time or day-time?" in the course of discussion,

or

(b) Identifies night and day appropriately in pictures where the time of day is evident (e.g. sun or moon present in picture).

##### 2. Matches patterned arrangements.

Four objects (car, brick, doll, pencil) are arranged in the shape of (a) a line, (b) a square, (c) a diamond.



The objects are screened from view. One of the objects is removed from its position, and is given to the child who is asked to replace it in its correct place.

Scored if he does so correctly in all three trials.

3. Knows some names of the days of the week.

To score the child must be able to name three of the seven days, in any order, when asked to do so. If the child does not respond or if it appears that the child does not understand the question, say: "You know the days have names like Monday.....can you tell me the other names?"

The item is credited if the child gives three further names.

4. Differentiate between left and right.

This item is scored if the child responds correctly to all of the following commands or questions:

- (a) "Show me your right hand"
- (b) "Which is your left ear?"
- (c) "Raise your left arm"
- (d) "Point to your right foot"

5. Knows today, tomorrow and yesterday.

Credit this item if the child is able to name correctly today, and state either the name of yesterday or tomorrow. E.g., say: "You know the days have names. What day is it today?.....And what day was it yesterday?"

C2. Properties of Objects.

1. Can differentiate objects by size.

Use three pairs of objects, the members of each pair differing from each other in size (e.g. balls, blocks, pieces of plasticine). Present the child with each pair in turn and ask the child to indicate which is the bigger. The item is credited if he answers correctly on all three occasions.

2. Can differentiate by weight.

Use three pairs of items which are similar in size but which differ in weight, e.g. ping-pong ball and golf ball; light block and heavy block; plastic car and metal car. For each pair, the child is given the two objects to hold, one in each hand. Say: "One of these is heavy and the other is light. Which one is the heavy one?" The item is scored if the child answers correctly on all three occasions.

3. Can distinguish elementary properties of materials (soft/hard, etc.)

(a) Assemble a set of 10 items which differ in terms of softness or hardness, 5 soft and 5 hard. Allow the child to feel each object in turn and ask whether it is hard or soft. Credit if all responses are correct.

(b) Assemble a second set of 10 objects differing in roughness, 5 rough and 5 smooth. Allow the child to hold each object in turn and ask whether it is rough or smooth. Pass if the child responds correctly to all items. Overall, the item is scored if the child passes on both sections.

4. Understands concepts of sinking and floating.

Obtain three small objects which obviously will float (e.g. cork, plastic block, ping-pong ball) and three which obviously will sink (e.g. stone, marble, fork) and a bowl of water. Give the items to the child to hold in turn. Hold each object over the water and ask the child: "What will happen if I put this in water? Will it stay on top of the water, or will it go to the bottom?" Repeat the question if necessary and demonstrate after the child has made a prediction. This item is passed if the child responds correctly for all six objects.

5. Conserves continuous quantity.

Use two small balls of plasticine of the same size. The child is asked if both have the same amount of plasticine and is allowed to manipulate them until agreement is reached that they are the same. The assessor rolls one ball into a sausage and asks: "Which has more plasticine now, or are they both the same?" The sausage is rolled back into a ball and the experiment is repeated with the other piece of plasticine. The item is scored if the child responds correctly on both occasions.

C3. Sorting and Classification Skills.

1. Can match by colour.

Use eight blocks of different colours for this item (2 red, 2 blue, 2 yellow and 2 green). Ask the child

to pick out the block like the one you pick up; say:  
 "Show me the one that is the same colour as this one".  
 It is not necessary for the child to know the names of  
 the colours.

Credit the item if the child answers all four correctly.

2. Can classify by colour.

Use the eight blocks in C3 (1). Ask the child to give  
 you all the red ones; replace them. Then ask for all  
 the yellow ones. If the child picks out the right blocks  
 on both occasions, credit this item.

3. Can perform two-way classification.

Use 12 shapes of different forms, sizes and colours  
 (see Appendix B). Ask for the small, square, yellow one;  
 replace. Ask for the large, blue, triangle. Item is  
 credited if the child responds correctly on both requests.

4. Can arrange in order of size and insert in series.

(a) Assemble six objects of the same type (e.g. blocks,  
 pencils) but which differ in size. Ask the child to place  
 the objects in order from the smallest to the largest,  
 demonstrating with a second set of objects if necessary.

If the child makes a mistake, ask if the order is  
 correct but do not give any further assistance. If the  
 child is still unable to make the sequence, do so for him.

(b) Remove one object from the middle of the series and  
 arrange the objects so that the gaps between them are  
 roughly equal again. Ask the child to replace the object  
 in the correct place in the line. The item is credited if  
 the child completes both parts successfully.

5. Can perform simple set discrimination.

(a) From the shapes used in C3 (3) select 1 small circle, 1 small triangle, 2 small squares, 1 small rectangle and 1 large circle. Place shapes in any order on a piece of paper in front of the child and say: "Which one of these does not go with the other ones?" (Large circle).

(b) Place five small shapes on the paper. Present the child with four large shapes and one small shape, in any order. Say: "Which one of these shapes goes with the shapes on the paper?" (Small shape).

(c) Place the big circle and a small circle on the paper. Present the child with two squares, two triangles and the remaining small circle in any order. Ask: "Which of these shapes goes with the shapes on the paper?" (Small circle). Item is credited if the child responds correctly on all parts.

C4. Memory.

1. Can repeat two digits.

Say: "Let's see how well you can say things after me. Listen. Say 1. (pause) Now say 4". These single digits are used as an introduction and are not scored. "Now say 5-8; say 2-7." The digits are spoken at the rate of one a second. Item is credited if the child responds correctly each time.

2. Can repeat three digits and identify objects from memory.

(a) "Now say 1-4-6; say 5-8-3; say 7-9-2."

(b) Present the child with three objects (e.g. toy car, block, toy animal). Place the objects behind paper for a few seconds and cover one with a box. Say: "Which one have I covered up?" Child has to name the object. Item is credited if child responds correctly each time.

3. Can repeat four digits.

"Say 3-8-1-4; say 6-1-8-5."

Item is credited if child responds correctly to each sequence.

4. Can name objects from memory and repeat temporal order.

Attach three objects (e.g. farm animal, car, doll) to a piece of card. Ask the child to name the objects and then push slowly behind a piece of paper so that they disappear from the child's view. Say: "Now they are going behind the paper and they will come out the other side; which one will you see first?" point to other side of paper. When the child responds say "Good, and which one will you see next?" Repeat for last object. Repeat whole procedure with three more objects. Item is credited if child responds correctly by naming all six objects in their correct order.

5. Can repeat five digits.

"Say 4-1-9-6-2; say 5-9-3-6-4".

Item is credited if child responds correctly each time.

**C5. Number.**

This section uses 20 small blocks.

**1. Can count to three.**

Place ten blocks before the child and ask him to give you three of them. Item is credited if the child hands the assessor three blocks. Credit automatically if item C5 (3) is passed.

**2. Can differentiate between few and many.**

Use twenty blocks: divide into three groups, one with two blocks in it, one with six blocks and one with twelve blocks. Say: "Which pile has few blocks in it? Which pile has many blocks in it?" Item is scored if the child responds correctly to both questions.

**3. Can count to ten.**

Give the child ten blocks and say: "How many blocks do you have?" Score a correct response, but if it appears that he might have arrived at the right answer by chance the task should be repeated.

**4. Can perform simple addition and subtraction.**

Using the blocks ask the child to do 4 additions and 4 subtractions using numbers from 1 to 5, phrasing the questions concretely if necessary e.g. "You've got two blocks, if I take one away, how many will you have left?" Credit the item if the child can perform three additions and three subtractions.

# 5. Conserves number.

Uses 20 small blocks. Place them in two equal lines. Get the child to count the blocks in each line and agree that the lines contain equal numbers of blocks. Rearrange one line so that it is twice as long as the other. Ask the child if there are now more or less blocks in the extended line than in the other line, or if the number is still the same. Repeat with second set of objects e.g. counters, buttons, etc. Credit the item if the child responds correctly on each occasion.

## C6. Problem Solving.

### 1. Can complete elementary puzzles.

This item is credited if the child can successfully complete three or four hole form boards.

### 2. Can complete simple jig-saws.

This item is scored if the child is usually able to complete puzzles, such as inset picture trays containing approximately ten items, without practice.

### 3. Can perform simple block designs.

Use twelve small blocks, six of one colour and six of another. Out of the child's sight make one of the designs in Appendix B with half of the blocks. Show the completed model to the child and say: "Put the blocks together to look like that." The model should be left in sight while the child attempts to reproduce it with the remaining blocks. Repeat the procedure with the second design. Credit this item if the child can reproduce both designs.



4. Can complete complex jig-saws.

This item is credited if the child is usually able to solve fairly complex jig-saws containing at least a dozen pieces, whether the pieces are fully interlocking or matched by shape.

5. Can execute complex block designs.

Using nine small blocks, four of one colour and five of another, child should be able to reproduce models of both designs in Appendix B to score on this item. Procedure as in C6 (3).

PHYSICAL SKILLSP1. Drawing and Writing

## 1. Paints strokes, dots and circular shapes.

The item is credited if the child is able to manipulate a paint brush to produce the stated patterns, either spontaneously or upon demonstration.

## 2. Draws simple human figure.

Credit is given if the child draws a person with a head and the indication of features and one other part, e.g. legs. The child should also be able to name his drawing. Credit automatically if item P1 (3) is passed.

## 3. Draws more complex human figure and other pictures.

The point is credited if the child shows reasonably good motor control when drawing a variety of different pictures. Figures of humans should include a head, trunk and arms and facial features, and drawings of houses should show walls, roof, windows and doors.

## 4. Can copy letters.

To obtain credit the child should be able to copy the letters of his own name, with correct formation of the letters and no reversals.

## 5. Can write simple words.

To obtain credit the child should be able to print several words, including his own name, without a model.

P2. Manipulative Skills.

1. Can cut with scissors.

This item is scored if the child has the ability to make a single long cut (i.e. he can open and close the scissors several times to make a continuous cut across the paper) or to make a short gash in the paper several times. The paper should be cut rather than torn.

2. Can string small beads and twiddle thumbs.

The item is scored if the child can thread several beads on a string and can, after demonstration, twiddle his thumbs when the hands are folded and the fingers intertwined.

3. Can fold paper twice and oppose thumb and fingers.

Item is scored if child can both:

(a) fold a piece of paper lengthways and crossways when shown how;

(b) touch thumb with each finger of the same hand when shown.

4. Can cut out pictures accurately.

This point is credited if the child can usually cut out a simple shape or picture with reasonable accuracy and few errors.

5. Builds tower of 15 blocks.

Give child 20 small blocks and ask him to build a tall tower. Credit the item if the child manages to build a tower of 15 blocks which is able to stand on its own at the first attempt.

P3. Co-ordination.

1. Climbs easy nursery apparatus and uses play vehicles.

To score on this item the child must be able to climb onto and into nursery apparatus such as large boxes, slides, etc., and be able to ride a tricycle or pedal car using the pedals.

2. Can stand and walk on tiptoe.

Demonstrate to the child what is required. Say: "Let's see how long you can stand on tiptoe." and "Now, let's see how far you can walk on tiptoe." To gain credit on this item the child must be able to stand for at least five seconds and take at least five consecutive steps.

3. Uses nursery equipment expertly.

Credit is given if the child uses all pieces of apparatus in the nursery freely, safely and correctly. For this item the child should be able to use swings and see-saws without adult assistance.

4. Can hop on one leg and skip.

Demonstrate to the child what is required. Say: "Let's see how far you can hop." Then say: "Let's see how well you can skip." To gain credit on this item the child must be able to hop on the preferred leg at least five times and skip rhythmically using alternative feet after demonstration.

5. Plays ball games and throws and catches accurately.

This item is scored strictly. To score child should join in simple ball games, and be able to throw and catch small balls accurately with a person at a distance of six feet. Success should be fairly consistent for the child to gain credit.

SOCIALIZATIONS1. Self-Help

1. Cares for self at toilet and washes hands satisfactorily.  
To gain credit on this item the child must be free of day-time accidents and be able to care for himself at the toilet without adult assistance (except in the adjustment of clothing). The child should wash and rinse his hands so that most of the dirt is removed.
2. Uses knife, fork and spoon.  
This item is included for those nurseries where the child takes a meal in the nursery. It is satisfied if the child holds the cutlery firmly and uses each implement in the correct manner.
3. Manages simple fastenings.  
Credit is given if the child can do up and undo easy buttons or fasteners with little or no assistance.
4. Manages zips.  
The item is credited if the child can do up and undo zip fastenings or smaller, more difficult buttons or clips without assistance.
5. Dresses self competently.  
Item is credited if child can cope competently with all aspects of putting on and taking off clothing and footwear without adult assistance, with the single exception of tying shoelaces.

## S2. Play-Patterns

The pattern of a child's play may be difficult to interpret, e.g. if a child does not play co-operatively it may mean that he is immature or that he simply has a particular personality type. Here we are interested in the child's ability to play in certain ways. His usual style of play may be recorded in section I.

### 1. Plays in parallel with others and will take turns.

Scored if the child tends to carry on own games, paying little attention to others and not interfering with them when using the same materials, while, on occasions, being able to take turns with other children when told to do so by an adult.

### 2. Understands the concept of sharing; plays associatively.

To score the child should be able to share items occasionally with other children and be able to play side-by-side with them lending and borrowing objects but not co-operating fully.

### 3. Plays co-operatively with companions.

To score the child should be able to participate with other children in play, such that common goals are shared (e.g. children co-operate to build a tower, or adopt complementary roles such as mother and father). The point is scored whether the child initiates the play or follows the lead of another child.

4. Plays simple games with rules.

To gain credit the child should be able to compete with minimal adult supervision in simple games, e.g. picture lotto, with good appreciation of the rules and aims of the game and the patience to wait his turn.

5. Understands winning and losing.

For many nurseries this item may not be appropriate. Where it is to be scored the item should be credited if the child competes in games with a clear understanding of the concepts of winning and losing. Where this item is not appropriate, one similar to S2 (4), but specifying more complex games and stricter scoring, might be substituted.

LANGUAGEL1. Language Use.

1. Knows full name and a few nursery rhymes.

Point is scored if the child can give his full name on request and repeat three simple rhymes fairly accurately.

2. Able to relate experiences and knows several rhymes.

To score on this item the child should be able to talk coherently about a sequence of events, e.g. the morning's activities, a school visit, etc. and repeat the salient points of a simple story without prompting. The child should also be able to repeat six nursery rhymes fairly accurately.

3. Can listen to and tell long stories.

To gain credit on this item the child must listen attentively to fairly long stories and be able to repeat the main elements of the stories in their correct sequence.

4. Gives full name, sex, age and address.

To score child must give these pieces of information accurately and comprehensibly.

5. Able to hold coherent and lengthy conversations.

This item is scored very strictly. Credit is given if the child frequently holds conversations with adults and other children lasting several minutes on diverse subjects and with coherent expression of thoughts.



**L2. Speech.**

1. Uses words other than nouns and verbs.

Credit is given for frequent use of adjectives (e.g. brown, small, pretty, etc.) and adverbs (e.g. quickly, softly, etc.).

2. Uses pronouns, plurals and past tense.

This item is passed if the child is able to use pronouns (e.g. you, me, and especially, I), plurals and the past tense of some verbs, although usage in some instances may be inaccurate (e.g. says 'mouses' instead of 'mice').

3. Uses complex sentence structures.

To gain credit on this item the child should be able to use sentences containing prepositions (of, in, on, beside, etc.), conjunctions (and, but, because, etc.) and questions.

4. Uses passive structures and auxiliary verbs.

To score child must be able to use correctly passive sentence structures, e.g. "It's been broken", "I just been stung by a wasp" and sentences containing 'must' and 'should', etc.

5. Frequently uses complex sentences with correct order of words.

To gain credit here the child must frequently use complex, grammatically correct sentences and very rarely make errors in speech.

### L3. Vocabulary.

1. Can name simple objects and identify parts of the body.

To score the child should be able to name simple objects (e.g. car, chair, doll, bed, etc.) from pictures and be able to point to parts of his body (nose, eyes, mouth, hair, feet, hands) when asked.

2. Can name colours and parts of the body.

To gain credit on this item the child should be able to name colours (red, yellow, green, blue, black, white) from pictures and name parts of the body when pointed to.

3. Recognises own name when written.

To score child should be able to identify his own full name from amongst several others.

4. Can name simple shapes and secondary colours.

To score the child must be able to name circle, square, triangle, and rectangle ('round' and 'oblong' are accepted for 'circle' and 'rectangle' respectively), and name the colours, pink, orange, brown and purple.

5. Recognises some letters and simple words.

To obtain credit on this item the child should be able to name several letters when shown and read a few simple words, e.g. cat, dog, etc.

### L4. Comprehension.

1. Obeys simple commands and answers simple questions.

Credit is given if the child understands and acts upon simple verbal instructions containing the prepositions on, in, under, beside, and can respond correctly to simple questions, e.g. "What do we drink

out of?" "What do we ride in?" etc.

2. Can give definitions of simple words.

Credit this item if the child is able to define verbally simple words, e.g. chair, window, ball, cup, hat, etc., either in terms of their use or the material used in their construction.

3. Comprehends stories and answers complex questions.

To score child should be able to select pertinent pictures and answer questions while listening to a story and be able to answer more complex questions about objects e.g. "What are houses made of?" "Why do we have cars?" etc.

4. Obeys more complex instructions.

To obtain credit child should be able to comply with instructions containing in front of, behind and between, e.g. "Put the brick behind the books", "Put the scissors between the car and the brick", etc. Care should be taken to avoid ambiguity in the phrasing of the questions.

5. Can define differences between pairs of words.

The child is asked to explain in what way three pairs of items are alike and unlike, e.g. apple and orange, bird and dog, ship and car. To gain credit the child should be able to supply one similarity and one difference for each pair without prompting.

### REFERENCES

Some other publications which may assist the reader to appraise the development of the pre-school child are given below:

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2. BLOOM, B., HASTINGS, J. & MADAUS, G. (Eds.) Handbook on Formative and Summative Evaluation of Student Learning. New York: McGraw-Hill.
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5. GUNZBURG, H.C. (1977) Progress Assessment Chart of Social Development; 5th Edition. Birmingham: SEFA (Publications) Ltd.
6. JACKSON, S. (1971) A Teacher's Guide to Tests and Testing; 2nd Edition. London: Longman
7. LOMAX, C.M. (1977) Record Keeping in Nursery School: A Two-Year Study. Educational Research, 19, (3), 192-198.
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10. PARRY, M. & ARCHER, H. (1975) Two to Five. London: MacMillan Educational.
11. SHERIDAN, M.D. (1960) The Developmental Progress of Infants and Young Children. London: HMSO.
12. TOUGH, J. (1976) Listening to Children Talking: a Guide to the Appraisal of Children's Use of Language. London: Ward-Lock Educational.
13. TYLER, S. & FOY, H. (1979) Guidelines to Pre-School Assessment. Educational Research, 21, (3) (in press).

KPAG MANUAL  
Appendix A.

Materials required for assessment.

Apart from the equipment usually found in a nursery (toy cars, dolls, pencils, books, balls, toy animals, jig-saws, table games, climbing frames, plasticine etc.) the assessment specifically requires the following items:

One set of ten common items, five rough and five smooth.

One set of ten common items, five soft and five hard.

Six common items, three of which sink and three of which float.

Eight small blocks; two of each of four colours.

Twenty small blocks (for tower building and number work).

A set of shapes of different colours and sizes ( see Appendix B).

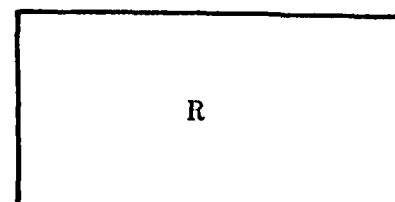
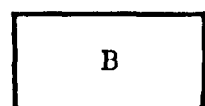
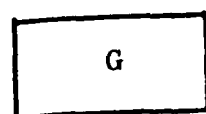
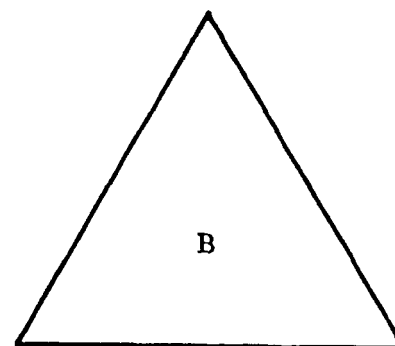
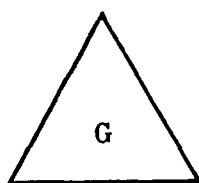
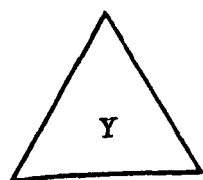
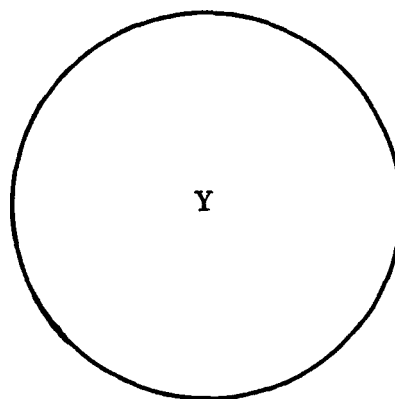
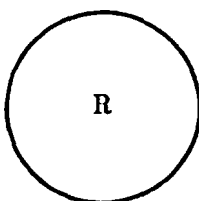
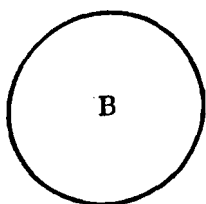
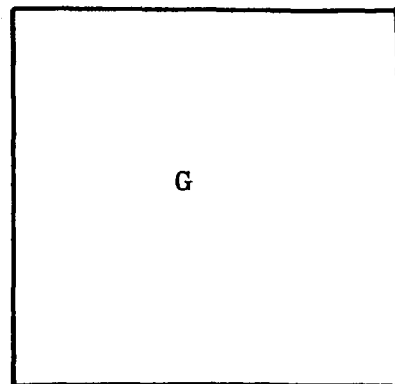
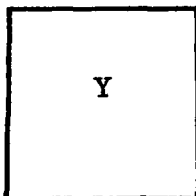
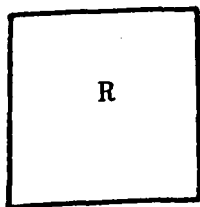
A set of ten small blocks of two different colours.

KPAG MANUAL Appendix B

## C3. SHAPES

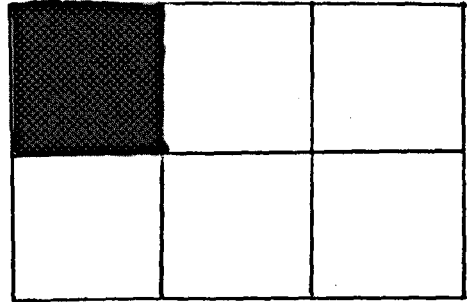
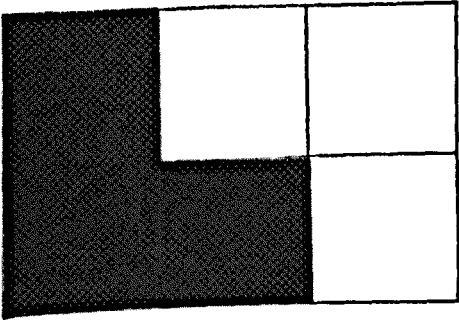
R red. B blue. Y yellow

G green.

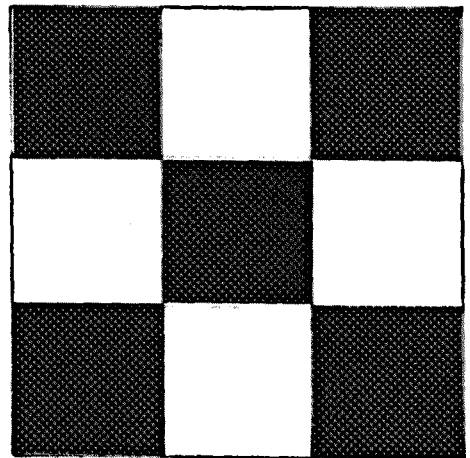
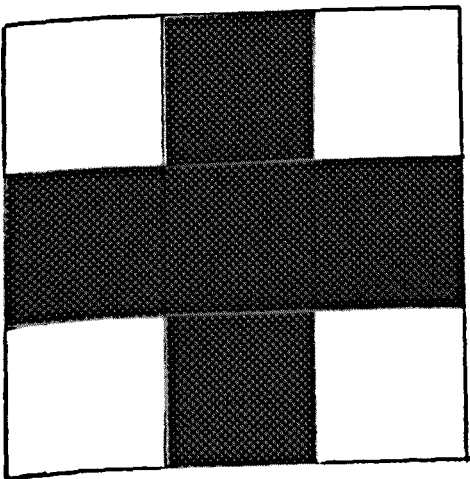


## C6. BLOCK DESIGNS

3)



5)



KPAG Manual  
Appendix C

KPAG Record Form

NAME..... NURSERY.....

DATE OF BIRTH..... BOY ☐ GIRL ☐

Date of 1st assessment.....Age.....yrs.....mths.

.....

.....

.....

.....

Date of last assessment.....Age.....yrs.....mths.

HANDEDNESS:

Right handed ☐

Left handed ☐

No preference ☐



SECTION I

Please ring one of the seven crosses on each horizontal line, appropriate to the child's present behaviour. The meaning of the extreme points is indicated by the wording below the line, from which the meaning of the other points may be inferred. Try to avoid using the midpoints on the line merely for safety and do not be afraid to use the extreme points when appropriate. An additional description of the child's behaviour in the given area may be written in the space below the line.

X                      X                      X                      X                      X                      X                      X

---

Tends to  
play alone

Mixes well,  
usually plays  
in group

X                      X                      X                      X                      X                      X                      X

---

Aggressive,  
often involved  
in quarrels

Timid,  
avoids conflict

X                      X                      X                      X                      X                      X                      X

---

Tends to  
be cautious,  
dependent

Very confident,  
independent.

X	X	X	X	X	X	X
Frequently initiates group activities.				Tends to follow lead of others.		

X	X	X	X	X	X	X
Often concentrates for long periods				Constantly moves from activity to activity		

X	X	X	X	X	X	X
Repetitive and unimaginative in activities				Creative, Imaginative.		

Other Characteristics:

Note any other features of importance here, e.g. anxieties, tantrums, speech impediments etc. If appropriate indicate these features (as has been done in the first part of this section) on the lines provided below and mark the child's present position. The development of these characteristics may then be recorded.

X            X            X            X            X            X            X

---

X            X            X            X            X            X            X

---

X            X            X            X            X            X            X

---

## SECTION II

Read the items listed below and tick those which the child performs easily or frequently according to the criteria given in the manual. In the section on play patterns (S2) the child's ability rather than his usual performance should be recorded. Thereafter, shade in those sections on the chart corresponding to the items marked. The skills have been arranged in the approximate order of their normal development and mastery of the more advanced skills in the outer levels will usually succeed the acquisition of the skills occupying the inner rings. However, the assessor should not assume that this is always the case and care should be taken at all stages of the assessment.

(For definition of the items below refer to the accompanying manual)

### COGNITION

#### C1. Space and Time.

- ☐ 1. Differentiates night and day.
- ☐ 2. Matches patterned arrangements.
- ☐ 3. Knows some names of the days of the week.
- ☐ 4. Differentiates between left and right.
- ☐ 5. Knows today, tomorrow and yesterday.

#### C2. Properties of Objects.

- ☐ 1. Can differentiate objects by size.
- ☐ 2. Can differentiate by weight.
- ☐ 3. Can distinguish elementary properties of materials (soft/hard, etc.).
- ☐ 4. Understands concepts of sinking and floating.
- ☐ 5. Conserves continuous quantity.

**C3. Sorting and Classification Skills**

- ☐ 1. Can match by colour.
- ☐ 2. Can classify by colour.
- ☐ 3. Can perform 2-way classification.
- ☐ 4. Can arrange in order of size and insert in series.
- ☐ 5. Can perform simple set discrimination.

**C4. Memory**

- ☐ 1. Can repeat two digits.
- ☐ 2. Can repeat three digits and identify objects from memory.
- ☐ 3. Can repeat four digits.
- ☐ 4. Can name objects from memory and repeat temporal order.
- ☐ 5. Can repeat five digits.

**C5. Number**

- ☐ 1. Can count to three.
- ☐ 2. Can differentiate between few and many.
- ☐ 3. Can count to ten.
- ☐ 4. Can perform simple addition and subtraction.
- ☐ 5. Conserves number.

**C6. Problem Solving**

- ☐ 1. Can complete elementary puzzles .
- ☐ 2. Can complete simple jigsaws.
- ☐ 3. Can perform simple block designs .
- ☐ 4. Can complete complex jigsaws.
- ☐ 5. Can execute complex block designs.

PHYSICAL SKILLSP1. Drawing and Writing

- ☐ 1. Paints strokes, dots and circular shapes.
- ☐ 2. Draws simple human figure.
- ☐ 3. Draws more complex human figure and other pictures.
- ☐ 4. Can copy letters.
- ☐ 5. Can write simple words.

P2. Manipulative Skills

- ☐ 1. Can cut with scissors.
- ☐ 2. Can string small beads and twiddle thumbs.
- ☐ 3. Can fold paper twice and oppose thumb and fingers.
- ☐ 4. Can cut out pictures accurately.
- ☐ 5. Builds tower of 15 blocks.

P3. Co-ordination

- ☐ 1. Climbs easy nursery apparatus and uses play vehicles.
- ☐ 2. Can stand and walk on tiptoe.
- ☐ 3. Uses nursery equipment expertly.
- ☐ 4. Can hop on one leg and skip.
- ☐ 5. Plays ball games and throws and catches accurately.

SOCIALIZATIONS1. Self-help

- ☐ 1. Cares for self at toilet and washes hands satisfactorily.
- ☐ 2. Uses knife, fork and spoon.
- ☐ 3. Manages simple fastenings.
- ☐ 4. Manages zips.
- ☐ 5. Dresses self competently.

S2. Play Patterns

- ☐ 1. Plays in parallel with others and will take turns.
- ☐ 2. Understands concept of sharing; plays associatively.
- ☐ 3. Plays co-operatively with companions.
- ☐ 4. Plays simple games with rules.
- ☐ 5. Understands winning and losing.

LANGUAGEL1. Language Use

- ☐ 1. Knows full name and a few nursery rhymes.
- ☐ 2. Able to relate experiences and knows several rhymes.
- ☐ 3. Can listen to and tell long stories.
- ☐ 4. Gives full name, sex, age and address.
- ☐ 5. Able to hold coherent and lengthy conversations.

L2. Speech

- ☐ 1. Uses words other than nouns or verbs.
- ☐ 2. Uses pronouns, plurals and past tense .
- ☐ 3. Uses complex sentence structures.
- ☐ 4. Uses passive structures and auxiliary verbs.
- ☐ 5. Frequently uses complex sentences with correct order of words.

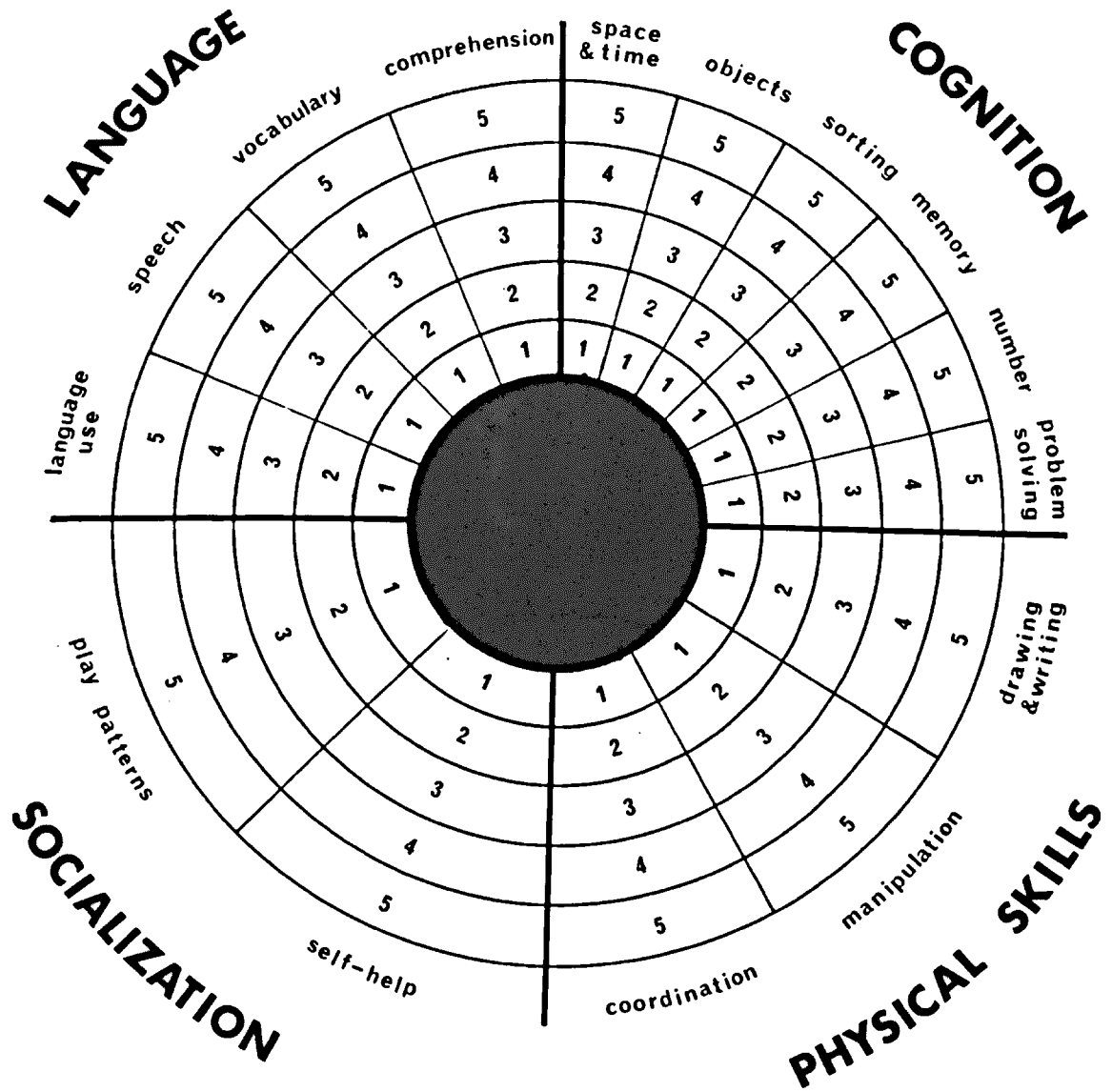
L3. Vocabulary

- ☐ 1. Can name simple objects and identify parts of the body .
- ☐ 2. Can name colours and parts of the body .
- ☐ 3. Recognises own name when written.
- ☐ 4. Can name simple shapes and secondary colours.
- ☐ 5. Recognises some letters and simple words. .

**L4.    Comprehension**

- ☐ 1.    Obeys simple commands and answers simple questions.
- ☐ 2.    Can give definitions of simple words.
- ☐ 3.    Comprehends stories and answers complex questions.
- ☐ 4.    Obeys more complex instructions.
- ☐ 5.    Can define differences between pairs of words.





# APPENDIX E

## KEELE PRE-SCHOOL SURVEY

School.....

Name of Child.....

Sex.....

Date of Birth.....

### Section 1

Please ring one of the seven crosses on each horizontal line, appropriate to the child's present behaviour. The meaning of the extreme points is indicated by the wording below the line, from which the meaning of the other points may be inferred. Try to avoid using the midpoints on the line merely for safety and do not be afraid to use the extreme points when appropriate.

X X X X X X X

TENDS TO  
PLAY ALONE

MIXES WELL  
USUALLY PLAYS  
IN GROUP

X X X X X X X

AGGRESSIVE,  
OFTEN INVOLVED  
IN QUARRELS

TIMID,  
AVOIDS CONFLICT

X X X X X X X

TENDS TO BE  
CAUTIOUS, DEPENDENT

VERY CONFIDENT,  
INDEPENDENT

X X X X X X X

FREQUENTLY  
INITIATES  
GROUP ACTIVITIES

TENDS TO  
FOLLOW LEAD  
OF OTHERS

X X X X X X X

CONSTANTLY MOVES  
FROM ACTIVITY TO  
ACTIVITY

OFTEN CONCENTRATES  
FOR LONG PERIODS

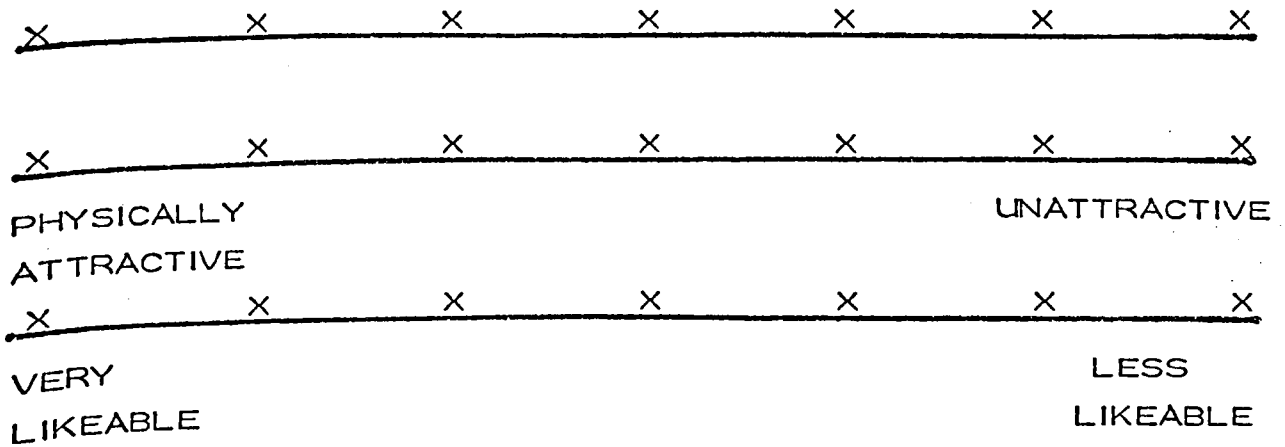
X X X X X X X

CREATIVE,  
IMAGINATIVE

USUALLY REPETITIVE  
AND UNIMAGINATIVE IN  
ACTIVITIES

Section 2APPENDIX E

Other Characteristics: Note any other features of importance here, e.g. anxieties, tantrums, speech impediments etc. If appropriate indicate these features (as has been done in section 1) on the lines provided below and mark the child's present position.

Section 3

To be completed with the researcher;

Father's occupation.....

Mother's occupation.....

Position in family.....

APPENDIX F

SUMMARY OF ITEMS SCORED IN ANALYSIS

OF HUMAN FIGURE DRAWINGS: SYSTEM A

(AFTER MCCARTHY, 1972)

<u>Item</u>	<u>Score</u>	<u>Definition</u>
1. Head		(A featureless shape is recognised as a head only if a body and/or limbs are indicated. A shape without body or limbs is recognised as a head only if two or more features are indicated).
	2 points:	There is a head and its general shape is that of an oval in a vertical position.
	1 point:	There is a head but it does not resemble an oval in a vertical position.
	0 point:	No head is indicated.
2. Hair	2 points:	Hair is indicated on the head and is drawn neatly.
	1 point:	Hair is indicated but is not drawn neatly.
	0 point:	No hair is indicated.
3. Eyes.	2 points:	There are two eyes (one if the face is in profile) and each eye shows either eyebrows, lashes or pupils.
	1 point:	There are two eyes (one if the face is in profile) but no eyebrows, lashes or pupils.
	0 points:	Only one eye is indicated (in a full-face drawing), or there are no eyes, or there are more than two.
4. Nose.	2 points:	There is a nose and it is shown in two dimensions, the line indicating the height being longer than the width of the tip.
	1 point:	There is a nose shown in either one or two dimensions.
	0 point:	No nose is indicated.

<u>Item</u>	<u>Score</u>	<u>Definition</u>
5. Mouth	2 points:	There is a mouth and one or two lips are clearly indicated.
	1 point:	There is a mouth but lips are not shown.
	0 point:	No mouth is indicated or there is only a dot where the mouth should be.
6. Neck	2 points:	There is a neck, indicated by two vertical lines, and its outline is continuous with that of the head or trunk.
	1 point:	There is a neck, shown by either one or two lines, but it is not continuous with either the head or trunk.
	0 point:	No neck is indicated.
7. Trunk	2 points:	There is a trunk and its length is clearly greater than its width.
	1 point:	There is a trunk but its length is <u>not</u> clearly greater than its width.
	0 point:	No trunk is indicated.
		If no differentiation is made between the head and the trunk give 1 point for the head and 1 point for the trunk if the facial features occupy the upper half, or less, of the head-trunk area.
8. Arms and Hands	2 points:	There are two arms and two hands
	1 point:	There are two arms, but no hands (or only one) are indicated.
	0 point:	Only one arm is indicated, or there are no arms, or there are more than two. If the trunk is drawn in profile, the child is not penalised if he includes only one arm.

<u>Item</u>	<u>Score</u>	<u>Definition</u>
9. Attachment of arms	2 points:	Two shoulders and arms are clearly indicated (one of each if the trunk is drawn in profile); the arms are two dimensional and are attached at the appropriate places.
	1 point:	Arms but no shoulders are indicated; the arms (or arm in a profile drawing), even if only uni-dimensional are attached to the upper part of the trunk at approximately the correct points.
	0 point:	The attachment of both arms (if arms are indicated) does not meet any of the above criteria.
10. Legs and feet	2 points:	There are two legs and two feet.
	1 point:	There are two legs, but no feet (or only one) are indicated.
	0 point:	Only one leg is indicated (unless the figure is in profile) or there are no legs or there are more than two.

SUMMARY OF ITEMS SCORED IN ANALYSIS  
OF HUMAN FIGURE DRAWINGS: SYSTEM B  
(AFTER KOPPITZ, 1968)

- |  |   |
|--|---|
| 1. Head:                                 | Any representation, outline of head required.   |
| 2. Eyes:                                 | Any representation.   |
| 3. Pupils:                               | Distinct circles or dots within outlines of eyes required. A dot with a line over it is scored as eyes and eyebrows.  |
| 4. Eyebrows or eyelashes:                | Either brows or lashes or both.   |
| 5. Nose:                                 | Any representation.   |
| 6. Nostrils:                             | Dots or nostrils shown in addition to presentation of nose.   |
| 7. Mouth:                                | Any representation.   |
| 8. Two lips:                             | Two lips outlined and separated by line from each other: two rows of teeth only are not scored.   |
| 9. Ear:                                  | Any representation.   |
| 10. Hair:                                | Any presentation or hat or cap covering hair and hiding hair.   |
| 11. Neck:                                | Definite separation of head and body necessary.   |
| 12. Body:                                | Any presentation.   |
| 13. Arms:                                | Any representation  |
| 14. Arms in two-dimensions:              | Both arms presented by more than a single line.   |
| 15. Arms pointing downward:              | One or both arms pointing down at an angle of 30' or more from horizontal position, or arms raised appropriately for activity figure is engaged in; arms extending horizontally from body and then turning down some distance from the body not scored. |
| 16. Arms correctly attached at shoulder: | Indication of shoulder necessary for this item, arms must be firmly connected to body.  |

17. Elbow: Distinct angle in arm required; rounded curve in arm is not scored.
18. Hands: Differentiation from arms and fingers necessary such as widening of arm or demarcation from arm by sleeve or bracelet.
19. Fingers: Any representation distinct from hands or arms.
20. Correct number of fingers: Five fingers on each hand or arm unless position of hand hides some fingers.
21. Legs: Any representation; in case of female figures in long skirts this item is scored if distance between waist and feet is long enough to allow for legs to be present under the skirt.
22. Legs in 2 dimensions: Both legs presented by more than single lines.
- 23: Knee: Distinct angle in one or both legs (side-view) or kneecap (front view); round curve in leg not scored.
24. Feet: Any representation.
25. Feet, 2 dimensional: Feet extending in one direction from heel (side view) and showing greater length than height, or feet drawn in perspective (front view).
26. Profile: Head drawn in profile even if the rest of the figure is not entirely in profile.
27. Clothing: Score 1 - any indication of clothing shown. The following items are scored for clothing: trousers, skirt, shirt, or blouse (upper part of dress separated by belt is scored as blouse), coat, hat, helmet, belt, tie, hair ribbon, barrette, necklace, watch, ring, bracelet, pipe, cigarette, umbrella, cane, gun, rake, shoes, socks, handbag, briefcase, boat, gloves, etc..
28. Good proportions: Figure looks right even if it is not entirely correct from an anatomical point of view.



SUMMARY OF ITEMS SCORED IN ANALYSIS  
OF HUMAN FIGURE DRAWINGS: SYSTEM C

<u>Item</u>	<u>Score</u>	<u>Definition</u>
1. Proportions of figure:	0 points:	Neither a head, nor a body is indicated.
	1 point:	A head is present but not a body.
	2 points:	The head and trunk are undifferentiated, but the facial features occupy the upper half, or less, of the head-trunk area.
	3 points:	Both head and trunk are indicated, and the head is clearly larger than the trunk (i.e. the length of the head is greater than 1.5 x the length of the trunk).
	4 points:	The head and the trunk are approximately equal in size.
	5 points:	Both head and trunk are indicated; the trunk is clearly larger than the head (i.e. the length of the trunk is greater than 1.5 x the length of the body).

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