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FACTORS INFLUENCING LANGUAGE IN THE NURSERY SCHOOL

JACQUELINE ALEANDER

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A naturalistic study was carried out in three Sheffield nurseries to examine the speech-functions of children and staff in relation to a selection of common indoor play activities. By means of video recording techniques, data were collected representing a total of twenty-two hours of recording, of which, for technical reasons, only twelve hours proved suitable for analysis. The linguistic data were categorised according to their functional aspects; and an assessment was made of the extent to which, and manner in which, speech-functions occurred differentially across the activities. Results of this assessment were interpreted in terms of their implications for the nursery school curriculum and for the functioning of nursery school staff. It was concluded that the children's speech was influenced by the factors of sex, age and their choice of play activity. It could not be concluded that teachers were influential, since no meaningful relationship was found between their own speech and that of the children.

As well as considering the overall immediate needs of the child, there is a need to speculate about the future economic requirements of society when the present pre-school generation shall have "come of age". There is a quickening and a proliferation of technological advance, notably in the field of communication, and we are unable to know what specific labour skills will be required a few decades from now. Given this state of affairs, it seems reasonable to adopt a cost-effective approach towards early education: should technology continue to grow more complex, it may increasingly require the general cognitive skills of reasoning, judgment, discrimination, conceptualisation, and other aspects of information-processing. Given the large body of evidence that the pre-school period is a time of great potential for intellectual growth, it seems profligate to stint resources for it.

In the Review which follows, the first two chapters discuss factors expected to influence powerfully the extent to which play is used strategically as a vehicle for intellectual growth, i.e. the aims of educationists and the manner in which these aims are translated into objectives. It is proposed that historical conditions, such as the influence of the Froebelian and Psychoanalytic traditions, have determined the use of free-play as a major instrument for learning. Since, it is argued, Nursery School agenda should be decided rather by ongoing empirical enquiry, and by a questioning of the axiomatic, work is discussed, in Chapter Three, directed to the problem of whether play has intrinsic educational value, and is superior to other media. In Chapter

Four an attempt is made to justify the focus of interest upon language, by presenting evidence that it plays an important role in cognitive development. Finally, in Chapter Five, the present study is set within an immediate context of recent comparable research.

CHAPTER 1

THE AIMS OF PRE-SCHOOL EDUCATION: AN HISTORIC ACCOUNT

"Everything we do has causes: some of the things we do have reasons too."

Stephen Toulmin 1970 p.21

The present chapter seeks to show how the current aims of pre-school education have grown from the intentions of the past. It is an account of the historical events which, upon subjective consideration, seem particularly relevant to the nurseries of today. Generally speaking pre-school education has sought to provide an homogeneous solution to heterogeneous needs: while economic conditions and resultant class structures have produced a tangle of ideological, philanthropic, political, religious, metaphysical, pragmatic and pedagogical motives for teaching the young child, the present analysis discerns several coherent, organising strands of influence. (The discussion of events in the 19th century owes much to the guidance of Whitbread, 1972)

(i) THE SPREAD OF THE EUROPEAN ROMANTIC MOVEMENT

Appealing to the imagination of the 19th century British bourgeoisie was a Utopian vision - of childhood fully exploited to fulfil its original virtue:

"Dust as we are, the immortal spirit
grows like harmony in music"

W. Wordsworth 1805

Its recognition of childhood as a discrete, unique stage of life, worthy of nurture, was a mainspring of the concept of pre-school education, but its effects need to be interpreted in the prevailing religious contexts. The Puritan Calvinist tradition of Europe and America, being largely a mixture of the Germanic

and Roman, was essentially ambivalent: while Christ had advocated a return to the innocence and simplicity of childhood, in practice the latter was tolerated as a brief, necessary evil: children were deficient in adulthood, and were to be rigidly restrained by the authority of the previous generation. The new educational theory from the Continent was not quick in reaching England. The revolutionary political ideas and the rejection of original sin expressed by Rousseau's Émile (1762) meant that his writings were largely unacceptable to conservative Anglicans until the late 19th century. However, many among the liberal minded middle-class were moved by his Romantic ideals: childhood, extravagantly re-evaluated, was exalted to a condition needing to be protected against adult dangers and responsibilities: it was now seen to require education and socialisation of such excellence that family life alone was deemed inadequate to provide them. While Rousseau is usually regarded as the first of the child-centred educationalists, realisation of his ideas depended largely upon the entrepreneurial skills of his followers.

Although Pestalozzi was not primarily concerned with the education of infants, his greatest influence upon British education was in this sphere: preparatory schools, based on his methodology, were opened for the middle-classes, and training courses for teachers incorporated his ideas. Adopting Rousseau's metaphysic that the child is divine, he held that, for his innate goodness to mature, he needs an environment which shall permit the natural, organic expression of his skills and interests, autonomous psychological growth being blighted by the imposition of rational systems: the world is to be discovered through

sensory exploration, and in this the teacher should have a guiding, rather than a didactic, role.

Sharing the aims of his predecessors, Froebel, a pupil of Pestalozzi, saw the need for systematisation, and was the first to formulate a comprehensive theory of pre-school education: by a flux of theory and practice, he developed the basic tenets of Rousseau and Pestalozzi, with importations from German idealism and contemporary science, into an organised educational philosophy. A mystical perspective on Man decided the priorities and proceedings of the method, and while, like Pestalozzi, he esteemed language as a means to conceptualisation and communication, he made pantheistic celebration of play "the highest phase of child development": through play, the child's divinity would unfold, in natural stages, as he gained knowledge of God, self and nature, it behoving the teacher to be sensitive to the child's readiness to learn a particular skill, and to provide him with appropriate materials. (In fact Froebel himself designed both 'gifts', a series of geometrical objects which would lead to insight and discovery and 'occupations', which, more loosely structured, were devised to reinforce the insight gained from the 'gifts').

> "Education should lead and guide man to clearness concerning himself and in himself, to peace with nature, and to unity with God."
>
> F. Froebel 1887

(ii) THE EXPANSION OF THE MIDDLE-CLASSES

As with all social phenomena, the manner in which creative thought on mainland Europe catalysed pre-school education in Britain, is to be comprehended amid a network of political and economic conditions: access to the Continent, and to the

gentle pedagogies of Rousseau, was one consequence of victory at Waterloo. As the century progressed, industrial legislation, literary propaganda (the novels of Charles Dickens being, perhaps, especially influential, although there were many others of importance, including Eliot, Charlotte Bronte, Wordsworth and Coleridge) and educational innovation, themselves in part attributable to the Romantic gestalt, produced an atmosphere in which the latter might flourish. When the kindergarten movement which Froebel had begun in 1837 at Keilhau in Prussia, was prohibited there, it found enthusiastic support among the expanding middle-classes in Britain, particularly the professional and business sectors, who realised that their emergent status rested upon education, as well as upon capital, and desired for their children provision which would prepare them for formal schooling. Although, by the 1830's, a few middle-class Infant Schools did exist, the demand was largely unsatisfied until the 1850's, when the arrival of the Froebelians was given warm welcome as a benign solution to their needs.

(iii) THE NECESSITY FOR EDUCATION OF THE PROLETARIAT

Traditionally, for a variety of reasons, both pragmatic and philanthropic, the education of the working-classes has been organised for them by the middle-classes. (However, this has not been without exception, such as the revival by the Chartists, during the 1840's of Robert Owen's concept of Infant Education). Not surprisingly, the manner in which the latter formed and implemented intentions on behalf of the workers was directed by the prevailing social and political contexts.

Indirectly, technological advance had provided a focus for the altruism of the educational pioneers: since Leeuwen Hoek

promoted the microscope in the 17th century, more control had been gained over bacteria, and this was probably the major factor responsible for the increase of the pre-school population in the 19th century. Increased mechanisation had left fewer industrial tasks suitable for young children to perform, and legislation was passed, raising the minimum age of employment: the working-class mother, who invariably needed to work, had two main options open to her for the care of her youngest children: either their attendance at the scandalous Dame Schools, or with older siblings, at Elementary School. Robert Owen, fired by a visit to the schools of Pestalozzi and Von Fellenberg,[1] and influenced by the educational theory of John Locke, opened the first British Infant School at New Lanark in 1816 for the children of his mill hands. While education was intrinsic to his aims (he adapted the methods of Oberlin, the Lutheran pastor and philanthropist whose pragmatic teaching methods did, in many ways, foreshadow those of Pestalozzi and Froebel), the school was intended to be but the first practical step towards a classless society. Although his success encouraged the establishment of Infant Schools, his followers were, on the whole, less concerned with Froebelian philosophy, and more concerned with religious instruction. However, several protagonists of the Pestalozzian movement, seeking to promote the Infant School system, had, by 1836, formed the Home and Colonial Infant School Society, in Holborn, which was responsible for training teachers in their methods. By the 1860's, although modern, enlightened establishments were spreading fast (a slight rise in wages between

[1] A Swiss educator (1771-1844) whose system combined academic and agricultural instruction with manual training. Of high moral tone, it nevertheless was concerned to raise the living standards of the workers.

the 1840's and 1870's enabled more skilled workers to pay fees) a vast number of young children were still in Elementary Schools, subject to the same formal, monitorial methods as were their older siblings. While this situation was disadvantageous to the latter, it did, nevertheless, have at least two justifications: firstly, exclusion of the youngest children would have entailed the exclusion also, for the purposes of child-minding, of the older ones: secondly, since attendance at statutory age tended to be irregular, any chance of education at an earlier age was not to be missed. However, the new improved schools, having convinced many Inspectors of the value of a separate stage, the Parliamentary Committee on Education advocated, in 1838, that working-class children should be provided with education from the age of three years. Social and moral rescue was a prime consideration, but the notion of learning through 'play' had won general acceptance and was reflected in the agenda: "The curriculum included drawing, music, physical exercises, sewing, knitting, gardening, at least the preliminary steps towards reading and sometimes writing, and Pestalozzian 'object lessons' on natural objects and domestic utensils." (Whitbread 1972 p.26) The steady progress of enlightened infant education through the promotion of Pestalozzian methods by the Home and Colonial Infant School Society, looked bright until the Revised Code of 1862 introduced what became known as 'payment by results' and thus encouraged teaching by means of rote instruction: schools became safe, protective places, impermeable to wider, progressive aims.

The Education Act of 1870 provided indirectly an opportunity to implement Froebelian kindergarten principles, but it was not exploited. Rather, the problem of raising a population

with adequate standards of literacy and numeracy, while encroaching as little as possible upon the years of production, was solved by making school attendance compulsory from the age of five, thereby formally including the Upper Infant stage within the bounds of Elementary education. As before, since no suitable Nursery provision had been made, children even younger than five had also to attend. (An independent survey by G.C.T. Bartley in 1870 calculated that one-third of all children in schools were between three and six years of age). Just as, before 1870, the children of relatively prosperous skilled workers had attended in increasingly large numbers, so the establishment of school boards and the abolition of fees encouraged manual workers to send their children. Usually, in order to cope with the growing influx of children below statutory age, they were divided into separate classes:

(i) the Babies' Class, for those under five years, where they were taught to enunciate, march in rhythm, recite the alphabet, and so on.

(ii) the Infants' Class, for those of five to seven years, who were taught the 'three Rs' and simple manual skills such as sewing.

That this opportune separation was not exploited to introduce progressive teaching methods may be explained in terms of both pragmatic and ideological reasons: not only was there an acute shortage of well-prepared teachers, but classes were too large for an individualised approach and the materials required too expensive; it was not generally considered appropriate to emphasise self-expression, such as free experimentation with art forms, when dealing with children whose future employment was seen to need a highly utilitarian type of preparation; the Revised Code had created pressure to teach the 'three Rs' as soon

as was feasible - because the level of examined performance of children over six years of age was fixed at a higher grant-rate (upon which teachers' salaries depended) than that of younger children.

Fortunately, the propaganda of the Froebelians, spreading forcefully since the 1850's, had been effective, especially regarding methods of teacher training, and by the 1890's much progress had been made. The wisdom of the Revised Code had come to be questioned and most of the school boards were requiring the techniques of the kindergarten to be adopted by Infant Schools and Classes. Sadly however, the original precepts of Froebel could only be distorted when children were taught according to factory principles and amid relative poverty: unfortunately, instead of education related to each individual child's level of development, class instruction was general, and Froebel's exercises were degraded to stereotypy. Like Pestalozzi, he believed his methods applicable to all social classes, but rather it seemed that their ideals were incompatible with the conditions of life prevailing in slum Britain.

(iv) EXPRESSION OF PHILANTHROPY, AS AN ASPECT OF SOCIALISM

During the 19th century, the middle-classes, by importing educational methods from the Continent, supplied their own wants. The working-classes, on the other hand, on the terms of a laissez-faire liberal ethic, were left to provide for themselves, rely on spare philanthropy, or accept unofficial state support, which was characterised by ad hoc coping, rather than by a comprehensive pedagogy. However, at the turn of the century, an improvement of provision was perceived in some quarters to be needed desperately. Margaret McMillan sought, by creating the English Nursery School, to give expression to her socialism. After campaigning with the Independent Labour Party in Bradford for better health care, she

joined her sister Rachel and together they opened an experimental clinic at Bow in 1908. Two years later this was transferred to Deptford, where, in 1813, they opened the first Nursery School in England. While an immediate objective was to improve the health of slum children, they believed that the intellectual inferiority often ascribed to such children was a result of restrictive and physically damaging environments and working in the developmental tradition of Owen, they sought to provide a nurturant, hygienic haven for informal learning. Margaret, whose ideas on education had been greatly influenced by continental progressivism and by Dewey, laid great stress on the development of imagination, which she foresaw would be required increasingly by 20th century technology, and upon the role of aesthetic appreciation within the curriculum of primary education.

(v) THE GROWING AWARENESS OF THE DEVELOPMENTAL IMPORTANCE OF THE EARLIEST YEARS

That growth may be characterised by 'dead-lines' was suggested before the beginning of the present century when Freud posited the course of normal psychosexual development, but interest in the phenomena increased sharply during the 1930's when, in the form of 'critical periods' they became the focus of several ethological studies. While the majority of the latter were concerned with animal species (notably with the development of attachment behaviour in birds e.g. Lorenz 1935; 1937a), subsequent inquiry, in a human context, had presented a wealth of evidence that a child is influenced by his experiences according to his point of development, and that there are stages of optimum vulnerability to learning followed by relative impermeability to the reorganisation of neural structures. Hunt, 1964, adopting a general, theoretical stance, addressed himself to the problem of

maximizing cognitive growth: by carefully matching environmental input to the child's present state of 'readiness', just sufficiently to lead him on to the next stage of understanding, we should, in principle, achieve and, in practice, approach ever more closely, the full realisation of his potential. Clearly, Hunt's concept of 'match' is compatible with other pertinent findings, e.g. that early sensory experience is important for both the growth of certain neural structures and for aspects of learning essential to normal adult behaviour (Hebb 1949;1966); that thinking processes develop as a consequence of action upon the environment during the pre-school years; that by four years of age is found fifty per cent of the variation in intelligence manifest at seventeen years. (A conclusion of Bloom (1964), which Lomax (1979) claims to be mistaken.)

Evidence that ultimate levels of competence may be largely dependent upon, if not determined by, the course of early childhood had obvious implications for the Nursery School: while the concern of the latter with physical health had been extended, notably by the influence of the post-Freudian Susan Isaacs, to include social and emotional needs, the field of attention was widened even further during the 1960's to include the child's intellectual needs and there was a resurgence of interest in the work of Piaget and his colleagues which stressed the importance of the pre-school years for subsequent cognitive abilities. A present burgeoning of interest in language skills among pre-school children is supported by socio-linguistic and psycho-linguistic studies of the past two decades which have indicated the importance of language for both social and cognitive development. There is a widespread awareness of how critical for cognitive development is interaction between child and adult, and a growing tendency to ascribe the high failure rate of schools to a deficiency of communication between teacher and child (e.g. Bernstein 1978; Blank; 1973, 1974, 1977, 1978).

(vi) THE EXIGENCIES OF WAR

According to an old Indian proverb, white snow may fall from a black sky: British post-war economies have differed in their effects upon child care practices, and have not been altogether depressant upon the growth of nursery schools.

During the Boer War vast numbers of potential recruits were rejected on grounds of physical inadequacy. Witnesses to an Inter-Departmental Committee of 1904 ascribed the damage to restrictive, oppressive conditions for young children within schools. They urged that nurseries were preferable for children of three to five years, and the committee itself recommended the establishment of municipal creches, where desirable. In 1905, when the Board of Education commissioned a report on the conditions for children younger than five years in Elementary Schools, Inspectors for this group were unanimous in protesting that instruction was proving ineffectual. Unfortunately, such had been the financial cost of the war, at a time when the population of statutory school age was growing fast, that, in spite of such encouragement, little money was allocated to the provision of nurseries.

During the Second World War, the Government's keen establishment of Nurseries had two main aims:-

(i) to maintain childrens' physical health;

(ii) to release women for employment.

Family life among all social classes was disrupted and universally women were under financial, social, and official pressures to work. However, it fell to middle-class women, who had been having smaller families since the late 19th century and who realised that nursery schools might be invaluable for the social development of their children, to articulate the demand for provision, such a move suggesting to some that nursery schools could become the first

stage of a democratic education system. Unfortunately, while for the period of the Second World War, services were made available to the pre-school child on an unprecedented scale, and while the desirability of universal nursery provision was widely accepted the public (in particular the Labour Movement) was more concerned with the issue of universal Secondary Education. The failure of the Act of 1944 to incorporate it into the Primary Stage left nursery education as vulnerable to economic 'squeeze' as it had been after the First World War.

(vii) THE RECENT EMPHASIS UPON THE COMPENSATORY EFFECTS OF PRE-SCHOOL EDUCATION

By the end of the Second World War, the belief had begun to grow that pre-school education might compensate for deficiencies in the home and thus reduce the rate of failure in schools. Gradually, pressure for wider provision of nursery schools increased (although more often advocates expressed their aims in vague, nebulous forms, such as "to prepare for school", than in explicit, well-defined behavioural terms). Unfortunately, in spite of this growing enthusiasm, until the late 1960's, both the socio-economic conditions and the psychological climate were to substantially discourage expansion: there were financial problems; a rise in the birth-rate had exacerbated the shortage of teachers in infant and primary schools[1]; there was a widespread belief that a child's rightful place was by his mother. (The anxiety that less than full-time mothering might have harmful repercussions for the child's emotional health was due largely to the research of Bowlby (1951) but the latter had, in fact, distinguished between the child who has been completely separated from his family, and is especially vulnerable to psychological damage, and the relatively less vulnerable child who has experienced only partial daily separation). In 1967

[1] Circular 8/60 issued by the Ministry in 1960 declared that no teachers could be spared for the purposes of nursery expansion who might otherwise be with children of statutory school age.

the Plowden Report: "Children and their Primary Schools" gave official acceptance to the idea that the early years might be important for later success in school, and, during the early 1970's, under the influence of the American "Head Start" programmes, "educational priority areas" were identified - areas of multiple deprivation which were to become the targets for educational developments and research projects. "Education: a Framework for Expansion", the Government White Paper which appeared in 1972, promised that eventually nursery education would be available to parents upon demand, but while the pledge was made under propitious circumstances, the rise in birth-rate having fallen, and there being no longer a shortage of teachers, intervening economic crises have prevented more than meagre attempts to implement the proposal.

In spite of official encouragement of early compensatory education, there has not been universal agreement about either the role it should assume in the future, or what have been its achievements of the past. Some (e.g. Baratz and Baratz (1970)) have perceived it to be founded upon fallacious 'deficit theory' the interpretation of sub-cultural values as 'deficient' or 'inferior' by researchers bound to the frames of reference of their own cultural backgrounds. Along similar lines, Bernstein (1970) among others, has warned that the emphasis upon the pre-school period and the degree to which the family is adequate to meet the young child's needs, may distract attention away from the effects of the primary school upon the child's development. (In fact, the late 1970's saw an increasing awareness of the desirability of closer association between parent and nursery school and a wish for the former to play a more active role in the child's education - change exemplified by the suggestions for a 'parents room'

appearing among recent building plans). Tizard (1974), in a review of research into early childhood education in Britain, revealed widespread dissatisfaction with the typical nursery regime, but disagreement about the role which, in current circumstances, compensatory education should play: while many researchers gave priority to the aim of preparing the child for infant school, and believed that language programmes, as an adjunct to play, would serve this purpose well, others denied that sufficient is known yet about either cognitive growth or the processes of interaction between teacher and child, for suitable compensatory programmes to be devised. Indeed, evaluation of the numerous American studies, the Educational Priority Area project, and the National Foundation for Educational Research Study, lent support for this latter, somewhat pessimistic view: it appeared that while, in the short-term, attendance at pre-school did confer certain benefits upon the child, improving his cognitive performance and adjustment to the classroom, these effects were short-lived, and his school achievements seemed, on the whole, to remain unaffected. Recently, however, the doubt that compensatory pre-school 'works' has been challenged: it would appear that in spite of the initial 'wash-out' of effects, characteristic of the "Head Start" programmes, benefits can be found - at a much later stage (e.g. Lewin 1977).

Effective or not, the compensatory focus of nursery education has not been without consequence for other sectors of provision. It has been felt, for instance, that the burden of practical problems facing staff in day nurseries means that they are unable to achieve standards of interaction with the children comparable to those reached by the staff of nursery schools. To ensure that

the child in the day nursery is not altogether excluded from the better facilities for adult-child interaction available to his less deprived peers in the nursery school, it is not uncommon for a trained teacher to attend a day nursery for part of the day, or for children from the day nursery to spend part of their time in the nursery school or class. There have also been effects upon the private sector: given the 'clamp' upon expansion, and the priority given to children designated 'deprived', many 'better-off' children have been excluded, and private nurseries to provide for their particular needs, have increased. Often the aims of such private nurseries may be at variance with those of the nursery school - they may, for instance, seek primarily to provide companionship for the child or to prepare him for a particular preparatory school to which they might be attached.

Recent surveys have shown that while teachers are largely in agreement about the importance of cognitive and linguistic development, they feel strongly that the latter should not be at the expense of social, emotional, or physical aspects of growth. When, for example, Taylor et al (1972) reported on what a national sample of nursery teachers judged to be the aims and objectives of nursery education, the emergent picture was of a strongly committed professional group who saw nursery education as necessary for most groups of children, but especially for those who are in some way socially or personally deprived. They saw ".....as its major purpose the social education of the young, particularly that form of social education through which personality and character begin to develop" (p.60). However, intellectual growth was given only slightly less priority "provided that these do not involve the teacher in 'formal' education" (ibid.). In 1974 Parry and Archer, in a project sponsored by the Schools Council,

studied several aspects of pre-school education, including the practices and avowed aims of Nursery School teachers. Sometimes the socio-economic nature of the school's catchment area meant that nurturant, rather than educational care, was emphasised, but, in general, much enthusiasm was expressed for the promotion of cognitive and linguistic skills - if integrated with the child's social, emotional and physical development.

Although, when discussing the aims of nursery schools, it is convenient to talk in terms of general trends, it must be remembered that they are not monolithic - and when it comes to evaluation, this latter must be in terms of the aims and objectives particular to the staff of a unit and the region in which it is situated.

All humans have been trained: only some have been educated. (Peters (1966) distinguishes these processes by their ends and realms of application: while the former involves a competence in a limited skill or mode of thought, applied to narrow, extrinsic ends, the latter involves intrinsic motivation and extends to a wider system of beliefs). While the agency of school has been subjected to considerable attack (e.g. Illich, 1971), education itself is 'hallowed'. However, even in the brief context of history, popular schooling, the placing together, usually by age, of children, usually numerous, with an adult who has often been specially trained, and to whom they bear no kinship relation, is recent, having gathered momentum during the second industrial revolution when mothers were no longer generally available for care-taking. While the technology of the past has demanded widespread training, it is likely that future societies will shift the emphasis ever further onto education in order to manage both

production and leisure. From Caxton setting type, through to McAdam laying roads and Bell erecting wires, we have arrived at our present technically-fluent systems of communication, requiring sophisticated cognitive skills embodied in linguistic media. Such systems have swiftly increased the amount of information which the individual must process, and place ever-growing demands upon the capacity for abstract, relatively context-free thought - of which skills school is the institutionalised source. The present thesis is concerned with those aspects of the pre-school, which, it is believed, will promote the hoped-for benefits of statutory education.

CHAPTER 2

THE ROLE AND CONSTRUCTION OF RELEVANT OBJECTIVES

"....if you're not sure where you're going, you're liable to end up someplace else."

Robert F. Mager, 1975

The dual purpose of the previous chapter was: firstly, to set the aims of the present study within a broad context, and, secondly, to show the influence of past events upon the intentions and practices of nursery schools. The present chapter considers how aims relate to objectives and outlines research relevant to the clear formulation of the latter.

THE NEED TO TRANSLATE AIMS INTO OBJECTIVES

A major distinction between aims and objectives is that the latter are contingent logically upon the former. In addition, while an aim is broad, abstract and visionary in character, an objective is narrow, concrete, pragmatic. To frame a general intention, e.g. "I mean to foster intelligence", may orientate the pedagogic feet, but important reasons remain for translating the general into the more specific. viz:

(i) if objectives are not stated clearly, then the selection and design of educational content and methodologies may be somewhat arbitrary.

(ii) if the evaluation of educational methods is not to be expressed in vague general terms, then it must be able to use well-defined behavioural objectives as its criteria.

However, the cry for clear objectives has not been universal: for instance, Parry and Archer (1974) state: "It is paradoxical that a too scientific and structured approach can actually interfere with the atmosphere in which a young child learns best."

On the other hand, a wish for explicit, informed principles of curriculum design is expressed commonly by researchers and, frequently, nursery teachers have been blamed for an over-reliance upon diffuse aims (which is hardly surprising perhaps, considering that no clearly-defined results have been demanded from them).

THEORETICAL CONTRIBUTIONS TO THE FORMULATION OF PRE-SCHOOL OBJECTIVES

Objectives do not arise ex nihilo: they should issue from a solid body of theoretically-derived principles. Indeed, it is likely that, unless guided by appropriate research findings, nursery teachers may formulate their objectives on the basis of what, in their experience, children have been capable of achieving. Unfortunately, in this latter case, the equation involved is circular, since the level at which children perform may be influenced by what is expected of them. (It should be born in mind, however, that while the well-known findings of Rosenthal and Jacobson (1968) support this suggestion, subsequent attempts to replicate their observations, e.g. Humphreys and Stubbs, 1977, have been unable to confirm his conclusions).

(i) THE CONTRIBUTION OF PIAGET

Piaget, described by Flavell (1962) as: "surely one of the remarkable and impressive scholars of contemporary social science", was a prominent contributor of evidence relevant to curriculum design. Basically an expression of his concern with genetic epistemology, his theory of cognitive growth describes how the latter results from the child's biological development within the environmental context: in a manner governed at any one time by his level of biological maturity, which is to say the cognitive structures available to him, the child interacts with the world to achieve successive states of equilibrium between the reciprocal cognitive processes of accommodation and assimilation.

The pre-school child, according to Piaget's system, is likely to be in the Preoperational Period of development (which lasts, roughly, from the second to the seventh year of life[1]): important changes shall have occurred in his thinking, but severe limitations shall remain. While, previously, the child has been restricted to direct interaction with the world, he can now reflect upon his behaviour, being, increasingly, able to manipulate symbols that represent the environment and to internalise representations of his actions: language has been loosened from its physical context so that there is increasingly a differentiation between 'signifiers' (words, images, etc.) and 'significates' (internalised representations of earlier experiences to which the words or images may refer). Unlike the Sensorimotor child, the Preoperational child has access to a comprehensive representation of reality that can include past, present and future, and which can occur in an exceedingly short period of time (the former, on the other hand, is restricted to the successive linking of his perceptions of concrete objects and events through anticipations of the future and memories of the past, which are, in both cases, extremely brief): he can reflect upon his behaviour as it relates to its goal, rather than upon the goal itself. In spite of his powers of representation, however, the constructions of the Preoperational child continue to be on rather 'rocky' foundations: while he has long been aware of the permanency of objects, the relations which he establishes among them remain unstable, and form only the beginnings of an equilibrated system for processing information about concrete reality: he has not, for instance, grasped the basic principle that matter is conserved during transformations, and his thought processes are said to be 'irreversible' in that he is unable

[1] Piaget took great pains to point out that his chronological 'milestones' were generalisations, there being, in reality, wide variation among individual children.

to apprehend that an action can take place in both directions.[1]

In recent years several experimental programmes have been founded upon Piagetian theory (e.g. Kamii, 1967, 1970; Weikart et al, 1971) and it has had varying degrees of influence upon many others. Such programmes, in general, emphasise the process, rather than the content, of learning, and prescribe a very limited role to the teacher: essentially, moved by curiosity to interact with objects in a rich variety of social and physical contexts, the child is to re-invent, rather than passively receive, knowledge. (Ausubel, 1961 referring specifically to the project of Kamii (see above) pointed out that such an approach may not be appropriate beyond pre-school and primary grades - since it should take the child a very long time indeed to discover for himself the knowledge comprising a general education). Growth, it is assumed, is brought about by conflict: in the course of the child's play, discrepancies shall arise naturally among his cognitive structures and between the latter and reality - discrepancies which the child shall be moved to resolve by adjustment of his mental processes.

Ammon (1977) suggests that the traditional child-centred nursery school is quite in tune with the Piagetian perspective. Speaking of the latter, he states: "...with its emphasis on general ways of thinking, practically any activity or content will do, so long as it allows the child to use the kind of thinking that is characteristic of his present developmental stage. Thus many activities involving symbolic play, talking, or drawing could give the young child experience in representational thinking. Similarly, activities which enabled the child to construct intuitive rules about the regularities in his interactions with the environment

[1] The primary source for this description of the Preoperational child was Phillips, 1975 (1923)

would provide a foundation for the eventual attainment of concrete operations (i.e. intellectual operations dependent upon sensory data, but which are more mobile and flexible than the thinking of the Preoperational Period). Continuing his discussion of Piaget's theory, Ammon points to a limitation which may prove an important disadvantage for the nursery teacher seeking guidance about agenda: "Within...general guidelines...the particular content for...activities cannot be specified on the basis of Piaget's theory, because the theory leads one to regard specific content only as food for thought, with no particular value other than its contribution to general development."

(ii) THE CONTRIBUTION OF NEO-PIAGETIAN RESEARCH

Various lacunae in Piaget's theory of cognitive development, such as his failure to deal with the problem of individual differences, have, in recent years, provoked attempts to render it a more powerful predictor of child behaviour - either by extension (e.g. Flavell and Wohlwill, 1969) or by revision. Exemplifying the latter approach is Pascual-Leone (e.g. Pascual-Leone and Smith, 1969) whose system, greatly indebted to that of Piaget, nevertheless differs from it in a major respect - where Piaget's theory emphasises structure, that of Pascual-Leone emphasises capacity - and because of this fundamental theoretical difference between them, the implications which they hold for pre-school education are widely divergent. An issue central to the formulation of objectives is that of 'readiness' for learning, defined by Piaget in terms of very general logical structures: the child can only learn those things which can be assimilated to the structures characterising his present stage of development - so that, for instance, children younger than seven years, lacking the necessary logical structures, are not generally ready to learn tasks

involving the logic of concrete operations (see previous page). Pascual-Leone, on the other hand, challenges this definition of 'readiness' and holds instead that it depends ultimately upon capacity, rather than upon structure: the repertoire of 'schemes' (defined in Piagetian terms) which the child can manage at any one time is severely limited, to a degree varying with his stage of development. However, providing that the teacher can supplement the child's existing repertoire of schemes by those prerequisite for a given task, and that by doing so, he does not go beyond the number which the child can handle, the latter may be considered 'ready' - even should the task involve logical structures which are new to him.

Although research data exists to suggest that Piagetian-based programmes can effectively promote cognitive development (e.g. Halsey, 1972; Sigel, 1973), Hom and Robinson (1977) point out that the development and evaluation of such programmes is still in its early stages: "Based on the research now available, it is not yet known how one Piagetian program compares with another, or how Piagetian-based programs compare with programs based on other theories, such as social learning theory." However, Ammon (1977)[1] suggests that the theory of Pascual-Leone, by providing a more explicit account of learning than does that of Piaget, may prove more directly useful to the practitioner: "Piaget's theory does not offer much guidance for deciding which specific learnings would be especially valuable, due to its emphasis on general structures. But Pascual-Leone's theory does deal explicitly with specific schemes and may, therefore, be more

[1] The present comparison of the theories of Piaget and Pascual-Leone is greatly indebted to Ammon 1977

helpful." A central argument of Piaget's theory is that cognitive growth rests upon mental activity, which may, or may not be, accompanied by overt, physical activity: the teacher, it is implied, must select among learning activities those which shall facilitate the appropriate mental activity. Unfortunately, Piaget's theory does not make clear to the teacher exactly what such appropriate mental activity might comprise. In contrast, the theory of Pascual-Leone gives a more significant role to the content of learning, and makes it possible to determine exactly which schemes must be activated, and when, for particular learning objectives to be achieved. An analysis of the difficulties encountered during those tasks which the child must master, e.g. computation, should suggest which schemes are the most important for him, as should the consideration of which schemes may pertain to a large number of required tasks, or to those which are highly valued. Once having identified in this way <u>what</u> to teach, the teacher may then be able to decide <u>how</u> to teach by adjusting his method to the child's past experience (his available repertoire of schemes), his developmental level (his present capacity for functioning with schemes) and his individual cognitive style. (Pascual-Leone attempted to incorporate the 'field-dependence - independence' dimension of cognitive style (Witkin et al 1962) within the fremework of his own developmental theory).

THE CONTRIBUTION OF RESEARCH CONCERNED WITH THE COMPENSATORY ROLE OF LANGUAGE

Language compensation programmes have commonly assumed that if children do not think well it is because they do not speak well, and have attempted to overcome the former problem, indirectly, by close attention to the latter. Unfortunately, the evidential landscape, upon which appropriate objectives might

rest, has been rather barren. In relation to the strength of emphasis which most pre-school programmes have placed upon conversation between teacher and child[1] attempts to gather relevant data have been few: while there has been a recent increase of attention to classroom interaction (e.g. Flanders, 1970; Simon and Boyer, 1968; Galton et al, 1980), efforts have not generally been directed at the nursery school. (However there have been important exceptions to this neglect, e.g. Cashdan, **n.d.** Clark and Cheyne, 1979; Tizard, 1979, et al 1976).

While a certain amount of interest has been shown in the young child's powers of comprehension (e.g. Reynell 1977; Shields e.g. 1977) most of the relatively few systematic and complete studies of the language of pre-school children have concentrated upon speech production. It has not been established that children understand generally the language of nursery staff: Blank (1977), adapting the design of Moffett (1968), devised a comprehensive test in order to find out whether, and to what extent, children are able to deal with verbally-based tuition. It was essential, she considered, to develop a model which should identify, with precision, the key factors underlying productive teacher-child interchange: "Essentially, we will attempt to define what we believe the teacher can and ought to be saying to the child in the effort to have that child gain maximally from the school experience." If, she argued, teachers are to be guided beyond the vague notions which they are forced to use currently, the language of instruction must be systematised, i.e. systematised in a <u>reciprocal</u> manner - since the essence of the teaching experience lies not within the child alone, but between the child and his teacher.

[1] n.b. This is not generally true of Piagetian-based programmes (see above), which tend to regard language as a relatively unimportant epiphenomenon.

Given the importance of evidence to the formation of nursery school objectives, it seems unfortunate that the evidence which has accrued presents contradictory models of the child: while some (such as Blank, e.g. 1974; Tough, e.g. 1976) have been impressed by the potential sophistication of the young child's conversational skills, several others (e.g. Fishbein, Lewis and Keiffer, 1972) have perceived insurmountable limitations in his capacity to use language for meaningful or sustained social interaction. Choice of alliance between these opposing views would seem important, since they imply widely divergent outcomes: support for the former line would suggest that perhaps the role of language as an agent of tuition should be strengthened. On the other hand, were the latter view held to more accurately represent the case, then the present function of language in the nursery would invite substantial modification - if, in fact, verbally-based instruction be at all feasible for the pre-school stage.

Strategy, unsubstantiated by tactical skills, shall not bring home the education bacon: Knowing What To Do requires Knowing How To Do. Increasingly, the young child is being understood, and his peculiar ways of relating to the world described - but it seems that nursery teachers are often tangential to the orbit of research and need guidance in the reduction of theory to practice. As Parry (in Tizard, 1974), points out: "Usually the teacher's only contact with research is someone arriving at school, distributing questionnaires, perhaps observing or testing her children, and then disappearing for good." Certain chlorophyceae and the three-toed sloth stand in mutual need of each other: in nature many problems are solved by symbiosis, and it is desirable for nursery education to develop similar levels of complementation among its specialists.

CHAPTER 3

THE ROLE OF PLAY IN LANGUAGE AND COGNITION

"....the teacher should endeavour to direct the children's inclinations and pleasures, by the help of amusements, to their final aim in life."

Plato, The Laws, Book 1

Issues surrounding the problem of definition

Chapters 1 and 2 showed how nursery schools have generally adopted free play in order to achieve their ends. Since most of the eggs of State funding are thus going into one type of basket, wise husbandry demands that its strength be tested - perhaps by a probing of the main underlying assumptions. One such - the intrinsic value of play as a medium for learning - can no longer, on the evidence, be considered axiomatic: it is desirable to uncover the actual effects of play upon linguistic and cognitive growth, and to grasp the influences of context.

Since play occurs, and is to be assessed, in a variety of situations, confidence is sought that a unitary concept is involved. While the Humpty Dumptyism of linguistic philosophy has revolutionised the process of definition - so that new words are seen to <u>create</u>, rather than to <u>express</u> reality (as something existing beyond themselves) - it has not invariably simplified the problem.

While the concept of play is challengingly complex, discussion has been eased by attempts (e.g. Huizinga, 1947) to classify the enormous variety of definitions offered. Recently, Ellis (1973) has discerned a major division between those definitions based on

motivation, and those which rely upon behavioural attributes. Both points of view are still expressed, but the former, in particular, has a long history. Schiller offered "....the aimless expenditure of exuberant energy", and Groos (1898) "instinctive practice, without serious intent, of activities that will later be essential to life." Subsequently, several diverse explanations of play (outside the brief of the present chapter) have spawned definitions couched in motivational terms. Recently, play has generally been seen as: "....the behaviour motivated by the need to avoid boredom and maintain arousal" (Ellis ibid.). The other flood of definitions, i.e. those concerned with behavioural content, has arisen largely from ethological studies. Initially, such research concentrated upon animal play, Beach, by 1945, having outlined its essential characteristics. Fortunately, however, the last two decades have seen an increase of interest in the content of human play, and excellent, if largely pretheoretical, descriptions have been produced (e.g. Blurton-Jones, 1972; Hutt, 1966; Smith, 1978).

A sword of Damocles over the present study is the question of whether such variety of definition poses a real or an apparent obstacle to the study of play. While there is some pessimism about the ability to box play neatly into a single operational definition and to compose adequate accounts based on a common core of characteristics, it might nevertheless be contested (e.g. Mason, 1965) that difficulties have arisen in theory, rather than in practice. A central issue is whether play forms a coherent category, distinct from work. Several, like Loizos, 1967, have regarded play behaviour as essentially divorced from their original work-oriented contexts, and Lorenz (1956) expressed a common view when he claimed that: "....the usual opposition between play and being serious has a very

real background," - but the distinction has also been vociferously denied (see Huizinga, 1949; Hutt, 1966; Millar, 1968; Ellis, 1973 - the latter ascribing the error to a tendency towards dichotomisation inherent in certain languages). Comparably heated has been the debate about integrity. Moltz (1971) concluded that there was no evidence to justify the identification of play as a valid behavioural class or a scientifically useful explanatory concept and, in a similar vein, Caillous (1961) warned that the seeming generality of play might cause disparate activities to be judged more closely related than they were in fact. Somewhat stronger was the adjuration of Berlyne (1968) "...to give up the category of play in favour of both wider and narrower categories of behaviour". In spite of such deprecation, the coherence of play has been energetically defended - for instance by Miller (1973) who wished to base this coherence upon the process of play, rather than upon its goals. The metacommunicative "this is play" message, which he cites in favour of his argument, has been acknowledged to occur among several species. (Descriptions of the chimpanzee "play-face" by vanHoof (1962) are well-known, as are Bateson's (1956) analysis of verbal, gestural and contextual cues among humans). Undeterred by the lack of a succinct definition, Miller attempted to compile a list of those characteristics delimiting, among primates, play from non-play. As support for this type of pragmatic attitude, Slobin (1964) cites a tenet of Wittgenstein's later position, i.e. that an inability to define precisely most of the words used in everyday speech does not prevent their being used consistently. It is on this hopeful view that the present study is established.

"Play is the serious business of childhood." Expressed here in its general form, this apparent truism has appeared in the literature with lulling frequency. Indeed, many psychologists, excited by the findings of primate ethology, have been willing to ascribe to it a central role in evolution, and have sought explanatory mechanisms.

Since the 1960s particularly, primate ethology has undertaken a great deal of relevant research (e.g. Miller, 1973; vanHoof, 1972). A renowned instance is vanLawick-Goodall's study (1968) of young chimps learning to fish for termites - apparently by means of imitating their elders. At leisure, in that his efforts were not driven by hunger, the novice would observe the adult closely and attempt to copy individual constituent acts. In the view of Bruner (1974) this would suggest: "....that play has the effect not so much of providing practice of survival-relevant instinctive behaviour, but rather of making possible the playful practice of subroutines of behaviour later to be combined in more useful problem-solving". Bruner (1974) interprets the work of Birch (1945) and Schiller (1952) to indicate the necessity of initial play with materials if they are to be used instrumentally. Sylva et al (1976) investigating cognitive behaviour in pre-school children, provided congruent experimental evidence that prior play with materials improves subsequent use of them to solve problems, their design employing a modified version of Kohler's original "stick-as-rake" problem. They concluded that the children allowed preliminary play did better for the following reasons: firstly, problem-solving behaviour required initiative, and the playing children were the only ones whose actions

had been self-initiated; secondly, tool inventions (like other forms of problem-solving) requires serial ordering of the constituent acts involved - and only the players had been given opportunity to explore alternative serial orders; thirdly, since play reduces stress caused by the anticipation of success and failure - the players, less stressed, were able to proceed with less frustration and anxiety, and were more goal-directed: they could benefit from hints and were able to approach the solution gradually, without breaking off.

According to the Yerkes-Dodson law of learning, the more complex a skill to be learned, the lower the optimal motivational level required for fastest learning: it has been suggested that, in addition to buffering against environmental pressures (a view suggested by Groos, as early as 1901), play may promote learning by reducing excessive drive. In apposition, Reynolds (1972) suggested that play serves essentially to dissociate goal-directed behaviour from its principal drive system and customary reinforcements.

The Misses March were given to understand that no matter how fine one's bonnets, it is a difficult matter to wear them simultaneously: viewed broadly, play appears to be multi-functional, and its functions integrated, but theorists have tended to focus their interest upon selected emphases. The present study indeed has concentrated upon the cognitive-linguistic aspects of play - albeit acknowledging readily the apparent diversity of its effects, and the reasonableness of cries for a balancing of research interests. Vygotsky (1966) regretted that several theories had shown an unfortunate tendency to regard play predominantly from the point of view of intellectual development, thereby minimizing the roles of incentive and affect - but in fact, he argued, play appears as a consequence of the child being unable to realise his wishes, every advance from one stage to

another being connected with an abrupt change in motives and incentives to act. Ironically, the subsequent shift in the centre of gravity led to the complaint of Sutton-Smith (1967) that psychologists were too often concerned with the impact of play upon social and emotional growth, to the exclusion of its influence upon cognition. Fortunately, an effort has since been made - of which the present study forms part - to rectify this neglect.

Symbolic aspects of play

Specifically, it is through play that the child learns to understand both the apparently lawful behaviour of objects, and the conventionalised, symbolic nature of social phenomena. Play, it appears, catalyses symbolic processes, including language, the process beginning with the earliest mutual play between mother and child. (The relationship between language and cognition is problematic, and will be discussed at length in Chapter 4.) According to Trevarthen (1979): "Between them, the mother and her baby seem to have recreated, expressed and shared the conventional meanings behind many facial expressions and referential gestures. In some mysterious way the process of cultural transmission is well underway by the child's first birthday". (In the same publication he expresses the current view that the baby takes an active role in this process: "Children, even babies, spend much time in apparently useless play, but because of the attempt to see inside another's head, play engages the most complex social abilities and we think it entirely likely that the essential function of play in childhood is to practise these abilities".) There has recently been a tendency to ascribe semantic, rather than syntactic, foundations to

language acquisition. In addition, particular emphasis has been laid upon the role of play and it has been suggested that the rule systems carried by play are significantly related to those characterising culture and language. For instance, Bruner (1974) speculates that since "culture is symbolism in action", then...."If the rule structure of human play and games sensitises the child to the rules of culture, both generally, and in preparation for a particular way of life, then surely play must have some special role in nurturing symbolic activity generally". He adds that play is clearly implicated in early language acquisition, pointing, in support, to the "extraordinary combinatorial push behind play, its working out of variations". It would seem that the structured interactions and conventions of play precede, and are a part, of the child's early grasp of language.

Studies concerned with the symbolic aspects of play would seem indeed to constitute the strongest evidence of its cognitive significance. Confusingly, the theoretical predilections of researchers have thrown up a wide series of aliases (adjectival descriptions such as "fantasy", "pretend", "socio-dramatic", "thematic", "imaginative", "make-believe") which have not been shown to distinguish essential differences. While the form of play denoted has been seen commonly as the "Royal road" to operational and abstract thought, Trevarthen (1979) has expressed a pause-giving ambiguity: "The important question, we feel, is whether pretend play is simply a reflection of a child's understanding of reality (the understanding itself being gained elsewhere), or whether children actually use play to develop a greater understanding of reality". Correlational support for the functional importance of such play abounds (e.g. Johnson, 1976; Singer, 1973), relationships having been found with

verbal, conceptual and imaginal skills - in the light of which its potential value for the intellectual effects of the nursery curriculum has been suggested (Becher and Wolfgang, 1977), and its likely superiority in that context to specific learning activities. The findings of Dunn and Wooding (1977) appear to confirm the belief that play creates, rather than merely reflects, the child's understanding of reality. Observing children between eighteen and twenty four months in interaction with their mothers, they found that, particularly in the case of the younger children, incidence of symbolic play was closely tied to the mother's behaviour. The latter initiated symbolic play more often than any other type, and used it as a vehicle for explicit teaching - for instance by extending the child's utterances, or commenting on topics so as to hold or gratify the child's interest. The majority of such play sessions were found to begin with the child approaching his mother with an object or action for her attention - which Dunn and Wooding interpreted as the child apparently seeking to confirm his play with the new world of symbols.

More convincing is the evident effectiveness of tutoring symbolic play (e.g. Smith and Sydall, 1978). An influential advocate has been Smilansky (1968) who proposed "that the kindergartens and schools should concentrate their effort on finding ways that will help the children to relate their scattered experiences and isolated concepts, utilise them, and convert them into new conceptual schemes. Then additional information and experience will be meaningfully absorbed". Sociodramatic play was regarded as particularly suitable for the task since it developed both social and intellectual skills, including creativity - all essential for "the school game". From

her own experimental findings she concluded that teaching how to play should be a priority of the compensatory regime, being necessary for, and instrumental in, the absorption of new knowledge and experiences.

Ontogenetic aspects of play

No theory of play has achieved orthodoxy, and disagreement among the major theorists has been radical. A central dispute has concerned the ontogeny of play - whether it covers the whole, or most of, the life span, or has waned in importance by the end of childhood. Vygotsky regarded play as the leading source of development and the spring of mature cognition: "Action in the imaginary sphere, in an imaginary situation, the creation of voluntary intentions and the formation of real-life plans and volitional motives - all appear in play and make it the highest level of pre-school development". Vygotsky argued that play does not die away at school-age, but continues to permeate the attitude to reality, having its own inner form throughout school instruction and work. Piaget, in contrast, (1951), although interpreting play within his total homeostatic theory of cognitive growth, saw it as assimilative, rather than accommodative, in function, so necessarily assigned to it a more limited role. Indeed, according to Sutton-Smith (1967), Piaget saw play merely as a means to prevent learning from falling into disuse and seemed to deny to play a distinctive cognitive function, giving it instead a predominantly affective value reminiscent of psychodynamic formulations: during symbolic play the child subordinates reality to the whims of his ego, revealing imbalanced and egocentric thought processes. But voices have been raised against the perceived bias of Piaget's account: Golomb and Cornelius (1977) presented experimental evidence that

training in symbolic play improves performance in conservation tasks, and concluded that: "During pretense play the child transforms objects and roles while simultaneously maintaining their original identity and function - so the pretense play of early childhood would seem to be an instance of intuitive reversibility of thought - performing reversible transformations that are not perceptually apparent. If such pseudoreversibility of thought exists, it may well be relevant to the reversible thought operations that characterise the attainment of conservation." *

Sutton-Smith (1966) argued that Piaget had misconstrued the nature of play and this misconstrual had led him to underestimate its contribution to cognitive growth. Piaget, he held, saw imitation, not play, as the essential factor in the constitution of representative activity: it is through the process of accommodation, characteristic of imitation, that the child is enabled to symbolize the world - and play can only enable the diversification, never the origination, of symbols. Piaget's view of play, Sutton-Smith argued, as the mere buttress of accommodative processes, leads inevitably to the view that, as the latter become more adequate and efficient, play will cease to be important in the development of the mind. However, Sutton-Smith pointed out, it could be held with equal cogency that, rather than a decrease in the symbolic play function with age, what is actually found is a shift in the applications and the differentiation of the function - the early rule-games, for instance, continue to be heavily loaded with symbolic elements.

Piaget (1966), defending himself from Sutton-Smith's attack, believed that it had arisen from a misinterpretation of what he, Piaget, had written. Two components of cognitive functions, he claimed, might be distinguished: i) the figurative (a more or less

* It should be pointed out, however, that Guthrie and Hudson (1979) failed to replicate this study.

approximate description of reality states, derived from perception, imitation and imagery, or from interiorized imitations); ii) the cognitive (which takes account of transformations of reality and which builds upon sensorimotor actions, interiorized actions and thought operations - which latter are derived from actions and not at all from imitation). He would maintain, he went on, in spite of Sutton-Smith's claims to the contrary, that play does indeed form part of the cognitive component of conception - without becoming subordinated to accommodative imitation. Indeed, he continued, imitation only plays the role of a symbolic instrument from the moment that sensorimotor play becomes symbolic. Taking up another point of Sutton-Smith's attack, Piaget continued to maintain that symbolic play (exclusively an assimilation of reality to the self) does indeed diminish during development - in that it becomes more and more adequately adapted to reality, the essential property of play being the deformation and subordination of reality to the desires of the self.

The influence of context upon play

Certain experimental findings (e.g. Hutt, 1976) suggest that the intellectual value of play may be relative to its context, rather than absolute. The extent to which adults intervene in play is not a new question (e.g. Mead, 1930; Van Alstyne, 1932), but has recently aroused increasing attention (e.g. Rosenblatt, 1977; Rubin, 1977). Apart from evidence that parental involvement may enhance infant play (see above), several studies have been concerned with the behaviour of staff in the nursery school and their role in children's play (e.g. Bruner, 1980). While taking the line that

"....a too scientific and structured approach can actually interfere with the atmosphere in which a young child learns best," and that "....given opportunity, encouragement, and stimulation, the child himself, in his play, will devise far more complex and varied movements for himself than could be conceived by an adult", Parry and Archer (1974) had to concede that play experiences in nursery schools were sometimes presented haphazardly. Tizard, Philps and Plewis (1976) hypothesised that: "The behaviour of the staff in the pre-school centres may well be an important factor in determining the characteristics of the children's play", but found that in only 2% of cases were staff observed to be playing with children, and very rarely did they become involved or stay long enough to initiate or sustain a complex game or construction. Along similar lines was the comment of Cashdan (1980) who, on the basis of the experimental work of his own research team, suggested that teachers of young children exercise too little control over their pupils' talk. Reported in the Sunday Times (1978) Tizard questioned the non-interventionist policy and believed that without adult instruction children set themselves rather low aims. Observing that four year-olds spend about half of their time, and three year-olds about three-quarters of their time playing on their own, she concluded that while free play may encourage individual creativity and expression, it does so at the expense of group co-operation. The distinction between "structured" and "free" play, while central to a long-standing controversy, would seem to be spurious; as Steinman (1970) pointed out: "When one frees himself from the task of controlling a child's behaviour, he does not free the child. Instead he merely passes the controlling functions to others, or the physical environment itself."

While play may no longer be viewed as the medium of growth par excellence, it yet behoves us to see what our wits might make of it. As Ellis (1973) puts it: "What is missing in the armamentarium of our behavioural techniques is a sister technology to that of behaviour modification which will allow us to plan for, and manage, intrinsically motivated behaviour". We might take courage from B. F. Skinner and not fear to move "beyond freedom and dignity".

CHAPTER 4

RELATIONSHIPS BETWEEN LANGUAGE AND COGNITION: THEIR GENESIS, AND IMPLICATIONS FOR NURSERY SCHOOL PRACTICE

It seems likely that the nature of the relationships obtaining among cognitive and linguistic phenomena hold important implications for the role of the nursery teacher and for her organization of curricula. The present chapter seeks to clarify the major issues concerning the relationship of language and thought and discusses relevant empirical and theoretical evidence.

The historical context of current issues

In contemporary psychological theories about language development we find traces of a long-standing philosophical controversy about the part played by mental activity, on the one hand, and perception of the material world, on the other, in the acquisition of knowledge. Although some version of this controversy no doubt goes back to ancient disputes between Platonists and Aristotelians respectively, an historical account of the problem, for present purposes, can conveniently begin with Descartes, to whose arguments about a 'dualist' distinction between the mental and material, and about the nature of secure reasoning, can be traced the current divergence among epistemelogical positions. When seeking an absolutely certain basis for knowledge, he concluded that whatever is clear and distinctly perceived could provide such a basis; but he was sceptical of the possibility of there being any unchallengeable perceptions of the material world, and found it difficult, of course, to convince himself that there were

any sufficiently sound perceptions apart from that of his own existence. By arguing from empirical premises which are as secure as that, provided that the reasoning is 'deductive' (or quasi-mathematical), we can arrive at factual conclusions which cannot possibly be mistaken.

In contrast to this 'rationalism', as it was called, there arose a British tradition which sought to explain knowledge in terms of sensation arising from interaction with the physical world. The best-known protagonists here are, firstly, John Locke, who held that ideas are never innate and can be generated only from sense-data whose validity can in practice be checked against other sense-data; and, later, David Hume, who investigated the logic of constructing knowledge about the material world and its functioning by means of 'inductive' reasoning. For Hume also the mind is no more than 'a bundle of sensations' derived from empirical perception.

A few decades before the major writings of Hume, George Berkeley had taken up the contrasting strand of the Cartesian dualism to argue that it is only the contents and processes of the human mind which can be said to have any reality. This exclusive emphasis on ideas, as opposed to external empirical facts, was known consequently as 'idealism'. It could be said that in the philosophy of Kant, towards the end of the eighteenth century, Berkeley's insistence of the role of mental activity in determining the form of knowledge was combined to some extent with the empiricist claim that knowledge of the independent material world was in practice possible. This is reflected in his important distinction between different forms of knowledge which can be justified rationally in different ways: judgements which are derived from logical truths and the analysis of meanings (quite independent of experience) are known as <u>a priori</u> propositions, whereas those which depend upon observation and are capable of providing

information about the external world are called a posteriori. It is not that one or other form of knowledge is exclusive or all-embracing, but that they serve different purposes and need to be justified in different ways. On this view, conceptual organization of information about the empirical world has both a priori and a posteriori aspects.

This division characterising the history of epistemology and ontology, which has just been outlined, has also pervaded the history of linguistics, where a corresponding clash between idealism and materialism can be seen alongside the associated antithesis between what Lyons (1968, p.4) calls 'naturalism' and 'conventionalism'. Thus an idealist tradition was begun by von Humboldt, in early nineteenth century Germany, whose basic tenets were that language is a process whose infinite variety is generated by a finite set of cognitive principles, and that the structure of any particular language both reflects and influences the thought-forms of the people who use it. By the 1870s, however, an empiricist group, known as the 'Young Grammarians' (Juggrammatiker), had emerged in opposition. They were concerned to demonstrate that the empirical changes which linguistic forms undergo, both within and between languages, have a lawlike character which can be discovered inductively in the same way as other laws of nature. Most influential of the modern linguists who have placed particular emphasis on the empirical study of such lawlike changes and relationships, and who have insisted upon the primacy of spoken as opposed to written language, is Saussure, whose posthumous Course in General Linguistics of 1915 is generally regarded as a cornerstone of the modern subject.

The question of the relationship between language and thought, like most aspects of the social sciences, continues to arouse deep controversy. Some of the present quarrels in Psychology can be seen

as descendants of the ancestral philosophical disputes sketched above. The fundamental dispute, which takes a number of specific forms, is characterised by Boyle (1971, p.167) as being essentially: "between those who regard human acts as the product of symbolic transformations, and who therefore seek the origin of symbolisation; and those who treat behaviour and language as composed of acts existing in their own right". Representing the former position are Chomsky and Piaget, whose theoretical appeal to various forms of 'cognitive structure' (whether in the form of the 'language acquisition device' and the 'deep structure' of language, or in the form of those mental developments which give rise to symbolic representation and to logical operations) are reminiscent of idealist attitudes as deployed by Kant. Contrasting with this, and exemplifying Boyle's second school, we find most conspicuously the work of Skinner and his adherents; for their radical behaviourism in general, and their behaviouristic account of languages in particular (e.g. Skinner, 1957), can be seen as stemming via Watson and the Positivists from the tradition of British empiricism.

The theoretical and ideological contexts of recent research

Those studying language and thought have been greatly interested in the role of determination. The relative strength of this dimension is central to the logical hierarchy implicit in the present survey i.e. the relationship between the phenomena has been variously regarded as involving:

i) necessary and sufficient causality.

ii) necessary and overwhelmingly important causality.

iii) necessary causality, foremost among other sources.

iv) necessary causality, among other sources.

v) influence - not necessarily implying causality.

It may also be useful, during the present account, to bear the following points in mind:

i) A lack of conclusive empirical evidence renders it likely that preferences among theoretical positions will be highly influenced by ideological considerations: a major tenet of the present study - that language is an important factor in the promotion of cognitive growth, is only one of the several possible.

ii) Theoretical bases are not necessarily the major determinants of nursery school practices: other factors such as the political structure of the school, its function in the community, and the aims and beliefs of the staff, may be of at least equal importance.

While the view that thought is independent of language has recently grown in popularity, during the last half century the opposing trends of Behaviourism and Linguistic Relativism have both been current.

i) The Behaviouristic Perspective

Watson, in the 1920s, inspired by the radical directions of the Chicago School (arising at the University of Chicago, towards the end of the 19th century, this was a group characterised by pragmatism and functionalism in the spheres of philosophy and psychology, respectively. Notable members included William James and John Dewey), argued that psychology should eschew issues concerning mind (the very existence of which he questioned) and should aim to predict and interpret events in their most tangible forms, rather than by inference: speech being perceived as the most material form of thought, the latter was identified, with gross over-simplification, as movements of peripheral vocal musculature. More recently, Skinnner (1957) has produced a theory of language development in terms of conditioning principles, which he applies to integrated verbal behaviour. Arising from the learning-theory approach, but less extremely behaviouristic, are the several "mediation" theories of meaning (e.g. Mowrer, 1960). Holding, in general, that meaning is produced by the inter-conditioning of implicit, and largely verbal, responses, they are vulnerable, like the learning-theory approaches, to the charge of being speculative and almost entirely untestable. Fierce attacks upon the extension of learning-theory to the description of linguistic behaviour have come from Chomsky (1959) and Miller (1965) among others. Skinner's account of language behaviour has, in

particular, been severely criticised, commonly along the following lines:

i) His account of language acquisition in terms of conditioning cannot account for the attributes of creativity and novelty.

ii) Children are not usually subjected to systematic conditioning schedules - but acquire language, nevertheless.

iii) It is speculative and over-determined, e.g. in the case of referential behaviour, Skinner has not made it clear whether contiguity of verbal label and object suffices to elicit reference, or whether reinforcement is required: if the latter, he can only identify the reinforcing agent tautologically, in terms of the language produced.

Although several recent pre-school programmes have applied principles of learning theory (e.g. Bereiter and Engelmann, 1966; Engelmann, Osborn and Engelmann, 1972; Risley, 1972), the latter have tended to be 'softened' by recognition that the child's cognitive capacities modify processes such as classical and instrumental conditioning. Pioneers of learning research (e.g. Pavlov, Hull, Thorndike) concentrated upon non-human species, and although claims were made, e.g. by Watson (1928) and by Skinner (1953), that learning principles can be generalised to explain and control human behaviour, these remained largely unsubstantiated until the 1960s. This latter decade saw (mainly in America) a burgeoning of research upon children in which learning principles were applied to regulate many aspects of social, emotional, and cognitive behaviours. (See Howe, 1975 for a review of such research.) By sloughing its predominant concern with animals, the approach has greatly increased its potential relevance for pre-school education: far less restricted, it can now consider issues such as the function of observational learning

(modelling) processes.

"Learning theory programmes" commonly seek to develop academic skills in preparation for ensuing stages of education: while commonly concerned with elementary reading and mathematical skills, their major concern has been with language development. Attempting to reach their goals by optimising the instructional effects of the child's environment, they are characterised by the following features, viz.

i) Desired behaviour changes are carefully specified.

ii) Materials involved are structured and sequenced.

iii) Teaching strategies are systematic, and are based upon learning principles such as 'prompting' (This refers to the provision of sufficient "stimulus support" for a behaviour to ensure its occurrence, so that it can be reinforced), 'fading' (The sequential removing of prompts), and 'errorless learning' (The teaching strategy whereby steps between sequenced tasks are so small that errors are unlikely to occur).

iv) The consequences of the child's behaviour are under control.

v) The child is provided with salient models of desired behaviours.

Like all educational programmes, those based on behaviouristic principles need to provide more information about methodology and content: however, self-evaluation by precise testing and measurement, has indicated that, for children of all social groups, they can successfully accelerate many aspects of cognitive development.

ii) The Perspective of Linguistic Relativism

The "Whorf-Sapir Hypotheses" comprises the strongest statement of the position that language determines human mentality and culture. Extremely influential in the 1920s and 1930s, the writings of Whorf

and Sapir founded the body of thought known as "Linguistic Relativism". A reversal of the traditional view that all languages deal with the same "reality", this holds that thought is prior to, and independent of, language. Major propositions may be summarised thus:

i) Different linguistic communities diverge in their perceptions and conceptions of reality.

ii) The language spoken in a community moulds the cognitive structures of individual speakers.

Whorf (e.g.1941) derived his conclusions from comparative study of several exotic language communities, and an instance will suggest the depth of their implications. Supposed differences in the conception of time between Hopi and 'Standard Average European' speakers, are striking: while Standard Average European objectifies time, with metaphorical use of physical units, such as "in ten days time", Hopi conceives of the same duration as a monolithic period, continually becoming later. Whorf suggested that the European view of time as "motion on a space" leads to the persuasion that it is monotonous and regular, so that the Hopi are the more apprehensive of unexpected events. Standard Average European is conducive to the keeping of records - to budgeting, planning, insuring, and so on - and to a positive evaluation of speed. (With respect to the traits he compared, Whorf found little difference between European languages (although he acknowledged the possible exception of Balto-Slavic and Indo-European tongues), so categorised them as one group.)

Specific objections have been raised to Whorf's conclusions. Brown (1970) for instance, using arguments similar to those of Lenneberg (1953), pointed out that linguistic comparisons alone cannot validate the basic propositions - further empirical evidence must be collected, complemented by psychological data, to confirm that

linguistic differences do indeed create cognitive divergence. Brown (1956), on the basis of experimental evidence, put forward a 'weak' form of the above hypothesis: like Whorf, he had noted that certain perceptual discriminations may be lexically differentiated in one language, but require a whole phrase for adequate expression in another (an idea supported by the experimental work of Carroll and Casagrande, 1958). While he concluded that there may be general laws relating "codability" to cognitive processes, he conceived the relationship to be one of predisposition, rather than of determination. He concurred with the claim of Lenneberg (1967) that there appears to be a potential for sensory discrimination, universally characteristic of humans: so language communities would not seem to differ in this direction, but rather in their manner of categorising potentially discriminable experiences (a process contingent upon their choice of goals). Acknowledging the difficulty of gauging the relative superiority of systems, he was in sympathy with Whorf's belief (1950) that: "Western languages do not represent the peak of mental development; they are only part of a galaxy of mentality."

While the classical Marxist view is that culture (predominantly in its economic aspects) determines human mentality, including language, the neo-Marxist "Structuralist" school has adopted, in contrast, a perspective which may be regarded as a modification of the Whorfian position: de Saussure's separation of the signifier from the signified, in the concept of the sign, had several important results, viz.

i) the study of language qua language, as the synchronic analysis of structural relations.

ii) perception of the signifier as actively creating and determining

the signified.

According to the Structuralist view, Man himself is to be understood as constituted by his symbols, and not as the point of origin of symbolism. (Neither the means of expression, such as sound, nor the concept expressed, are seen to pre-exist the other, or to have any meaning outside their relation: the signifier articulates the signified only by relations entered into with other signifiers: meaning is only produced by a systematic arrangement of differences). Structuralists view social practices as languages (an approach evident in the structural anthropology of Levi-Strauss, for example): social practices "can be understood as meanings as signification, and as circuits of exchange between subjects" (Ref. Coward and Ellis, 1977, p.1). Since language is the medium for all social practices, it is considered the phenomenon in which the social individual is constructed, i.e. "man can be seen as <u>language</u>, as the intersection of the social, historical, and individual" (ibid). The concept of 'human' is seen as a basic presupposition of bourgeois ideology. Through language however, a new scientific analysis, in materialist terms, has arisen, in which the 'human' can be studied as a socially-constituted process, playing a material role in society.

That materialist theory of subjectivity failed to fully usurp bourgeois understanding of language, and ideology has been attributed to its own compliance with the bourgeois view: systems of meaning were seen as pre-given, rather than as dynamic processes of production. (Either the system of meaning was considered to be imposed on the subject, who is then only its support, or meaning was seen as produced in the structure by transcendental consciousness - which always already intends any particular meaning). Transcendence is currently seen as the need to guarantee understanding of the world of phenomena

by providing it with a focus. Such certitude "is in direct antagonism to the philosophy of Marxism, whose lesson of dialectic materialism stresses precisely process: everything that exists consists in contradiction, and in the process of transformation" (Ref. Coward and Ellis, 1977, p.4). The failure of structuralism and semiology has led to recent re-formulations (notably those of the "Tel Quel" group, including Barthes - whose "S/Z" has been considered pivotal between early semiological analyses and full acceptance of the role of the speaking subject in signification. A major new trend is the reinterpretation of Freud's analyses carried out by Lacan in France. According to the latter, Freud revealed a form of signification (especially in his studies of dreaming) which could not be recognised by formal linguistics. Founded in materialism, Lacan's theory rejects the notion of bourgeois psychoanalysis - that the individual is unified and consistent. However, a materialistic interpretation of language and ideology is seen to need a technique for analysing the process by which fixed relations of predication are produced for and in the subject: Lacan feels that this need can only be met by psychoanalysis - since the identification and social positioning of the subject result from his construction, by the family, within society (a similar point was made by Bernstein - see below).

While it has received substantial support, the problematic nature of the relativistic/deterministic view is apparent. One major problem is the paradoxical nature of its underlying premises: arguing that, on principle, there can be no transcendental criteria for scientific argument, it denies that on which its own credibility must rest. Similarly, when Whorf asserts that members of different language communities are unable to understand each other's concepts (when they arise from divergent language structures), he relies upon

the ability of his reader to comprehend his examples. Another important problem for this position lies in the ability to distinguish the form of mental processes from their contents: support is growing for the belief that while mental processes are relative to the culturally-determined sensory experiences of the individual, certain cognitive structures, such as inductive and deductive logic, are universal (see below).

Since the beginning of the century, sociology and linguistics have developed in mutual isolation, and their combination in the form of "sociolinguistics" is recent. Many aspects of the latter, such as analysis of conversation, are, in fact, relevant to a wide range of disciplines, including philosophy, psychiatry, political science and psychology, its focus being the manner in which the realisations of language are influenced by prevailing social contexts. While it has been shown that variations of speech <u>do</u> reflect the underlying constraints of systematised social relations, it has generally proven much easier to formulate linguistic, rather than sociolinguistic, rules governing communication. (However, appempts have been made to clarify the nature of sociolinguistic rules, e.g. Labov, 1970; Searle, 1965.) A major aim of the perspective may be summarised as the exposition of different functions of language:

i) across different communities.

ii) within single communities.

The various hypotheses of Linguistic Relativism have attenuated and, in their strongest forms, even reversed, classic sociological theory, if the latter is taken to mean that society is the dominant cause of its own evaluative and cognitive systems. Notable among sociolinguists who have attempted to synthesise these disparate approaches has been Basil Bernstein: in a sociological modification

of the Whorfian view, he holds that social structure determines the language code by which culture is transmitted. Rosen (1972), while disagreeing with him, offers a concise summary of Bernstein's theory (acknowledging the redefinition, qualification, and shifts of emphasis, which have characterised it since its exposition): "The thesis states that there is a fundamental qualitative difference between the speech of the working-class (or at least of the unskilled working-class) and that of the middle-class, and that this is not a matter of knowledge of grammar, dialect, or slang, but rather of the different use of the grammatical system and vocabulary. The difference will arise from different relationships to the social structure. The two classes can be said to be using different codes - because there are differences in the principles which underlie the particular choices they make in speech: different kinds of socialisation involved find their expression in different kinds of language. Children thus acquire different kinds of cultural identity and different responses to these identities. Thus they come to perceive different orders of relevance and relation, of understanding of themselves, others and the world. The class basis of these differences lies in differences of relationship to the main socialising agencies of the family, the peer-group, school and work.

Adverse comments upon Bernstein's theory have been relatively mild, until recently, when scathing attacks have been made. A major criticism is the paucity of the empirical data which he offers to support his findings - for example, the distinction between 'public' and 'formal' modes of speech, which was proposed in his earlier writings, was held to be self-evident. Also, while he has claimed that differences between linguistic codes are firmly linked to family typology, he has not offered substantial evidence for such a relationship.

Lack of empirical evidence may also, according to Rosen (1972), be seen as a factor in his insufficient differentiation among the working-classes. (Rosen, (ibid.), complains, in addition, that Bernstein has not adequately examined how language among the middle-classes is affected differentially by various levels of status.) While Bernstein has denied that his theory is a 'deficit' model (e.g. 1970), many seek to contradict him. Labov (1969), for example, concluded from his study of black 'ghetto' children in New York that verbal deprivation, as posited by Bernstein, is a mythical notion, "and diverts attention from school as the actual source of cognitive and linguistic deficiencies". Coulthard (1969) also questions whether Bernstein's distinction of language codes, with their evaluative implications is substantial: his formulations, he argues, have been inconsistent, and incapable, in principle, of being refuted: he has veered among several types of explanation (i.e. linguistic, sociological and psychological), and this has allowed certain subsequent findings, based on divergent definitions, to be contradictory (e.g. Bernstein, 1958, 1962a; Robinson and Creed, 1968). In his more recent writings Bernstein has been more concerned with the use of language, rather than with its syntactical and lexical characterisations. His earlier work, in which he paid more attention to these phenomena, has been denigrated both for lacking a consistent linguistic position, and for the ultimate triviality of the consequences of the linguistic differentiation involved: according to Trudgill (1975): "if we look at things from a purely linguistic point of view, all the theorising of the past sixteen years appears to have reduced to evidence that, in situations more artificial and alien to them than to middle-class children, working-class children use a higher proportion of pronouns!".

Notwithstanding their controversial nature, Bernstein's theories have, on the whole, been enthusiastically welcomed: they have been widely used to justify educational practices and have inspired a substantial amount of research: many investigators have studied the relationships between social status and linguistic variables, and several have concluded that the linguistic style of the mother is an important influence upon the language abilities of her child (e.g. Hess and Shipman, 1965; Olim et al, 1965; Wootton, 1974).

The formulations of Soviet materialistic psychology also ascribe a critical role to the child's social environment in the formation of his higher mental processes. According to Luria and Yudovich (1956): "Human mental activity takes place in conditions of actual communication with the environment, in the course of which the child acquires from adults the experience of many generations." Not only changes in the contents of consciousness, but also radical re-organising of mental functioning, were attributed to verbal intercourse with adults: through language, perception develops from an original dependence upon direct sensory experience, to a stage of generalised, rational understanding. If reliant solely upon his own individual experiences, the child would perceive reality in relatively simple, circumscribed, ways. However, when he hears the adult label phenomena, defining their relation, a wealth of potential interconnectivity opens up for him: by the systematic abstraction and isolation of features of the environment through language, conceptual hierarchies are created.

As will be seen, the pedagogical implications of the Soviet position are in stark contrast to those of the biological and behaviouristic perspectives, which it rejects. The latter (as articulated by Watson, Thorndike, and Guthrie), regarding speech

merely as one aspect of motor habits, without a dominant developmental function, would reduce the role of education to one of training: similarly to be deprecated was the view that development rests upon the maturation of innate capacities, and that education is merely the catalyst of growth, the direction of the latter being pre-determined.

L. S. Vygotsky (1962) was one of the first to argue that the development of thought is determined by early sociolinguistic experiences, including language. He suggests that while the two functions have independent phylogenetic and ontogenetic roots, their eventual relationship, in the form of 'verbal thought', may be compared with the overlapping sectors of two concentric circles: considering the study of thought and language, as distinct processes, to be both sterile and inappropriate, he similarly rejected the behaviouristic notion (e.g. Watson, 1928) that they can be equated: his own, preferred, psychological unit was that of "word meaning" (a fusion of thought and speech which acts, for the subject, as a microcosm of the global statement). This unit, he argues, is not innate, but rather is determined by historical-cultural processes: thus it is an issue extending beyond the realm of the natural sciences into that of social psychology.

The conflicts between Vygotsky and Piaget have been well-documented: while the former held that concepts could be taught verbally, the latter placed the onus upon the child's own direct manipulation of the environment. Regarding egocentric speech, Piaget saw it as a primitive phenomenon, forming the genetic link between autistic and logical levels of functioning, and which, incapable of increasing the child's grasp of objective reality, has normally been replaced, by school-age, by more mature socialised forms. Vygotsky's

position was directly opposed to this: regarding this type of speech as a culmination of its earlier social counterpart, he conceived of it as a useful tool by which the child may guide and direct his thoughts and actions, and which by school-age has usually been rendered more effective by having been internalised. During his own experimental studies he had noted that egocentric speech at first marked the end result, or a turning-point, in a young child's activity, gradually occurring more frequently towards the middle, and finally, at the beginning of the task. This result he interpreted in support of his claim that it takes on a directing, planning function, and forms the transition from vocal to inner speech. In spite of a relative paucity of supportive empirical evidence (according to Shields, 1979), Vygotsky's theoretical views have been long-lived, and his influence apparent in current formulations (e.g. that of Cromer, 1974).

Luria and Yudovich, disciples of Vygotsky, wishing to study the role of speech in the formation of mental processes, adopted an experimental approach designed to avoid the usual methodological difficulties. (Earlier relevant studies had been unable to assess accurately the role of speech in thought because:

i) it was difficult to distinguish linguistic effects from the factors of global brain functioning, and from maturational and environmental effects.

ii) it was difficult to estimate the contributions of internalised speech.)

For three months, two five-year old uniovular twins, whose speech in both cases was retarded, were placed in separate, parallel kindergarten groups. One of the twins was subjected to an intensive bombardment of grammatically-correct speech, the other serving as

the 'control', and, at the end of the experimental period, alterations in the mental organisation of both were judged. Most of the relevant cognitive and linguistic changes, it was estimated, had been brought about by separation alone, viz. the rapid increase in the amount of speech used for planning activities, and the virtual disappearance of earlier autonomous elements; the improvement of the constructive play of both twins. Not only did they appear to be more enthusiastic, and willing to persevere, but they were more likely to formulate projects verbally, and to evaluate their performance. However, certain improvements did pertain to the 'experimental' twin alone, and were explained in terms of his special treatment: his ability to produce and comprehend grammar had become more sophisticated and more objective; he was able to spot incorrect grammar; to manipulate words and sentences as components of logical, discursive thinking; to extend narrative beyond the immediate situation.

In similar theoretical tradition was the work of Liublinskaya (1957). A series of experimental investigations upon children of pre-school age led her to confirm the educational importance of language: by means of this function, the child learns to isolate and to differentiate environmental features - and such features not only serve as the basis for comparison and generalisation, but become the salient stimuli for the regulation of his behaviour.

More recent confirmation that language is a socially-transmitted process, of major importance to early education, has come from Jerome Bruner (1964; et al 1966). Language, he argues, is one of the technologies by which Man has amplified his genetic capacities - and which has enabled the slow evolution of his cultures. A process by which we select information from the environment, and construct versions of reality, it is far less restricted than the

ontogenetically-earlier enactive and iconic function (those based on the child's motoric and imaginal acts respectively). Bruner agrees with Chomsky (1957) and Miller (1962) that transformational rules of grammar provide a syntactical means of re-working experiences: once the child has internalised language as a cognitive instrument, he can represent and systematically re-organise the regularities of perception with far greater flexibility and fluency than before. The rule-structure of language is argued to be crucial to its cognitive effects: "As language becomes more internalised, more guiding as a set of rules for organising events, there is a shift from the associative principles that operate in classical perceptual organisation to the increasingly abstract rules for grouping events by the principles of inclusion, exclusion, and overlap, the most basic characteristics of any hierarchical system. "As the child matures, rules of implication, rather than of simple association by similarity and contiguity, allow him to "transcend momentaneity" and to go beyond the information given.

The tradition that language is a major influence upon cognitive development has had strong impact upon educationalists, guiding their suggestions about nursery school practices. Tough's project: "Communication Skills in Early Childhood" (1976), heavily influenced by the theories of Berstein, (however, in contrast to his emphasis upon the pedagogical style of families, she has been primarily concerned with the educational context of the nursery school), explores the relationship between language and cognition and stresses the need for the professional status of educators. In her view, language skills are fundamental to intellectual success and she has attempted to analyse the verbal skills which must be fostered by the nursery school if it is to compensate for home experiences described

as 'inadequate'. Materials resulting from the project have included standardised guides (e.g. "Talking and Learning: A Guide to Fostering Communication Skills in Nursery and Infant Schools", 1977b), whereby school staff may be trained in the perception of language difficulties and deficiencies, and be given an idea of how to overcome them – such appraisal and enrichment to occur during normal, informal, child-adult interaction. A longitudinal survey (reported in "The Development of Meaning: A Study of Children's Use of Language, 1977a), comparing the linguistic structure and functions of middle-class and working-class children revealed wide discrepancies - working-class children, it was found, make shorter utterances, and do not use language to express feelings, to report or explain events, or to justify their actions, as frequently as do their middle-class counterparts. It seemed however, to be not so much a matter of competence, as of the child's idea of what the purposes of language are. The teacher's role is seen to be crucial - she must supply the place of the middle-class mother, using language to encourage verbal thinking skills. It is evident that, to the extent to which she has adopted Bernstein's position (see above), Tough is susceptible to the various arguments levelled against him.

There has been a growing emphasis upon the interactional functions of speech in young children. Shields (e.g. 1976) adopted this perspective in her explication of inter-relationships among language, thought and meaning. During two years she collected examples of dialogue among nursery school children, stressing its nature as a process, rather than as a product. She concluded from her study that children can use language to set up and organize fields of meaning in co-operation with others. The competence which they show at interaction is beyond syntactic competence, Shields maintains, and is indeed the origin of many important skills in

constructing syntax. Young children, she maintained, can operate with considerable skill: they can use many of the common cohesive devices such as ellipsis and tagging; they can adapt their language to their notions of the understanding of others; they can focus attention on a topic and maintain it by nonspecific reference over chains of exchanges. (The contributions of Blank (e.g. 1977) to research upon interaction in the nursery will be discussed in Chapter Five, where the emphasis will be laid upon its compensatory aspects.)

Heber (1977, 1978) concluded, from her experimental findings on seriation skills, that dialogue is the most fruitful form of interaction between speech and cognition: neither the child's own organizing activity, nor the extrinsic influence of speech forms independently produced progress in seriation, whereas speech and action, incorporated together, by discussion with an adult observer, did so: "It seems that such guided dialogue helps the child to formulate, and thus to synthesize essential serial relation" (Heber, 1978): she speculates that dialogue is so effective largely because it is intrinsic to problem-solution. Her studies were replications of those of Sinclair-de-Zwart, 1967, and contradicted the conclusions of the latter, that language plays a minimal role in cognitive growth. Since the child must take into account the listener's point of view, this will promote, in Piagetian terms, self-regulation, and, in Brunerian terms, deictic detachment.

If the pre-school is to emphasise language as a means of growth, then it behoves adult interpreters of the child's linguistic skills, to beware egocentrism. Evidence is accumulating (e.g. MacNamara, 1972; Donaldson, 1978) that the young child's ability to comprehend speech may rely much more heavily upon non-linguistic, contextual, clues, than has been generally assumed. According to Wheldall and

Martin (1977), the widely-held belief that linguistic comprehension precedes production is supported by unsatisfactory evidence - notably the methodologically-unsound studies by Fraser, Bellugi, and Brown (1963). Indeed, the former argue, although it is necessary, in order to comprehend an utterance, to grasp its semantic implications, no such requirement need be met in the case of producing speech. On the basis of their own experimental evidence, they claim that the receptive linguistic skills of children are usually over-estimated, and that we need improved measures of them. (A similar view has been expressed by several others, e.g. Ervin-Tripp and Slobin, 1966; McNeill, 1966). Their perspective is in conflict with what they term the 'liberal' credo, as expressed by Labov, 1970, for example: they hold that the language abilities, both productive and receptive, of 'disadvantaged' children are retarded, and attribute this phenomenon to different styles of socialisation, correlated with social status.

Maturational approaches to the relationship between language and cognition

The notion that innate organizational capacities may exist has recently been growing in favour (e.g. the work of Hubel and Wiesel, 1962, on feline vision). Regarding the present issue, there is strong support for the view that language is largely determined by innate linguistic mechanisms. A protagonist of this approach is Noam Chomsky. Refuting the behaviourist picture of language, he sought to explain how very young children, without systematic tuition, could master the apparently enormous problems involved in learning a language. (Chomsky originally presented his theory in 1959 as a direct refutation of B. F. Skinner's account of language acquisition

("Verbal Behaviour", 1957).) His proposed solution is that language is a syntactical, genetically-determined, biophysical system, which matures in interaction with the environment. Paradoxically, while it is a finite, rigidly pre-programmed system of logical features, it is these very characteristics which provide its creative aspect, and its potential for the generation of an infinite number of sentences. (Evidence of universal phonological rules, e.g. Jakobson, 1941, may be regarded as supporting his nativist position).

Major opposition to Chomsky's theory has emerged from the Genevan School, led by Jean Piaget, who deny that language is innate, and argue instead that it is founded upon cognition: through homeostatic processes of assimilation and accommodation, the child builds up symbolic representations of the world: language does not have a predominant role in the process, but is only one of several contributory factors (such as imagery, painting, and symbolic play); it extends and modifies the emergent cognitive abilities characterising the "sensorimotor period" and the "operational" stage - but does not cause them. (Piaget does admit, however, that language may be necessary for the manipulation of abstract propositional thought, commonly maturing by adolescence). Substantial experimental evidence, in support of Piaget's claims has been provided by Sinclair-de-Zwart (e.g. 1971), who has attributed the development of several linguistic features to corresponding "sensorimotor" schemes, e.g. the grammatical relations "subject of" and "object of" rest upon the child's ability to relate objects and actions to one another.

Piaget himself did not write extensively on the educational implications of his theory, and there is great controversy over what these consist of: nevertheless, according to Hom and Robinson, 1977, his theories have been widely applied - especially in the field of

early education (see Chapter Two). Tizard (1974), however, disputes their claim: she argues that Piaget has had very little impact upon nursery school practice, and that John Dewey has probably been the main theoretical influence upon the field.

It is unsurprising that contention has been common where empirical knowledge is slight. If nursery teachers are to be convinced of the need to change their practices, then scientists must be able to say much more about how the intellect develops, and how its progress can be modified. More experimental pre-school programmes must be set up, in which theoretical rationale is clearly specified, and its implications for teaching methods and curricula explicated.

CHAPTER 5

THE IMMEDIATE AND ANTECEDENT RESEARCH CONTEXTS OF THE PRESENT STUDY

A reading of the literature suggests that studies of language, in relation to the pre-school child, have, by and large, fallen into two main categories: firstly, those concerning language in the context of the home and family (e.g. Snow et al, 1976; Wootton, 1974); secondly, those which, like the present study, have focused upon language in non-familial contexts, such as the playgroup or the nursery school. Within the above categories, various lines of emphasis may be distinguished, among which the co-ordinates of the present thesis are to be found.

1. Descriptive studies and the issues they have raised

The natural development of language has long been the subject of both speculation and observation. These activities, like many other scientific enquiries, can be traced back to the Greeks, and, specifically, to the account by Herodotus (at the very beginning of Book Two of his history of the Greek and Persian War) of an experiment conducted by King Psammetichus of Egypt. In order to determine whether Man's original language was Egyptian or Phrygian, he had two newly-born babies placed in the care of a dumb shepherd, so that they should be raised in linguistic isolation. On the assumption that the first word spoken should reflect the 'primacy' of the language to which it belonged, the shepherd was instructed to reveal the first word spoken, and duly did so. (Herodotus tells us that the word in question, spoken in unison, turned out to be 'bekos', the Egyptian

word for bread, thus confirming Psammetichus' belief in the supremacy of his native tongue.)

de Villiers and de Villiers (1979) point to more recent descriptive studies of language acquisition which have been provided, since the nineteenth century, by linguists who have kept diaries of their children's spontaneous speech. Indeed, some of the most extensive samples of child speech have been recorded in this way e.g. a thorough French study by Antoine Gregoire (ibid.), a lengthy work on German by Werner Leopold (ibid.), and diaries of English learning by several writers such as A. F. and J. C. Chamberlain (ibid.). Similarly, the well-known study by Brown and his team (e.g. 1973) referred to a mere three children.

In addition to this idiographic line of investigation, many of the early studies, as Tough (1978) points out, were concerned to establish the norms of language development - either by constructing a picture of the 'average' level of achievement for each age (e.g. Gesell, 1943 (ibid)), or by concentrating on aspects of language used by children at different ages, size of vocabulary being one such aspect given particular attention (e.g. Watts, 1948 (ibid.)). These nomothetic imvestigations differed from the diary studies in their inclusion of social contexts beyond the home.

Findings from the corpus of descriptive studies led to enquiries, in various directions of observation and theoretical speculation, about the fundamental psychological processes involved: specifically, the balance between innate capacity and learning processes; which of the various learning-based models might be most appropriate; the relationship of language to cognitive processes in general.

1i) The balance between learning processes and innate capacity

The question of whether language is acquired mainly through learning processes, or is, by and large, a result of innate 'priming', has important implications for school practices and for the timing of educational programmes.

The best-known version of the nativist position has been Chomsky's theory of generative grammar (see e.g. Miller, Galanter and Pribram, 1960), set up in opposition to the accounts of learning theorists. Succinct accounts of the main points at issue have been given by Greene (1972) and by Tough (1978). On the whole, learning theories have considered verbal responses to be merely a sub-class of responses in general, and, in consequence, explicable by the general laws applying to the establishment of response-stimulus connections. Skinner (1957), who provides what is perhaps the simplest version of the learning theory approach, holds that verbal responses attach directly to stimuli, and views as unnecessary the positing of intervening variables - such as meaning, ideas, or grammatical rules. (However, there were those who found this account of language acquisition incomplete. 'Mediation learning theory', usually associated with Osgood (Osgood et al 1957), while maintaining the essential features of the Skinnerian approach, made an important theoretical addition: denying that verbal responses attach directly to stimuli, they argue instead for the intervention of 'symbolic mediational processes', i.e. unobservable meaning responses to words which represent only a part of the overt response that would have been made to the object, and which stimulate appropriate overt responses to the word.) Reviewing Skinner's "Verbal Behaviour" (1957), Chomsky (1959) argued that the model of language acquisition

drawn implied the process to be an extremely inefficient one, and failed to account for its creative aspect. It followed from Skinner's position, he held, that a child would learn a language by experiencing all possible sentence strings in order to learn the probablilities of stimulus-response associations between successive words in a sentence. This, he argued, was clearly impossible, and it would obviously be more efficient for the child to develop rules allowing him to produce permissible sentence sequences - including combinations of words he has never heard before, and which, consequently, have no calculable probablility of occurrence. In place of the learning theory approach, Chomsky offered a system along maturational, Cartesian lines: that very young children can, with relative ease, master the complexities of language, and do so in a regular manner, can be most easily explained by assuming the existence of an innate language capacity; humans are endowed genetically with a specifically linguistic (rather than cognitive) capacity for discerning the generative rules operating in natural languages.

In support of the nativistic position is the suggestion that language acquisition may be characterised by 'critical' or 'sensitive' periods (see Chapter Two for an elaboration of these concepts). According to de Villiers and de Villiers (1979), parents play an important role in language acquisition, but the strength of their impact is dependent upon the point of linguistic development which the child has reached. It is commonly believed that parents make frequent corrections of their children's errors of speech - particularly in the case of certain features, e.g. pronunciation. However, for long periods of time children do not seem to be sensitive to such corrections and persist, in the face of parental efforts, in producing their own systematically erroneous versions. In the case

of grammatical errors, direct correction is rare, although parents' expansions of the child's incomplete sentences may function, indirectly, as corrections. Clearly, children do learn from the discrepancies arising between their own productions and the reproductions made by adults, but it would seem that they are sensitive to such discrepancies only during certain periods in their mastery of the relevant grammatical forms.

An approach radically different from both the stimulus-response and the psycholinguistic approaches outlined above was that of Piaget (e.g. 1954), who held that language must rest upon the pre-verbal structuring of experience: that reference to a concept can convey little meaning to a child until he has begun to grasp that concept through his own concrete experiences with relevant objects. Cairns and Cairns (1976) point to a conclusion of the Piagetian theorist Sinclair (1971), that infants emerge from the sensory-motor period with the conceptions of effector, action and object - nonverbal representations which form the basis of the conceptual, cognitive foundations for underlying grammatical relations. Sinclair is using Piagetian theory as a general explanation of cognitive development, from which linguistic universals can be derived - but, argue Cairns and Cairns, there is nothing about the Piagetian conception of the sensori-motor period from which one could deduce the cognitive categories of actor-action object, or by which one would be led ineluctably to the corresponding linguistic formulations. Indeed, they maintain, there are two main problems with a Piagetian approach to linguistic development: firstly, that his theory is not yet sufficiently explicit to afford precise predictions about which aspects of language and language developments will occur, and which will not; secondly, when one moves from grammatical relations to other linguistic

universals - such as transformational rules and the existence of nouns and verbs - that have been formulated with great precision, it becomes impossible to apply Piagetian theory even metaphorically.

1ii) The relationship of language acquisition to cognitive development

Major propositions concerning the relationship between language and thought have been that language determines thought; that language is an important influence upon, but is not prerequisite for, thought; that language develops from a cognitive basis. With specific allusion to the proposal of J. B. Watson (1919), that thought is comprised merely of subvocal speech movements, the proposition might be added here that thought is to be equated with language, were the latter to be defined narrowly in terms of speech. (A comprehensive discussion of these issues has been provided in Chapter Four.)

2 The effects of environmental variables upon the development of language

2i) The physical environment

Sometimes physical damage may impose limitations upon the child's perceptual 'machinery', so that his language is impaired. There may be hearing-loss for instance, arising in utero as a result of maternal rubella, or indeed arising at any point during the period of language acquisition whenever lesions have occurred in the relevant neuromusculature, (Ewing and Ewing, 1971). Damage to cortical structures may lead to difficulties in both the comprehension and the production of language, as exemplified by the various types of

'aphasia' (Williams, 1979).

2ii) The social environment

2iia) Studies within pathological contexts

Linguistic retardation may result from widely divergent social conditions. On the one hand, it may arise from extreme forms of social isolation, and, on the other, from conditions of special intimacy, such as 'the twin situation', in which an objective necessity for language development may be precluded.

Clarke and Clarke (1976), discussing cases of severe and prolonged social isolation in early childhood (Davis, 1947 ibid.), accompanied in some instances by cruelty (Koluchova, 1972 ibid.), observed that such treatment did not predestine the children to permanent mental handicap or to emotional maladjustment. A rapid initiation of speech in the year or so following rescue was followed by slow, but continuous, improvement thereafter. Koluchova, in a sequel to her report of 1972, argues strongly against the notion that there are critical periods governing early language growth: "The view that the effects of severe deprivation were irreparable arose from the fact that severely deprived children usually could not be found a new family".

Luria and Yudovich (1959), in a now famous study, attempted to establish precisely, and to provide firm evidence for, the extent to which language exercises a formative influence upon mental processes. For their purposes, identical twins, five years of age, were selected, whose speech had not developed beyond primitive levels, and whose "structure of consciousness" was correspondingly "peculiar and insufficiently differentiated". Since the twins apparently were able to communicate with each other, unimpeded by their deficiencies of

speech, it was felt necessary to separate them physically, that they might, in the company of fluent children, be faced with an objective necessity for using language. In both cases speech improved rapidly, and began to take on new fuctions, such as the narration of events or the planning of play activities. While there resulted differences between the children, which had arisen in connection with the systematic training of one twin's speech, they "were able to note cardinal improvements in the structure of the twins' mental life", which they attributed to the influence of the one changed factor - the acquisition of a language system.

2iib) Variation within the normal range of social settings

Giglioli (1972) describes the manner in which sociology and linguistics, having grown in mutual isolation since the beginning of the present century, came together in recent years under the rubric of 'sociolinguistics' - a discipline concerned with the speech act in all its dimensions. Rather than speech being perceived as the haphazard result of individual choices, as the mere expression of psychological states, it is, from the sociolinguistic perspective, seen to display systematic variations reflecting the underlying constraints of a system of social relations.

With regard to language production in early childhood, a growing amount of attention is being paid to the effects of extra-familial social contexts, such as the nursery and playgroup, but the majority of studies have concentrated upon the influences of the family (e.g. Newport, 1977; Wootton, 1974). A major issue has been whether children from different subcultures develop language skills of different value. In particular, Bernstein(1964; 1973a) has been held responsible for the view that the cognitive processes of working-class children are constrained by their linguistic background - a

position which has received support (e.g. Hess and Shipman, 1964) as well as vehement opposition (e.g. Labov, 1970). (In fact, Bernstein has denied that his arguments centre around deficiencies of cognitive capacity. Rather, he argues (1973a), the working-class child is, characteristically, handicapped in the expression of his thought.)

Family size, partly independent of social class, is another factor which has been found to affect language development. Friedlander (1971) (cited in Clark and Cheyne, 1979), who studied tape recordings of family conversations in the home, found that the presence of several children tends to lead to a situation in which everyone is speaking at once, and concluded that clarity, as well as complexity, of speech seems to be important for language development.

Without doubt the view of language as a set of acquired rules (see 1i above) has been an important step in our understanding of language. However, as Tough (1978) suggests, it may be that teachers, concerned with how language serves communication and learning in the classroom, may be offered greater insight by the theoretical elaboration of the view that language arises in order to serve particular purposes.

Piaget (1924) and Vygotsky (1934), in a famous long-drawn-out debate, represented contradictory views on the function of language in early childhood. According to the position of Vygotsky and his followers, all language is social in origin, developing from the interaction of the child with those around him (a view given recent support by Bruner, 1975; Halliday, 1975): through language the child comes to understand the world, to organize his perceptions of it, and, eventually, is enabled to reflect upon his own thought processes. Piagetians, on the other hand, not only have denied such an important

directive role to language, but have disagreed that it is the basis of cognition. Rather, they have argued, cognition rests upon the child's own concrete experiences, language serving primarily to accompany his actions and to express his egocentric perspective. In recent years it has been claimed (e.g. Donaldson, 1978) that because Piaget's clinical studies of thinking ignored situational influences he was led to underestimate the young child - who can indeed solve problems of the sort given provided that they be presented in 'human terms', using language which he readily understands, and in 'meaningful contexts'.

2iic) The influence of the immediate situation

Speaking of the primary school, Rosen and Rosen (1973) declared: "....it is the particular kind of shared life created by those who work together in a school which determines how language will be used by teachers and pupils. It is the voice of this shared life which marks out the boundaries of possible discourse." Within the context of the nursery school, several recent studies of language function have revealed the influence of the immediate setting, its physical and social characteristics, upon the child's behaviour.

While during the past decade a little light has been thrown upon interaction among children (e.g. Shields, 1976) of greater concern has been the role of the teacher and the effects of his/her active intervention (e.g. Gardner and Cass, 1965). Several studies point to the potential importance of teacher-child interaction for cognitive and linguistic growth. Wood and Harris (1977), for example, found that children were able to concentrate better upon tasks in hand when an adult was present - and others, such as Bruner (1975) have believed that conversation with adults can help to shape and constrain the child's thought and speech. Sylva et al (1980) point

to the present-day nursery teacher's concern for the function, rather than the form, of children's speech, and basing themselves upon a personal communication from Cazden (1975) suggest that, in addition to conversational conventions, such as the socially-approved ways of gaining attention, the child entering primary school needs to be able to use Bernstein's 'elaborated code' and, when learning to read, needs to develop 'metalinguistic awareness'.

While teachers have commonly expressed an intention to foster cognitive and linguistic skills (see Chapter Two) and have a potentially important role to play, there have been pessimistic conclusions drawn about the usual level at which they function. Tizard (1975), for example, considered that, in general, nursery teachers were interacting with children on such an unsophisticated level that they were unlikely to have any significant effects upon their development.

Various possible sources of influence upon teachers' behaviour have been suggested. Miller (1975), evaluating relevant evidence, was unable to draw firm conclusions about the effects of teacher personality, but suggested that teachers may be affected by ecological factors beyond their control, such as the physical condition of the room and the size of the centre (Prescott, Jones and Kritchevsky, 1967 ibid.). Confirmation that 'rooming arrangements' may indeed be important comes from Sylva et al (1980) who claim that the typical pre-school does not nurture dialogue - which flourishes rather in peaceful, intimate, 'home-like' settings. Along similar lines Wood et al (1980) interpret their own findings to imply that the form of interaction between adult and child is affected by the physical context of the pre-school: that the type of activity which teacher and child become involved in, the time availavle for 'chat', play and instruction, is intimately bound up with the physical structure

of the school and the fit between the school's philosophy and its architectural form. Further, "....any personality factors of the teachers, and general stylistic qualities in their relationships with children were intimately bound up with their general physical and educational environment."

It has been suggested that important influences upon teachers' behaviour are the underlying philosophy of the institution in which they operate (Karnes et al, 1972) and the manner in which they construe their roles. Wood et al (1980), in a recent study of playgroups and nurseries, concluded (cf Tizard et al, 1972; Hutt, 1976) that the adult's role vis-à-vis the children dictates the sort of linguistic environment they are exposed to, and that a managerial role tends to restrict language to a focus upon immediate events. Analysis of their recordings showed that, characteristically, language in the pre-school involves management and description, with an element of conversation about events and happenings outside the immediate environment. Usually it had little to do with the shared doing or making of things and there was little by way of reasoning or causal thinking. The more demanding, intellectual uses of language - why things work as they do; why people act as they do, and so on - were extremely rare - and when they <u>did</u> occur, tended to be concerned with quite specific, banal topics. It is largely the teacher's managerial function, they argue, which narrows language function to a concentration upon the immediate situation being experienced, about to be experienced, or having just been experienced, by the child himself.

The common finding that working-class children do not, by and large, perform as well in school as do middle-class children, has usually been ascribed to differences between the early linguistic environments which the respective subcultures provide. However, in

opposition to this view, it has been argued recently (e.g. Cashdan, 1980) that children are treated differently by their teachers according to how the latter construe them. Wood et al (1980) present evidence that teachers adjust their language function according to the child's subcultural status - so that, for instance, some children are subjected to more management than others, and some questioned more frequently. Citing supportive evidence (e.g. Tizard et al, 1980), they conclude that pre-school care differs in its impact upon children from different sections of society because of variables which are intrinsic to itself, rather than resident within the child.

The view that the teacher may not have the interactional skills to achieve commonly-held objectives for linguistic and cognitive growth has prompted several attempts to provide her with educational 'packages' designed to steer her into specific types of conversation. While, in some cases (e.g. the Peabody Language Development Kit (Dunn et al, 1968); the short-term language patterning exercises of Bereiter and Engelmann, 1966), programmes have had a considerable degree of structure, others have maintained a high degree of flexibility and have placed more reliance upon the skills of the individual teacher (e.g. Blank, 1977; Tough, 1976, 1977b).

In spite of the increased attention to how the child's language is influenced by aspects of the immediate physical and social contexts, there have been few direct investigations of the differential effects of play activities upon language. However, Sylva et al (1980), offer some recent insights: they found, for instance, that common pre-school activities differ in the degree to which they prompt or support children's conversations; that play without clear intrinsic goals, such as involves a lot of 'running around', for example, encouraged children to talk among themselves, while during the most

structured activities there was a preponderance of child-adult exchanges.

3 Background to the methodology and specific hypotheses of the present study

In recent years the focus of educational research has switched from the antecedents and consequences of classroom interaction to the actual processes of teaching and learning involved, and there have been many attempts to study the latter by means of direct recording or observation. Salient methodological aspects of the present study - the attempts to be 'naturalistic', the inclusion of observational categories selected a priori and the imposition of categories during content analysis, the use of videotape for data recording - variously reflect features of the traditions which have dominated classroom research.

A succinct account of the dominant traditions in the United States of America has been provided by Hamilton and Delamont (1974). Interaction analysis, they claim, rooted in behavioural psychology, is concerned only with overt, observable events, and aims, by the use of pre-selected categories, to reduce the stream of classroom behaviour to small-scale units suitable for tabulation or computation. Strong emphasis is laid upon objectivity, and, on operational grounds, data such as the 'subjective' accounts of actors involved, or descriptive 'impressionistic' accounts of classroom behaviours, are abjured. The approach has generated a wealth of observational systems (e.g. Flanders, 1970), some of which are suitable for coding 'live', others requiring special audio-visual recording devices. While interaction analysis is governed by pre-ordained descriptive categories, 'ethnographic' or 'anthropological' research, the main alternative

tradition, allows and encourages the imaginative development of new categories. Arising from a divergence of disciplines, including anthropology, sociology and psychiatry, it dissociates itself from the a priori reductionism inherent in interactive analysis. (It may be argued, however, that Hamilton and Delamont have tended to set up interaction analysis as a 'straw man' and have taken an over-simplified approach to observational systems such as that of Flanders, the sub-categories of which do indeed, it might be argued, allow for flexibility of judgement.) The American 'ethnographic' or 'anthropological' tradition, as described by Hamilton and Delamont, is comparable in various important respects to the ethological approach of growing importance among British studies of the pre-school child (e.g. Bruner, 1980; Cashdan, n.d.).

A central concern of the present study is the extent to which practice in the nursery school bears out the profession of teachers to promote linguistic growth; a claim which may not surprise us, given the crucial role of language in thought and communication. Yet there is evidence (e.g. Thomas, 1973; Tizard et al, 1976) that extended or 'meaningful' dialogue between teacher and child is uncommon. That the teacher's role is of limited effectiveness was the conclusion of "Working with Under Fives", one of a series of reports on pre-school care in Oxfordshire (Wood et al, 1980) which was an attempt to explore and to describe how the adult's style of working has effects upon both the child's experiences and the part which he, in turn, plays in interaction with the practitioner (see also 2iic above). It was found that the language involved was primarily that of management and description, the more demanding intellectual functions, such as why things work as they do or why people act as they do, being extremely rare. However, a suggestion of their findings was that children have

a far greater capacity for elaborate conversation, for remembering, imagining and planning than they are asked to show in the pre-school. In addition to such factors as the child's innate level of linguistic ability or home background, the framework which the adult sets for him in dialogue contributes to his conversational maturity. Wood and his colleagues admit the similarity between the recipe which they offer and that of Isaacs observing children with adults in the 1930s: the more the teacher is inclined or driven to ask questions and to exercise control in order to 'keep the child going', the less likely it is that she will succeed. Fluency in the child will be most encouraged by her leaving the child time to think and by her taking the pressure off him from time to time to reveal something of her own ideas and experiences. The path to effective interaction, they argue, lies in the adult's responses to the child being contingent upon his behaviour; in her language and actions being 'keyed in' as far as possible to his thoughts and actions - which can be magnified, developed and extended by an adult prepared to build on them and to expose her own reflections.

There is a great deal of research suggesting that social class is an important factor in linguistic performance (see Chapter 4) and it was an original intention of the present study (precluded by the social characteristics of the nurseries involved) to consider the influence of social class factors upon interaction. The above study found, as others have done (e.g. Taylor et al, 1972; Tizard et al, 1980; Turner, 1977) that pre-schoolers differ in the extent to which they seek management and are, in turn, managed, in a manner dependent upon their social background. It does matter, the authors argue, that some children experience more management and some more questioning than others; that there are important differences in background knowledge, expectations and experiences of some children and the adults who look

after them, so that the child from a middle-class background, perhaps being more readily understood by teachers and playgroup workers attracts more 'chat' from them than does the child from the working-class background who, as Tizard et al (1980) suggest, meeting more management at home, may expect, and so receive, more at school.

"Childwatching at Playgroup and Nursery School" (Sylva et al, 1980, see also 2iic above), was the closest 'sister' study within the Oxford Preschool Research Group to that of Wood and his team. One set of analyses focused upon several measures of talk at pre-school; how much of it there was, who were the participants and which the most favourable tasks or social settings. Unfortunately, their findings suggested to them that the pre-school is not an ideal environment for teaching children the many skills of conversation. Coherent, extended dialogue was rare and quiet, intimate settings, in which it might flourish, in short supply.

As Sylva et al point out, several investigations (e.g. Hutt et al, 1977; Tizard, Philps and Plewis, 1975) have found that play in the pre-school tends to be, in terms of the distinction offered by Parry and Archer (1975), more 'occupying' than 'educational'. The present study seeks to discover whether there are consistent differences in how language is used which are dependent upon the specific play context. It proposes that such differences may indicate both the extent to which the teacher is playing a pedagogic, rather than a supervisory, role and the extent to which she differentiates among play activities in terms of how they may serve educational ends. As Moos (1973) points out, very little research has been carried out into the impact of activity settings upon child behaviour and that which has been done has stressed the measurement of involvement and sociality, rather than language. Shure (1963), for instance, in a pioneering study,

investigated sex differences in the amounts of participation, active social interchange and destructive behaviour across five nursery school subsettings (art; books; dolls; games; blocks). Charlesworth and Hartup (1967), concerned with the occurrence of positive reinforcement among nursery children, investigated the incidence of generalised reinforcement in various categories of play situation - in 'dramatic activities', for instance, including play with blocks and puppets, and 'table activities' such as art, puzzles and stories. Rosenthal (1973) studied children's involvement in their pre-school settings by checking attendance and found that children were differentially attracted to, and held by, settings according to their sex and age.

Kounin and Gump (1974) point out their inability to locate any pre-school research dealing with the properties of 'formal' lesson settings, as opposed to 'open' settings, as these relate to the behaviour of the participants. (The following year, however, saw an attempt by Sherman (1975) to discover which aspects of formal learning situations in the pre-school were conducive to 'glee'). Their own study found that properties of activity settings do indeed function to mould children's behaviour: seen as 'signal systems' to participants, the most successful activities in terms of task involvement were those in which there is a continuous signal system protected from 'noise' (as in individual construction). Lessons of average success were those with a continuous input from a continuous source (such as those involving books, records or teacher demonstrations). Least successful were those dependent upon discontinuous inputs from other children, as in role play or group instruction, and those involving intrusive motor activity or loud noise.

The primary aim of Sylva et al (see above) was to evaluate the

educational quality of children's play categorised in terms of degree of 'cognitive challenge'. Focusing upon the part played by the pre-school environment in nurturing or hindering play, they divided the facilitating factors into those of task setting (including materials and activities) and social setting. Art, constructional activities and structured tasks, all of which, they believe, possess a definite goal-structure and usually involve materials providing real-world feedback, led the rest in the opportunity they provided for the child to act at his/her intellectual best. Yielding moderate levels of challenge were pretend play, arranging scale version toys and all manner of manipulation, which differed from the 'high-yield' activities in that the latter involved the risk of the child's attempts not 'coming off'. Much of the play in the 'low challenge' group, such as 'social play', 'horsing around' and giggling, seemed to be motivated by the desire for the pleasure of physical exercise or of repetition; there was little building towards a goal, one action or utterance leading to another with very little internal thread to create cohesion. Sylva et al argue that the challenging, goal-oriented tasks 'stretch the mind' and that too much of the freer, 'low yield' type of play must mean diminished opportunities for planning and elaborating on the part of the child. It will be of interest to the present study to explore potential relationships between levels of language functioning among participants in activities and the apparent levels of 'cognitive challenge' involved.

C H A P T E R 6

AIM OF THE PRESENT STUDY

"To discover and evaluate the relationships obtaining among specific play contexts and specific cognitive-linguistic behaviours of children and staff in nursery schools."

UNDERLYING HYPOTHESES

(i) A major aim of educationalists is cognitive and linguistic development. In practice, the nursery school curriculum is decided by traditions and considerations which do not emphasise these factors.

(ii) Selected common play activites will not be differentiated by cognitive-linguistic behaviours.

RELEVANT PARAMETERS

i) Frequency of relevant cognitive-linguistic concepts (relating to Underlying Hypothesis (i).

ii) Differences in amount of language manifesting cognitive processes (relating to Underlying Hypothesis (ii).

iii) Differences in amount of 'non-cognitive' language (relating to Underlying Hypothesis (ii).

LANGUAGE IN A SAMPLE OF SHEFFIELD NURSERIES

Introductory remarks

In line with a current emphasis upon naturalistic forms of observation (see Chapter 5), the present study sought to record language under near-normal conditions. To this end, the project was presented to nursery staff in a manner which avoided emphasis upon language skills, since the latter, it was believed, might raise their usual level of interaction with the children. Staff were requested to 'carry on as usual' and not to draw the children's attention to the equipment but, if questioned about it by them, to discuss it in general terms, such as "to do with looking at children playing". In all cases, equipment was set up on the afternoon prior to recording, in order to lessen the amount of attention that it might otherwise receive, and, for similar reasons, was positioned near to the ceiling, either suspended from beams or placed upon tall cupboards. The visits to each nursery prior to each recording period were also part of an attempt to reduce attentional effects - it was felt that if the observer's face was familiar to the children, it was less likely to prove disruptive should she be glimpsed during recording.

After initial contact, over the telephone, with many nurseries in the Sheffield area, the following twelve were chosen (on the grounds that Head Teachers showed particularly favourable attitudes towards the project) to be inspected for suitability for recording:

Birley Nursery School.

Lowedges Nursery Infant School.

Denby Street Nursery School.

Southey Green Nursery First School.

Hartley Brook Nursery First School.

Brightside Nursery School.

Watermead Nursery Class.

Wybourn Nursery Class.

Shiregreen Nursery Class.

Lenthall Nursery First School.

Broomhall Nursery School.

Stradbroke Nursery School.

Broomhall Nursery School, Stradbroke Nursery School, Wybourn Nursery Class, Lowedges Nursery Infant School, Hartley Brook Nursery First School and Lenthall Nursery First School were selected on the basis of the following criteria:

i) The nursery was relatively untroubled by noise from surrounding industry or traffic - which would have interfered with clarity of recording.

ii) The Head Teacher and other staff expressed no objections to the recordings being made.

iii) The nursery contained a room of dimensions suitable for recording purposes, and in which typical play activities were carried out.

iv) The educational policy of the nursery and its agenda had no grossly atypical characteristics.

v) The nursery was near enough to Sheffield Polytechnic to make the transportation of equipment feasible.

It was decided to record by means of videotape because this

should allow coding to be carried out at a more leisurely rate than would other common methods, such as pen-and-paper techniques, and should allow more scope for extending and modifying the categories of analysis. In the main study, recording of each activity was distributed evenly between morning and afternoon sessions wherever possible, in order to eliminate potential biases arising from factors such as fatigue, or variation in the distribution of staff duties.

Studies looking at exchanges between pupil and teacher have largely been concerned with older pupils in formal curriculum situations; the coding model of Blank (1977) was felt to be particularly relevant to the aim of the present study, since it is geared directly to the pre-schooler, focusing upon situations intended to foster cognitive development. In order to provide a more comprehensive account of linguistic activity during play, however, the observational categories involved in the present study went beyond those of Blank, to include further aspects of communication.

While Blank's model considers interactional aspects of reciprocal teacher - child exchange, the present study restricts its concern to a consideration of speech acts in isolation. As well as those utterances occurring among children, and between teacher and child, monologue was also included - since it was felt that this should give insight into the child's behaviour during the times when the teacher was not present, and when he may have been stimulated into speech by the other children and/or by the play materials.

Play activities were selected according to the following criteria: firstly, that they were generally typical of, and considered important by, nurseries; secondly (to satisfy the technical requirements of recording) that they involve close physical proximity among the participants.

It was decided to consider the presage variables of sex and age ("socioeconomic status" was abandoned for consideration after the pilot study), since differential use of language among particular populations of children, in relation to specific play contexts, might hold important implications for the variety of play which should be offered in order to promote specific cognitive-linguistic skills in as wide a range of children as possible.

Since the total sample of children were between three and five years of age, a time widely supposed to entail dramatic development of communication skills, an age interval of three months was adopted, it being felt that a longer unit would have provided a too molar view of the influence of age upon language.

THE PILOT STUDY

Introductory remarks

The pilot study was intended to be primarily illuminative - so no actual results, in terms of observed frequencies of categories, will be presented here. It was desired to achieve a minimum of three to four hours of visual and auditory recording of children in three Sheffield nurseries, and to highlight the various methodological, conceptual and technical problems which might be expected to arise in the main study. At this stage it had been decided to investigate the possibility of analysing interactions for their non-verbal, as well as for their verbal, aspects.

The nurseries

The following nurseries were observed in sequence:

i) Stradbroke Nursery School

ii) Lowedges Nursery Infant School

iii) Broomhall Road Nursery School

Stradbroke and Lowedges nurseries were both set in pleasant outer suburbs characterised by mixed private and corporation dwellings. In both cases, staff described the children as "predominantly working-class" on the criteria of parental occupation and housing. Broomhall Road Nursery, nearer to the centre of Sheffield, but, like the others, within an immediate context of mixed housing, had, on the evidence of staff report, a majority of children of professional background.

The equipment

Three Sony AV 3200 CE monochrome TV cameras.

One Sony CMW 300 CE vision switcher/mixer.

One Sony CG 3CE SYNC pulse generator.

Four Sony CUM 90 UB 9" screen monitors.

Two National 3040E video tape recorders.

One Sony MX 650 six-channel sound mixer.

Four Eagle RROM5 Electret capacitor microphones.

Tape

Two National 3085E portable VTR/camera units.

Two 3020 mains UTRs.

One acoustic screen.

The procedure.

Although it was planned, in the main study, to balance recording, as far as possible, over morning and afternoon play sessions, during the pilot study it took place, on the request of nursery staff, on three consecutive morning sessions, i.e. one per nursery. (Before recording, a brief, preliminary visit was made to each nursery to investigate any problems likely to arise and to give the staff an idea of what to expect.)

The procedure was presented to the staff, in all cases, in such a way that the emphasis was upon "general aspects of play" rather than, specifically, upon language.

Objectives of the pilot study were: firstly, to record speech at as many as possible of the common play activities (to discover whether any specific recording problems - such as water splashing

the microphones - might arise); secondly, to test the required number, height and positioning of microphones; thirdly, to discover how many cameras were necessary and how they might best be positioned.

Recording on the first morning (Stradbroke Nursery School)

While an attempt was made to set up all the equipment before the arrival of the children, the process took longer than expected, so that the suspending of microphones and fixing of cameras was to arouse a degree of interest among the children. (This was not considered a great misfortune however, since at this stage the aim was to investigate and to perfect the techniques of recording and analysis per se, rather than to describe the characteristics of speech occurring.)

One microphone was positioned centrally (at a height of about four feet from the ground) over each of: a collage-table; a clay-table; a wet-sand trough; a pair of painting easels. Three cameras, resting upon high ledges (about six feet from the ground), were positioned at angles so that they could be focused at will upon any of the play locations. (Since the microphones were suspended from fixed beams and hooks and the cameras from fixed cupboards, it was necessary, in some cases, to move the play apparatus itself that it might be in the desired position for recording.) The control and monitoring equipment (videotape recorders and screen monitors) was concealed, as far as it was possible, behind a wooden partition (situated, unfortunately, within the main play area - no separate room being available).

Since children began to play first at the collage-table, it was decided to record there first, the acoustic screen being

interposed between the collage-table and the busiest neighbouring area, so as to cut down, as much as possible, on potential interference from the noise of children moving around nearby.

Recording took place at the remaining play locations, in a similar manner, in the sequence: clay-table; wet-sand trough; easel-painting - according to when the children became involved with the various activities. When ever play at a new location was to be recorded, the acoustic screen was moved and the recording equipment adjusted as necessary.

Each activity was recorded for twenty minutes, unless it was abandoned by the children before this period had elapsed, as occurred in all cases except play at the clay-table and collage. On those occasions when a location was abandoned for more than a minute or so, the observer had to emerge into the main play area and walk in front of the relevant camera or cameras in order to prevent 'burn-on' (a technical difficulty arising from a prolonged static image). If the children had not returned after three or four minutes, the particular recording was terminated.

Recording on the second morning (Lowedges Nursery School)

It was an intention here to record, if possible, any common play activities, such as Lego or Home Corner play, which had not been covered on the previous day. According to the nursery staff, the Home Corner was usually very popular and there was little likelihood of having to wait long for children to appear, so it was decided to record there first.

An analysis of the recordings from Stradbroke Nursery suggested that a single microphone per location was insufficient to pick up

the speech of the participants and allow their voices to be distinguished. It was decided to use four microphones this time, spacing them over the play area to best advantage. However, there proving to be insufficient beams and hooks from which the microphones could be hung, it was necessary to attach a network of string to the ceiling-beams, which should allow a microphone to be suspended from any point, as desired.

The recordings at Stradbroke Nursery had also revealed the importance of there being at least two cameras focused at once upon a particular location. (When a single camera was used, speakers' faces were often hidden, which would create problems for the transcription of speech and for the consideration of non-verbal aspects of communication.)

As on the previous day, no spare room was available to house the control and monitoring equipment, which had to be arranged, as unobtrusively as possible, in an alcove within the main play area.

After recording at Stradbroke it had been decided to abandon the use of the acoustic screen, which had proved unpopular with the nursery staff and which seemed ineffective as a noise barrier. It seemed more appropriate to increase the distance, where necessary, between the play apparatus under focus and its neighbours.

The recording made at the Home Corner turned out to be the only recording of the day since, the weather being fine, the nursery staff decided to take the children out of doors. It was judged that an attempt to record out of doors, without prior planning, might prove unreasonably obtrusive and difficult.

Recording on the third day (at Broomhall Nursery School)

It had been foreseen that there might be opportunities here for outside recording, and since, at this stage, it was uncertain what sort of weather conditions might prevail during the main study, it seemed desirable to become familiar with the techniques and problems involved. In addition, the objective of covering as wide a range of play activities as possible, would not necessarily have been furthered by recording being restricted to play indoors.

On information that about half an hour was available for recording indoors before the children were to be taken outside, it was decided to focus upon the water trough. Upon children arriving there, recording began and ensued for about twenty minutes. As at Lowedges, microphones were suspended from a network of string overhead. Only two cameras were used, since, from previous recordings it appeared that two were sufficient to allow, in most cases, the speaker's face to be seen. A shortage of suitable ledges near to the trough meant that the cameras had to be placed undesirably far away from it. As on previous occasions, no separate room was available for the screen monitors and videotape recorders, but a puppet-theatre within the main area made an improvised 'hide'.

Out of doors, many of the children were running around, riding tricycles, and so on, but the sand-pit was fairly well-attended and it was decided to record there. The observer and an assistant, one on each side of the sand-pit, and each wielding a portable microphone and portable camera unit, hovered discreetly behind the children, directing the camera onto the faces visible and directing the microphone upon any nearby speaker as necessary.

Problems surrounding the insuring of equipment meant that the latter had to be set up on the actual day of recording, rather than on the previous day. It was felt that this rendered the recording procedure more obtrusive and less convenient for the staff than it might otherwise have been - and that steps must be taken to ensure that the same problem did not arise during the main study. For similar reasons it was decided to abandon the acoustic screen, which seemed to prove rather a nuisance for nursery staff.

At Lowedges and Stradbroke nurseries, difficulties were posed by the placement and paucity of electrical socket points - which sometimes made it impossible to arrange cameras at the best vantage points. It was decided to be especially careful about this matter when selecting nurseries for the main study.

Recording of certain activities e.g. play in the Home Corner proved to be particularly difficult because the children were at times widely dispersed - such as when "taking their babies for a walk" (an integral part of the ongoing Home Corner play). It was decided that, during the main study, observation of play must be restricted to those activities carried out 'on the spot'.

It became apparent during the pilot study that the requirements of sensitivity were in conflict with those of selectivity. Where conditions were crowded, so that groups of children, engaged in different activities, were placed close together, it proved difficult to isolate the speech under focus from that in the background. (This factor was found to apply in all cases - so that transcription of the resultant data should have proven to be unreasonably time-consuming.) The spacing of activities should be taken into account

during the main study, it was felt, and it was decided, if necessary, to request staff to make minor adjustments to the spatial arrangement of play apparatus. (It was judged that this would not be too greatly at variance with the 'naturalistic' character of the project.) Attempts had been made to record language in various play activities simultaneously, but the resultant interference suggested that it should be wiser perhaps to concentrate the available microphones (only six could be used with the six-channel mixer available) on one activity only at a time - although this should inevitably extend the data collection period.

It was felt, subjectively, that in certain cases staff were 'playing to the gallery' e.g. increasing the amount of attention paid to the children, and elaborating the speech in a self-conscious manner, and, in one instance, initiating activities in order to catch the interest of the observer. While it should prove difficult to overcome such problems arising in the main study (except perhaps by frequent visits prior to recording so that the staff should habituate to the observer and her equipment, or by especially persistent requests to 'carry on as usual'), it was felt useful to have a heightened awareness of them.

Restraints placed upon the use of transport facilities, in addition to a wish to impose upon the nurseries' hospitality for as short a time as possible, meant that no delay for more than cursory assessment and evaluation of method and data could be interposed between the recording sessions. It seemed probable, unfortunately, that the same considerations should apply during the main study.

On consideration of: a) the impossibility, given the equipment available, of ensuring the speakers' faces were always 'on camera' and b) the time consuming nature of data transcription, it was

decided that analysis of non-verbal aspects of communication was beyond the scope of the present investigation.

THE MAIN STUDY

Introductory remarks

Equipment was deployed, generally, as it had been in the pilot study, except that, to facilitate the transcription of data, care was taken to position cameras so as to maximize the visibility of the speaker's face, and microphones were distributed over play areas so as to maximize their sensitivity to the speech under focus while minimizing the effects of irrelevant noise. Where possible, equipment was set up on the afternoon prior to recording in order to lessen the amount of attention it might otherwise receive. Two hours recording of each selected activity, it was felt, should be :

a) sufficient to extrapolate the relationships under study,
b) compatible with the time available for transcription and analysis of data,
c) stay within the time allowed for recording by the nurseries.

As in the pilot study, recording had to be on consecutive days.

The nurseries

Wybourn Nursery Class, Hartley Brook Nursery First School and Lenthall Nursery Infant School were selected, according to the original criteria (see above). (It had been the intention originally to include Broomhall Nursery in the main study, as well as in the pilot - so that possible effects of its predominantly middle-class ethos might be discovered. Unfortunately however, circumstances arose which meant that the nursery was not available for recording at a suitable time.)

Wybourn Nursery Class was set within a sprawling inner city council housing estate. There were thirty-eight children in the nursery, all speaking English as a first language, and all of British origin, except for one Somalian and one West Indian. Staff, comprised of four teachers and four nursery assistants, described the children as 'predominantly working-class' on the suggested criteria of parental occupation and housing.

Hartley Brook Nursery Class was attached to a first school and set within a council housing estate in an outer suburb of Sheffield. There were thirty children, described by the staff (two teachers and two nursery assistants), on the same criteria as at Wybourn, as, 'on the whole, working-class'. Three of the children suffered a speech impediment (one being the twin of a normally-speaking child who was also present). All were of British origin and spoke English as their first language.

Lenthall Nursery in a pleasant outer suburb of Sheffield was set within an estate of mixed private and corporation housing. The staff were all trained teachers and, as above, described the children as 'largely working-class'. The children were all of British origin, and all spoke English as their first language. None of them suffered from speech impediment.

The equipment

The following equipment was used during the main study:

Sony AV 3200 CE monochrome cameras.

Sony CMW 300 CE vision switcher/mixer.

Sony SYNC pulse generator.

Sony screen monitors.

Videotape recorders.

Six-channel sound mixer electret capacitor microphones.

Portable TV cameras.

Tape.

The sample of play activities

The following activities were recorded:

Collage
Easel painting
Group painting
Lego
Clay
Water
Wet sand
Home Corner

} Observed at Wybourn Nursery

} Observed at Hartley Brook Nursery

} Observed at Lenthall Nursery

i) Recording at Wybourn Nursery Class

At Wybourn Nursery, the first to be studied, 10.10 hours of recording were obtained, over six consecutive school days. From observation and from information provided by the staff, it appeared that the usual provision of play materials included Lego, clay, water, collage and wet-sand, as well as easel-painting, group-painting and a Home Corner. It was decided to record those activities for up to two hours each.

The project was presented to the nursery staff as: "A general look at social processes occurring during play" and they were asked to account for the recording equipment, if asked to do so by the children, in a general, cursory manner.

Fortunately, it was a custom of the nursery to have various activities, one at a time, upon the same table, so that it was possible to record play with Lego, with clay, collage and group-painting, without rearranging the recording equipment. Microphones were suspended from a network of string in the manner adopted during previous recording sessions, but it was decided, since play areas tended to be fairly large, to increase the number from four to six. Forewarned by the recording session at Broomhall Nursery that there might be a shortage of suitable high surfaces upon which to rest the cameras, it was decided to clamp the latter to wall-pipes, so that the height, angle and distance might be adjusted easily.

The pilot study had indicated the problem of obtrusiveness arising when the observer had to control and monitor the recording

From within the area of play. Fortunately, a room used only on odd occasions for meeting parents or when privacy was desired, was readily made available.

For the first three days, cameras and microphones were focused upon clay, Lego, collage and group-painting (see above) and on the fourth were moved to concentrate upon the water trough. This time, care was taken to ensure that the microphones were no lower than three feet above the water-level, so that they might not be splashed, as had occurred at Broomhall. On the fifth day, equipment was moved to focus upon the easels and trough (now containing wet sand) and on the sixth (final) day, to record play in the Home Corner. (From observations made at Lowedges Nursery it was known that children might leave the area during their bout of play, but there did not appear to be any means of preventing this, lying within the bounds of a naturalistic study.) Recording was terminated upon an activity being abandoned for more than a few minutes, being resumed on the re-appearance of participants, until the required length of recording was achieved.

ii) Recording at Hartley Brook Nursery First School

A cursory review of the recordings from Wybourn showed that a substantial amount of the data had been subject to interference from overhead flourescent lighting (which the staff had not wished to switch off in case the play area should have become uncomfortably dark). Fortunately, the lighting system at Hartley Brook Nursery dod not interfere with the electrical equipment.

A small room within the playing area, used to store play materials, provided excellent cover for the observer while she was monitoring and controlling the recording.

The nursery staff advised that plans were afoot for various Christmas activities and that it would be preferable to complete recording over the following two consecutive school days, since after that the normal routine was to be disrupted. It was thus necessary to organise a recording schedule to include the various activities (easel-painting and group-painting; play with Lego, with clay and with water; play in the home Corner). These activities were available during both morning and afternoon sessions and it was decided to record any particular activity for a maximum of one hour within any one session. If possible, each activity was to be recorded on both an afternoon and a morning session.

On the first morning the cameras were positioned on wall-pipes so that they might be focused upon the table at which play with Lego and with clay usually took place, the microphones being, as usual, suspended from a network of string, allowing changes in their position to be made easily. It was the usual custom for the table materials to be changed at some point during the session, whenever the children should appear to have lost interest in those set out. Staff agreed that, in the present instance, the change might take place without delay, occurring as soon as the children should have drifted away. As it happened, clay was provided first and an hour's continuous recording was made of children at play. Similarly, an hour's continuous recording was possible when the clay was exchanged for Lego, no adjustment of the cameras or microphones being necessary.

Group-painting, led by a teacher, was to take place sometime during the morning and the staff readily agreed that, for the convenience of recording, it would not begin until recording at the activity table was complete. They also agreed that, to avoid

the need to re-position the cameras and microphones, the activity table should be moved and the group-painting take place on the vacated spot. The agreed arrangements were carried out and the painting activity carried out for 35 minutes until it was disbanded, only minor adjustments to the camera angles being necessary.

While the children were having their usual lunch-time nap, the water trough and wet-sand trough were moved - so that they were as far apart as possible, while both remaining within camera range - and the microphones were divided so that three were suspended over each trough (and adjusted for height so that they might not be splashed). Play began first at the wet-sand trough so the appropriate microphones were switched on and a continuous recording made for one hour. Next, the microphones over the wet-sand trough were switched off, those over the water trough switched on instead, and another hour's complete recording made. Since the recording at the wet-sand trough was complete, the nursery staff were requested, and agreed, to move it to one side so that both cameras should focus only on the water trough. (It had been decided that if attendance at either trough were not continuous, then recording should alternate between them for up to one hour's recording per activity.)

On the following morning the troughs and recording equipment were positioned as on the previous afternoon and it was decided to follow the same procedure. (In fact, as on the previous occasion, it was not necessary to record intermittently between the activities and staff agreed, as on the previous day, to move the wet-sand trough - which had again been the first focus of recording.)

It proved possible, as had been hoped, to complete the morning's session with a recording of easel-painting. In accordance with an agreement which had been made, a teacher, on the completion of

recording at the troughs, suggested to children (the easels being unoccupied) that they might like to paint and supplied them with the necessary paper. To save time, the water trough was moved away, the easels placed in the space vacated and cameras and microphones adjusted as necessary. Recording began immediately and was terminated after 37 minutes when the easels were left empty. (In case the children might return, the cameras were left running for a few minutes after the easels had been deserted and it was necessary for the observer to move in front of the cameras from time to time in order to prevent 'burn on'.)

As on the previous day, the lunch-time rest-period gave opportunity to move play apparatus around and to adjust recording equipment, without attracting the attention of the children. An attempt was to be made in the afternoon to record once more play with Lego and with clay, to which end the painting-easels were moved away and the 'activity table' moved to where they had been. (It was judged simpler to move the play apparatus than to re-locate the cameras.) According to the nursery staff, it was their usual custom to set out clay first and then to exchange it at some point, before the children went home, for the less messy Lego. They agreed that, to facilitate recording, the exchange should be made as early as possible upon their being informed that the recording of the children with clay had been completed. This was done and two complete hours of recording with each type of material was achieved.

iii) Recording at Lenthall Nursery Infant School

Since it had not been possible at Hartley Brook Nursery to record speech in the Home Corner (the children not having played

there at any point during the recording sessions) it was decided to concentrate upon this type of play, if it should occur, at Lenthall.

Positioning of the cameras proved more difficult here than at the other nurseries. While one camera could be clamped to the top edge of a wooden partition (a wall of the Home Corner), it was not possible to position another at the appropriate angle and distance. It was thus necessary to turn the sole camera to a steep angle that as much of the play area as possible might be under view. (Unfortunately a 'blind area' remained.) The microphones were suspended overhead in the usual manner, there being, as at Hartley Brook Nursery, no problem of interference from the lighting.

Unfortunately, no separate room was available to harbour the screen monitors and videotape recorders and it was necessary to keep them in an alcove behind the Home Corner, in which the children kept their coats and hats. (Great pains had to be taken to protect the equipment during the children's arrival and departure, and to conceal it, that it might not arouse undue interest.)

Recording took place on two consecutive mornings, beginning, in each case, on the first appearance of children and lasting for an hour. The Home Corner was not empty for more than a few seconds at a time, so that continuous, rather than intermittent, recording was possible.

1. The role of Blank's model (1977) in the present study

The present study sought to draw a profile of speech in the nursery. It wished to gauge, from how teachers and children communicated with each other, the extent to which language involved thought and ideas rather than functioning merely to 'let off steam', 'keep the action alive' or to respond in a simple way to the formulations of others. Since, without objective criteria to serve as guide-lines, speech may be construed in an infinite number of ways, the question arose of how, in making such an assessment, speech might be categorised according to a manageable system. An important problem, it appeared, was to find categories of an appropriate level of generality: too broad, they would be less informative than they might have been; too narrow, they would result in an unmanageable plethora of data. It seemed desirable to have guide-lines which should serve to structure the task of coding and such were provided by speech categories taken from the model of Blank (1977). The decision to employ her system, rather than some other, was not arbitrary - while devised to meet a major objective of her own project (i.e. to be able to assess the effectiveness of interchanges between teacher and child), it offered a format which could be adapted to suit the present study. In setting out to assess the teacher's behaviour with the pre-school child, Blank developed a coding system that would define the range and quality of the cognitive-linguistic demands of the teacher. As a preliminary step in the development of this system, she decided to classify a large range of the questions that adults (both parents and teachers) seem

to ask of young children in the course of their everyday exchanges, the focus of analysis being not on the content of the questions (e.g. whether they dealt with information about animals, clothing or furniture) but on the type of cognitive process (e.g. labelling, memory, prediction) required for an adequate response. She was seeking to give explicit definition to the broad range of demands and questions that adults commonly ask when in interaction with the pre-schooler.

The question arose of how to interpret Blank's categories for the purposes of the present study, i.e. of how to construe and find instances of the given concepts. She acknowledged that the category names are not meant to be precise or to represent clearly defined mnemonics for what appear to be essentially different demands on the child. In the absence of objective criteria, examples which she provided served to guide decisions about which utterances were or were not instances of her categories.

While Blank's system was designed to apply to the language of teachers in formal interaction with children, in the present study they have been applied to informal nursery situations irrespective of whether the speaker is adult or child.

2. The codes used

i) The cognitive-linguistic categories

a) Those derived from Blank (1977):-

1) Imitation of action

Example from the present study: "You do it like this, Amanda. Like that."

Example from Blank (1977): The teacher says "Do what I do" and proceeds to tap the table.

This category was applied when the speaker was holding up an action (not necessarily his or her own) as a model to be followed.

2. Imitation of language

Example from the present study: "Can you say 'The Lesser-Spotted Bird-Catcher'?"

Example from Blank (1977): The teacher says "Say what I say. The flower is nice."

This category was applied when the speaker made an utterance and requested its deliberate repetition.

3. A simple command

Example from the present study: "Go and put it in the glue-tin."

Example from Blank (1977): The teacher says "Put the book over there."

This category was applied when only a single task was to be carried out (in order to distinguish it from the category 'Following a set of commands'). It did not include tasks which should involve a minimum of reflection, e.g. "Move over."

4. Identification of an object by sight

Example from the present study: "What do you think this could be? It looks as though it could be out of the meccano."

Example from Blank (1977): The teacher holds up a cup and asks "What is this?"

Like the categories 'Scanning a complex array by matching' and

'Scanning a complex array by verbal cues' below, this was applied whether the identification was demanded or offered spontaneously. Also like them it applied whether the child was offered possible solutions or not.

5. Identification of an object by touch

Example from the present study: "I can feel the gun right down there."

Example from Blank (1977): The child feels an object hidden in a bag (e.g. a spoon) and is asked "What is this called?"

See '4' above.

6. Identification of an object by sound

Example from the present study: "That noise was just Mrs. Walsh."

Example from Blank (1977): A bell is rung and the child is asked to select which of four objects made a noise.

See '4' above.

7. Scanning a complex array by matching

Example from the present study: "Have you seen the little ones like this with holes in the sides?"

Example from Blank (1977): The teacher holds up a crayon then displays a card with many objects on it and says "Find one like this."

This category applied when one item was to be selected from many - irrespective of the characteristics of the items involved or their

degree of similarity.

8. Scanning a complex array by verbal cues

Example from the present study: "Find me something I can use for a window."

Example from Blank (1977): The teacher points to a table covered with many objects on it and says "Find one like this."

This category was similar to '7' above except that verbal cues were given to aid the selection.

9. Completing a sentence

Example from the present study: "You put jelly in the ...."

Example from Blank (1977): The teacher says "You finish this sentence: "Children like to eat ...."

It was decided that this category should apply only when a teacher appeared to be pausing deliberately, that her sentence might be finished by a child, and not when a speaker spontaneously took advantage of a pause to complete someone else's utterance.

10. Immediate memory for objects, labels or events

Example from the present study: "What happened to the knobbly one?"

Example from Blank (1977): The teacher holds up an apple, hides it and says "Tell me what you just saw."

Blank's category applied to memory for objects or labels only and it was felt desirable for present purposes to extend the category

(as in the case also of the two below) to include memory for events. Immediate memory was defined as "a few minutes".

11. Short-term memory for objects, labels or events

Example from the present study: "He pooed his pants you know."

Example from Blank (1977): At the beginning of the lesson the teacher read a story about a bird. At the end of the lesson the teacher says "Can you remember who was in the story?"

This differed from the above category in that memory was defined as "several minutes".

12. Long-term memory for objects, labels or events

Example from the present study: "Amanda's mummy came to our house."

Example from Blank (1977): (Referring to events prior to the lesson) "What toy did you play with when you came in here last time?"

In this case the category applied to memory for events occurring more than an hour or so previously.

13. Describing current events

Example from the present study: "Ah, it's my dinner-table this and we... and and Catherine... and I... you're... we're making cooking and and Alan's making the table set and I... yes, er, and I'm serving mine round for a bit."

Example from Blank (1977): A picture is shown of children playing ball. The teacher asks "What is happening in the picture?"

Here the emphasis (as in the case of the two categories below) was upon discursiveness rather than upon simple statement. The category pertained to events in the immediate present.

14. Describing past events

Example from the present study: "What did Father Christmas do?"

Example from Blank (1977): "What did you do at the zoo when you visited there?"

This category pertained to all past events, irrespective of how long ago they occurred.

15. Describing future events

Example from the present study: "We're going to see Father Christmas tonight and he's going to give us a present. Then we're going to my Auntie's."

Example from Blank (1977): A picture of a boy riding a bike is shown as part of a story. The teacher says "He's finished riding his bicycle. What do you think he'll do next?"

Here, as in '13' and '14' above, the emphasis was upon discursiveness.

16. Concepts of actions

Example from the present study: "Can you squeeze some water out of it?"

Example from Blank (1977): The teacher points to a paper and says "Turn this over."

This category was applied when it appeared that the speaker's intention was to emphasise a process itself rather than the carrying out of a command.

17. Attribute concepts

Example from the present study: " 'Blooming' isn't rude, it it, Kerry?"

Example from Blank (1977): The teacher holds out several objects and says "Find me the one that is rough."

While Blank's category was restricted to objects, in the present case it was not, but included language and other phenomena.

18. Relational concepts

Example from the present study: "I've got more than you."

Example from Blank (1977): The teacher points to two boxes and says "Which is bigger?"

This category applied to all comparisons, irrespective of the quality referred to, e.g. height, naughtiness, etcetera.

19. Part-whole relationships

Example from the present study: "What about this space in the middle? What are you going to put in it?"

Example from Blank (1977): The teacher points to the screw in a pair of scissors and says "What is this part for?"

This category applied in situations where speech concerned part of an object, distinguished from the whole.

20. Spatial concepts

Example from the present study: "Put it on the bottom."

Example from Blank (1977): The teacher gives the child a pencil and says "Put this next to the box."

This category applied whenever reference was made to spatial position.

21. Multiple concepts

Example from the present study: "What about its long, curly tail?"

Example from Blank (1977): The teacher shows several objects and says "Find the big, red block."

This category was applied whenever more than one attribute or quality of a phenomenon was to be considered.

22. Concepts of exclusion

Example from the present study: "It's a door, not a window."

Example from Blank (1977): The child has drawn a circle and the teacher says "Now draw me something that is not a circle."

This category was applied when the concern was with opposition between elements. It did not necessarily describe, as it did for Blank, a

demand for action.

23. Temporal concepts

Example from the present study: "We had Daddy's first."

Example from Blank (1977): The child has drawn a circle and the teacher says "Who came into the room first, the dog or the man?"

This category included utterances concerned with the arrangement of events in time.

24. Auditory concepts

Example from the present study: "That's like a rocket on bonfire night going 'yeeow'."

Example from Blank (1977): "Tell me a word that rhymes with 'man'."

This category included reference to the sound of both words and objects. Some cases referred to sounds considered individually and others to how sounds might be compared or matched.

25. Concepts of difference

Example from the present study: "One's got pyjamas on and one hasn't."

Example from Blank (1977): The teacher shows two non-identical pencils and asks "How are these different?"

This category included instances where phenomena were compared and reference made to points of dissimilarity.

26. Concepts of similarity

Example from the present study: "This looks like the Matterhorn."

Example from Blank (1977): The teacher shows a truck and a bus and asks "How are these the same?"

This category was similar to 'Concepts of difference' except that reference was made to points of similarity, rather than dissimilarity.

27. Definitions

Example from the present study: "What's a pomegranate?"

Example from Blank (1977): The teacher says "Tell me what shoes are."

This category was applied when the definition of a concept was offered or demanded.

28. Dialogue skills: role taking

Example from the present study: "What should you say when he gives you the present?"

Example from Blank (1977): The teacher in telling a story says "The man's car was broken and he took it to the garage. What do you think the man in the garage said when he brought in the car?"

This category was applied when the question was raised of what speech would be appropriate to particular social contexts.

29. Following a set of commands

Example from the present study: "Put the knobbly one in the middle,

then the window at the side and then the chimney."

Example from Blank (1977): The teacher says "Put the ball on the chair, take the pencil off the book and then turn the book over."

This category was applied whenever more than one task, to be carried out simultaneously or in sequence, was requested.

30. Formulating a generalisation

Example from the present study: "What's that about?"

Example from Blank (1977): The teacher shows a sequence depicting a boy getting ready to go to bed. She asks "What is happening in this story?"

This category was applied when there was a request for information or for an account of events, which appeared to demand a discursive, rather than a 'one-word' type of reply.

31. Prediction

Example from the present study: "What would happen to jelly if you put it in the oven?"

Example from Blank (1977): The teacher shows a balance scale and asks "What will happen to the scale if I put this (weight) in?"

This category was applied when a prediction was demanded or was offered spontaneously. It included instances of prediction in hypothetical as well as in concrete situations.

32. Identifying causes of an event observed

Example from the present study: "Why did it smash all that up do you think?"

Example from Blank (1977): The child has seen a truck knock down a tree. The teacher asks "What made the tree fall down?"

This category was applied whether the identification was demanded or was offered spontaneously. It was to include instances in which the event had been observed in the past or outside the nursery.

33. Identifying causes of an event not observed

Example from the present study: "That bit's broken. It must have fallen off."

Example from Blank (1977): The child sees a crumpled paper and a smooth paper. The teacher asks "What could have happened to make the paper look like this?"

This category was applied whenever an inference was made or demanded about the specific event(s) (unobserved), leading to an observed situation.

34. Offering explanations for barriers to action

Example from the present study: "You can't see the water-trough because it's got so many bubbles on it."

Example from Blank (1977): The child tries to reach a toy on the top of a cabinet and is unsuccessful.

The teacher says "Why can't you reach the toy?"

This category was applied to cases in which an account was given or demanded for the difficulties observed in carrying out a particular task or process.

35. Offering explanations for proposed or predicted action or observation

Example from the present study: "It's your birthday.... birthday tomorrow and that's why you've got a party-dress on."

Example from Blank (1977): The teacher reads a story about a boy looking for a pair of scissors because he needed to make a piece of cardboard smaller. The teacher then asks "Why did he want a pair of scissors?"

This category was applied to explanations (demanded or given) for someone's behaviour or likely behaviour.

36. Offering explanations for the construction of objects

Example from the present study: "Why has it got a hole in it like that?"

Example from Blank (1977): After the child has recognised that a boot is made of rubber, the teacher says "Why is it made of rubber instead of something else like paper?"

This category applied not only to explanation (demanded or given) for the material composition of objects but also to explanation

for their design or structure.

37. Offering explanations for an inference

Example from the present study: "I think she's in the quiet-room, isn't she? I heard her in the quiet-room, that's why."

Example from Blank (1977): The child has noted that a child (in a picture) looks sad. The teacher asks "How could you tell she is sad?"

This category was applied when evidence was given or demanded to support a conclusion or judgement about any type of event or situation.

38. Offering explanations for prediction about hypothetical changes

Example from the present study: "Well... well it would still be dinner if we cooked it, 'cause... 'cause hot potatoes can be dinner."

The teacher shows a sponge and asks first "Would this still be a sponge if it were green instead of yellow?" Then, "Why?"

This category applied to explanations (offered or demanded) for the effects of change (in hypothetical cases). No restrictions were placed upon the type of object, event or situation in which such changes were to occur.

b) The remaining cognitive-linguistic categories

Unlike those above, the following categories were decided upon *a posteriori* after the data had been collected and transcribed. Many utterances appeared to be of a simple, non-reflective nature, and it was judged necessary, for a fuller description of speech in the nursery, to take them into account.

1. General proposals of activity

Example from the present study: "Let's make the Magic Roundabout."

A criterion here was that the proposals should be expressed in terms of general aims rather than in terms of specific objectives. The decision about which of these terms applied in any particular instance was based upon knowledge of the overall play situation.

2. Indication of rules

Example from the present study: "You shouldn't bring toys to school."

In this case discussion with staff helped to distinguish between those utterances indicating the rules of the nursery and those based rather upon the speaker's private judgement.

3. Statement of intentions

Example from the present study: "I'm going to tidy all this up."

This category was relatively straightforward, applying when an intention to act was stated, irrespective of whether it was actually carried out.

4. Expression of desires and wishes

Example from the present study: "I'd like to go and see those lights."

This was another relatively straightforward category, applying when desires or wishes were expressed, whether for the tangible or for the intangible.

5. Justification of behaviour

Example from the present study: "Well, it was my turn."

Here the emphasis was upon the speaker offering moral or pragmatic justification for his/her own behaviour or that of someone else.

6. Expression of fantasy

Example from the present study: "Oh, that telephone's ringing."

The distinction between reality-based and fantasy-based speech was not difficult given knowledge of the immediate situation. In the above case, for example, it was known that no real telephone was actually ringing.

7. Confirmation of pre-formulated statements

Example from the present study: "Yes, it is like Kermit, isn't it?"

This category was applied when the speaker was simply offering agreement with what someone else had said, but was adding no elaboration, qualification or addition.

8. Statement of actions necessary for task-completion

Example from the present study: "We have to put out the forks. Then it will all be ready."

For the sake of greater objectivity, application of this category depended upon explicit statement of what needed to be done for a goal to be achieved. Statements such as "We have to do this....", merely implying a realization of the necessity of a particular action, were not included.

9. Statement about possession

Example from the present study: "This one's Helen's."

This category was applied when possession was the major emphasis of an utterance. Speech in which it was not the major emphasis, such as "Her thingies fell off" was not included.

10. Concept of quantity

Example from the present study: "Helen, I've got two more."

As in the above case, inclusion here depended upon emphasis - so that utterances such as "A lot of people were coming in and they knocked them over" where quantity was not the main point, were not included. "Quantity" referred to both the definite, such as "a mile" (and to number, such as "ten"), and to the indefinite, such as "a tiny little bit".

11. Concept of material change

Example from the present study: "It's got all soggy."

This category applied to references to changes in the physical state of objects or substances and to questions about such changes.

12. Evaluation of behaviour

Example from the present study: "Ugh. He's wrong to wet his knickers."

This category applied to all judgements of behaviour whether on moral or pragmatic grounds or in terms of compliance with rules. (On occasion this category coincided with 'Indication of rules') It included both questions about such judgements and those cases where such judgements were given spontaneously.

13. Elucidation of a previous statement

Example from the present study: "A hose-pipe? Like the firemen have?"

This category was applied to all attempts to clarify the meaning of an utterance and to all requests for such clarification. It was not intended to apply to cases where speech had not been heard clearly.

14. Indicating a contingency

Example from the present study: "If you go round and see that lady round the corner, she might make you watch it."

This category was applied to speech referring to an effect contingent upon a cause, irrespective of the type of phenomena involved and

applying to hypothetical as well as to concrete instances.

15. Counting

Example from the present study: "... One, two, three, four."

This straightforward category involved all cases of counting, irrespective of whether it appeared to be non-fuctional or whether actual items were being counted.

16. Indicating the function of an object or action

Example from the present study: "This is for putting the plates on."

This category was applied where the function of an object or action was demanded or offered, irrespective of whether real or imaginary phenomena were involved.

b) The remaining categories

bi) Utterances serving primarily to express affect

Straightforward categories included 'Laughter', 'Onomatopoeia', 'Squealing', 'Ejaculation' and 'Crying'.

'Word play', such as "Bissy-bossy-bossy-bissy", included cases in which the sound, sense or structure of speech appeared to be subject to playful alteration.

The category 'Simple expression of hostility, such as "Neil!", was applied to cases where hostility was communicated by the tone of an utterance, rather than by its semantic structure.

bii) Utterances serving primarily to maintain ongoing activity

'Attracting attention', such as "Mrs. Walsh....", included both cases in which attention was sought by calling out someone's name

and those in which, less formally, it was sought by exclamations such as "Hoy' ".

'Stimulating a response', e.g. "Come on", applied to attempts to 'get someone going', but where there was no clear demand for specific forms of action.

'Speech echoing actions', e.g. "Can I have one of them?", was a straightforward category applying to all requests for materials or help, of whatever form or for whatever purpose.

'Request for permission', e.g. "Can I play in the water, Mrs. Walsh?", was applied when permission to carry out any particular response was sought.

'Guiding action', e.g. "Carefully now....", was applied to speech whose apparent intention was to help someone control an action and which took the form of rudimentary guidance rather than of articulate instruction.

biii) Simple verbal responses to the pre-formulations of others

Speech in the following categories was not spontaneous, but rather its occurrence and form was contingent upon the previous verbal responses of others.

'Denial of knowledge, e.g. "I don't know", involved the simple denial of the knowledge demanded.

'Correction of language', e.g.' "Concert" not "conshus" ', involved the simple correction of syntax and pronunciation, rather than of its meaning.

'Providing confirmation' involved such simple utterances as "Yes" or "That's right", rather than more elaborate forms of agreement.

'Seeking confirmation' involved simple demands such as "No" or "It's not", rather than reasoned or more elaborate forms of denial.

3. Definition of "utterance"

An utterance was defined as "the unit of speech exemplifying one functional category or more than one simultaneously". Incomplete speech, which could not be categorised in functional terms, was disregarded.

4. The role of the social context

Decisions about how to categorise an utterance rested upon both its verbal and non-verbal aspects. In some cases the intended function of an utterance could only be judged by reference to the tone of voice used or to features of the social context, such as the relative status of the participants or their apparent attitudes towards each other. Interpretation of simple or one-word utterances, such as "Sarah" (which might function, among other ways, to attract attention or to express hostility), tended to be particularly reliant upon context and tone.

5. Multi-functional utterances

During the coding process the question arose of how to deal with multi-functional utterances and with repetitions. In the case of multi-functional utterances each function was scored. Where a repetition was seen to be merely contingent upon the original utterance not having been heard clearly, no additional scores were given. However, if a repetition comprised a new function, such as 'Imitation of language', it was scored accordingly.

6. Transcription of the data

Several factors operated to create difficulties during the transcription of the auditory data: firstly, individuals often

spoke simultaneously and interrupted each other, so that the speech of each was obfuscated; secondly, there were children suffering from speech impediment, whose speech could only be comprehended after an unusually high number of re-plays; thirdly, much of the speech was characterised by regional intonation and dialect with which the observer was unfamiliar; fourthly, overhead fluorescent lighting created, at times, a great deal of interference, rendering the data from Wybourn Nursery unfit for transcription.

In spite of these difficulties, it did prove possible to transcribe the speech samples from Hartley Brook and Lenthall Nurseries. However, the observer felt doubt surrounding some of her decisions about what had been said, and for this reason subjected ten per cent of each sample to validation; one other observer attempted to transcribe ten per cent of each recording made at a particular play location, and, in all cases, his decisions were found to be in agreement with those of the original observer.

Checking the consistency of rating of the data

The duration of each auditory-visual recording was divided into units of ten minutes. The writer selected one such unit at random from each, re-coded the speech involved and compared the result with the original coding. There was disagreement in one case only (i.e. "Amanda" which had been originally coded as 'Simple expression of hostility' was re-coded as 'Attracting attention'), so it seemed reasonable to go ahead with the interpretation of the findings.

Checking the reliability and validity of the coding

The rater

Coding of the speech samples was guided by intuition (and by the definitions given above), rather than by a set of objective criteria. While it was not expected that this should pose difficulties, since the coding was done by someone sharing the general cultural-linguistic background of the speakers, it appeared desirable to test the validity of the categories used. A lecturer in Marketing of similar cultural-linguistic background to the author was enlisted.

The procedure

The following procedure was adopted. First of all, since the rater was to become thoroughly familiar with the coding categories which had been used, sixty-seven utterances, chosen by the author as exemplifying each category and labelled appropriately, were extracted from the transcribed data and set out as indicated in Appendix 1.

Ten per cent of the data (816 categorizations) being judged

sufficient for the purposes of the check, the remaining utterances were numbered sequentially within each category and ten per cent (to the nearest whole number) selected from each group by means of random number tables (see Table 33 of Fisher, R. A. and Yates, F., Statistical Tables for Biological, Agricultural and Medical Research, Oliver and Boyd Limited). (In a few cases the sole instance of the category had already been removed.) The utterances thus selected were listed within their separate groupings and became the basis of a questionnaire (see Appendix 2).

The rater was presented with the list of sixty-seven utterances and was allowed to ask questions about them and to study the actual auditory-visual recordings until he was confident that he understood what each category label meant. He was then presented with the questionnaire and requested to indicate in each instance whether he agreed or disagreed with the category applied, it having been made clear that he might refer back freely to the transcribed examples and recordings. He was requested, on the completion of this task, to explain why, in particular instances, he was in disagreement.

The results

It was found, after counting, that the coding of the rater and of the author agreed in 88.9% (719) of cases. It was decided that this level of validity was high enough to render large-scale re-coding unnecessary.

The normal procedure of checking, i.e. to make the rater score the utterances 'blind', would have been a less direct test of validity, but a clearer one of reliability perhaps, and might have produced slightly lower figures. While, in comparison, the method used here might be seen as rather 'soft', it was felt, nonetheless

to provide a good informal test in practice.

The cases of disagreement

Disagreement occurred in the following cases. (See also Chapter Eight where the implications of the disagreements are discussed.) (Note that instances of multi-functional coding have not been indicated.)

1. 'Guiding action' (See bii)

Disagreement occurred in 30% (6) of the 20 instances.

i) "Keep it steady now." (Teacher at water-trough)

ii) "Do it carefully." (Teacher at clay-table)

iii) "Up higher." (Teacher at water-trough)

iv) "Hold it, then." (Teacher at Lego)

v) "Carefully." (Teacher at group-painting)

vi) "Watch your sleeve." (Teacher at water-trough)

The rater disagreed that the first four of the above utterances were rudimentary forms of guidance, but wished to argue rather that they comprised fully-fledged commands. The fifth instance, he argued, given the tone of voice used, emphasised evaluation of behaviour, rather than guidance. The sixth instance, he argued, was an attempt to attract attention, rather than to offer guidance.

2. 'Concepts of actions' (Category 16)

Disagreement occurred in 70.3% (45) of the 64 instances.

i) "We're scrubbing hard, aren't we? Scrubbing." (Child at water-trough)

ii) "Well, he's setting the table for me." (Child at Home Corner)

iii) "It's eating something, that caterpillar." (Child at clay-table

iv) "I'm drinking this up." (Child in the Home Corner)

v) "I'm blowing bubbles." (Child at water-trough)

vi) "Sean's writing." (Child at group-painting)

vii) "They're fighting... and, and... they're fighting over there. Fighting. (Child at wet-sand trough)

viii) "I'm making some water." (Child at wet-sand trough)

ix) "I'm squeezing some." (Child at wet-sand trough)

x) "This is the digger picking them up." (Child at Lego)

xi) "Ho, ho. Balancing it." (Teacher at wet-sand trough)

xii) "I'm taking the pegs out." (Child at easel-painting)

xiii) "Catching it from this." (Child at water-trough)

xiv) "We're just twisting some of these bits." (Child at clay-table)

xv) "Look, here's this bomber flying." (Child at wet-sand trough)

xvi) "Hey, I'm pulling it off." (Child in the Home Corner)

xvii) "Pouring. Pouring." (Teacher at water-trough)

xviii) "I'm painting that." (Child at easel-painting)

ixx) "The long worm.... It's rolling along." (Teacher at clay-table)

xx) "Smacking his bottom." (Child in the Home Corner)

xxi) "I'm knocking these ones in." (Child at Lego)

xxii) "I'm pouring it in there." (Child at water-trough)

xxiii) "I'm smudging it." (Child at wet-sand trough)

xxiv) "It's waving." (Teacher at wet-sand trough)

xxv) "I'm building a tower." (Child at Lego)

xxvi) "This is jumping, this." (Child at clay-table)

xxvii) "I picked them up." (Child at clay-table)

xxviii) "Look, this were swimming in the water." (Child at wet-sand

trough)

ixxx) "I baked all this, you know." (Child in the Home Corner)

xxx) "Hey, she were splashing with that thing." (Child at water-trough)

xxxi) "Ugh. This one pooed."

xxxii) "Ooh. Sammy bit you." (Child at clay-table)

xxxiii) "She was serving." (Child at wet-sand trough)

xxxiv) "She's done a wee-wee." (Child in the Home Corner)

xxxv) "I broke it." (Child at Lego-table)

xxxvi) "Mix it. Mix it in." (Child at wet-sand trough)

xxxvii) "Then you press your hands on. That's what I do." (Child at wet-sand trough)

xxxviii) "Just squash...yes, squash these bits together." (Child at clay-table)

ixxxx) "Er, just paint the snow-man with me and... and... just paint it white, shall we?" (Child at easel-painting)

xxxx) "I think this needs squeezing a bit." (Teacher at clay-table)

xxxxi) "Right, we'll just fold these up." (Child in the Home Corner)

xxxxii) "You have to blow the candles. You have to blow them." (Child at clay-table)

xxxxiii) "Let's just peel all these apples I said. Peel all these apples." (Child in the Home Corner)

xxxxiv) "Is's buttons have to be fastened." (Child in the Home Corner)

xxxxv) "Have it just jumping through there." (Child at clay-table)

The rater argued that the first twenty-six of the above instances were better categorised as 'Description of current events'

and the next nine (i.e. numbers xxvii - xxxv inclusive) as 'Description of past events'. He did not agree that it was helpful to distinguish these categories from 'Concepts of actions'. The remaining instances (i.e. numbers xxxvi - xxxxv inclusive) he construed as commands.

3. 'Identifying the causes of an event not observed'

Disagreement occurred in the single instance.

"This got in." (Child at easel-painting)

The rater disagreed that the utterance was necessarily contingent upon a previous one or that it necessarily implied causality.

4. 'Attribute concepts' (Category 17)

Disagreement occurred in 50% (21) of the 42 instances.

i) "This is... this is a very hungry caterpillar." (Child at clay-table)

ii) "Mmh. I think he's very smart." (Teacher at clay-table)

iii) "Is it soft, that bit?" (Child at clay-table)

iv) "We're noisy, Mrs. Walsh." (Child at wet-sand trough)

v) "Ooh. What a rolley worm." (Teacher at the clay-table)

vi) "I bet you're untidy." (Teacher at water-trough)

vii) "Is that dirty, that?" (Child at easel-painting)

viii) "Here's the silly worm." (Child at clay-table)

ix) "This is going to be a jolly snowman." (Child at group-painting)

x) "Oh, that's a bit rough." (Teacher at the clay-table)

xi) "This is a very wobbly jelly we're doing here." (Child at the wet-sand trough)

xii) "This dinner is very hot, mind." (Child in the Home Corner)

xiii) "Oh, an angry wasp." (Teacher at group-painting)

xiv) "Well, that's being very lazy." (Child in the Home Corner)

xv) "You're a very naughty boy, you know." (Child at the water-trough)

xvi) "I think that's going to be a very smart Kermit." (Teacher at the clay-table)

xvii) "It's a quiet baby this, very quiet." (Child in the Home Corner)

xviii) "I wonder if... you know... this is very soft this." (Child at clay-table)

ixx) "Mmm. These potatoes are really tasty." (Child in the Home Corner)

xx) "These Smarties are soggy." (Child at wet-sand trough)

xxi) "That's pretty." (Teacher at group-painting)

The rater denied that the above were instances of attribution since, he argued, the qualities involved were not necessarily permanent, but may have been transitory.

5. 'Explanation for barriers to action'

Disagreement occurred in 28.5% (2) of the 7 instances.

i) "You can't come in. There are four here already." (Teacher at water-trough)

ii) "It's got very soggy." (Teacher at wet-sand trough)

In both of the above instances the rater did not feel confident that causality was necessarily implied. In the second instance the rater judged that the speech might have been spontaneous,

rather than, as the author believed, contingent upon the earlier response: "I can't get this sand through the holes."

6. 'Onomatopoeia'

Disagreement occurred in 33.3% (3) of the 9 instances.

i) "Mish-mash-mish." (Child at wet-sand trough)

ii) "Duggaduggaduggadugga..." (Child at wet-sand trough)

iii) "Mamamamama." (Child at clay-table)

The rater disagreed that the above were instances of onamotopoeia, declaring them to be, rather, instances of word-play.

7. 'Describing current events'

Disagreement occurred in 22% (9) of the 41 instances.

i) "What are you all doing?" (Child at clay-table)

ii) "What's happening over here?" (Child at clay-table)

iii) "What's going on?" (Child at clay-table)

iv) "Ooh. What's all this about?" (Teacher at easel-painting)

v) "Is this.... What's happening to this?" (Child at easel-painting)

vi) "What are these people doing?" (Teacher at easel-painting)

vii) "What's happening to this "Magic Roundabout"?" (Teacher at clay-table)

viii) "What do you think Sammy's up to?" (Teacher at clay-table)

ix) "Er, Sean, what are you doing?" (Teacher at wet-sand trough)

The rater was not confident that a discursive type of response was being demanded. He wished to argue, in the case of the last instances above, that the question was rhetorical, being intended

merely to show disapproval.

8. 'Describing past events'

Disagreement occurred in 21.4% (3) of the 14 cases.

i) "What happened?" (Teacher at the wet-sand trough)

ii) "What did he do?" (Child at the Lego-table)

iii) "What happened at your Auntie's?" (Teacher at clay-table)

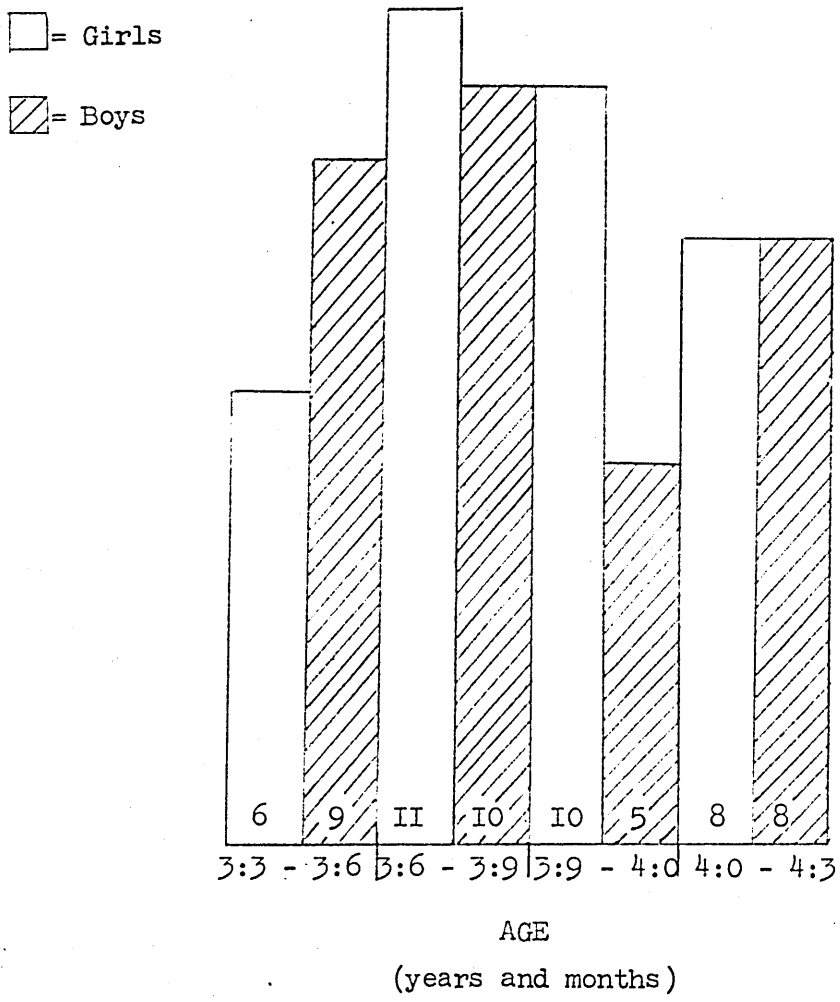
The rater was not convinced that in the above instances the speakers were asking for a discursive account of past events, rather than for a simple statement, such as "He cried."

CHAPTER 7

RESULTS AND CONCLUSION

The combined recordings from Hartley Brook and Lenthall Nurseries totalled IIhours, I2 minutes. Altogether, sixty-seven children (and three adults) were involved, thirty-nine of the children (and two of the adults) being at Hartley Brook Nursery and twenty-eight at Lenthall Nursery. There were thirty-five girls and thirty-two boys, ranging in age between 3 years, 6 months and 4 years, 3 months. (See Diagram I below). Play in the Home Corner (2 hours) was recorded at Lenthall and all of the other activities at Hartley Brook.

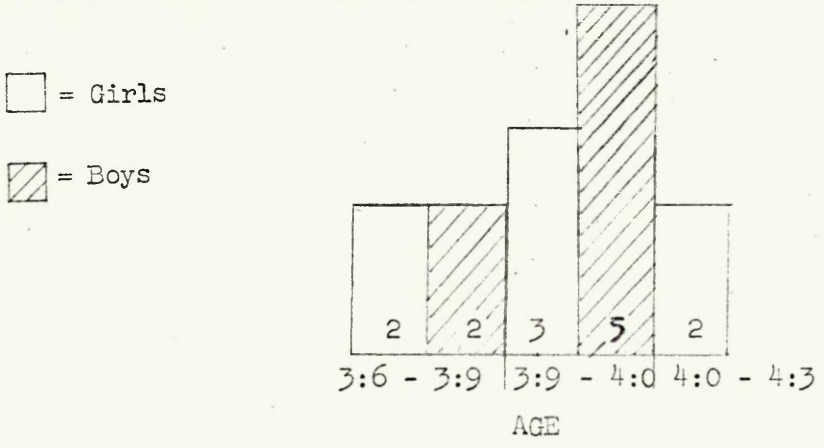
Diagram I The age and sex of the children in the sample.



Easel-painting.

Recording of easel-painting totalled 37 minutes, beginning when a teacher initiated play (see final paragraph, p.104) and being terminated when the easels were left empty. While only four children could paint at any one time, no more than two double-backed easels being provided, other children would hover and chat while waiting for a turn. From time to time, adults would appear briefly to supply materials, such as paper and pegs, and to supervise the children's behaviour, such as the wearing of aprons. Seven girls and seven boys of varied age were involved, two other children appearing fleetingly.

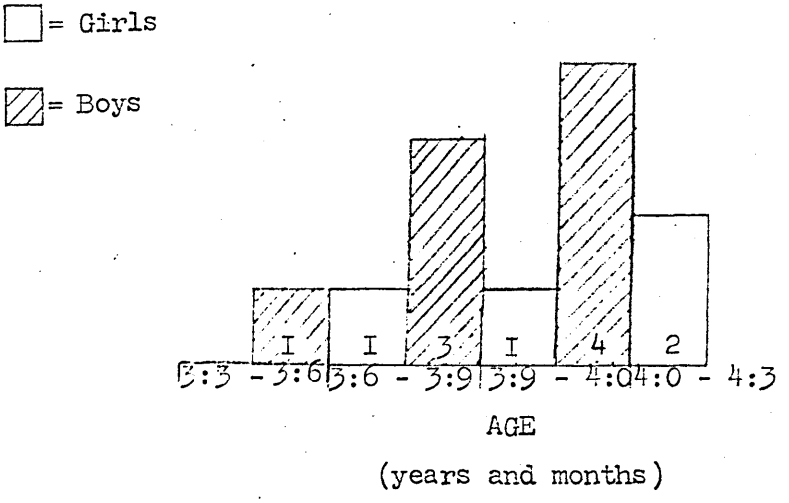
Diagram 2 The age and sex of children at the painting-easels.



Group-painting.

Group-painting was recorded for a total of 35 minutes. Forming a circle on the floor, the children made individual paintings, with the materials to be shared placed in the middle of the circle. Initiating the activity, and remaining present, a teacher commented upon the children's pictures from time to time, allowing them to work freely, rather than in co-operation, or upon a common theme. Four girls and eight boys were the main contributors of speech (Diagram 3 below). Two other girls appeared briefly, one coming to offer a single remark before departing again and the other joining the group shortly before it broke up.

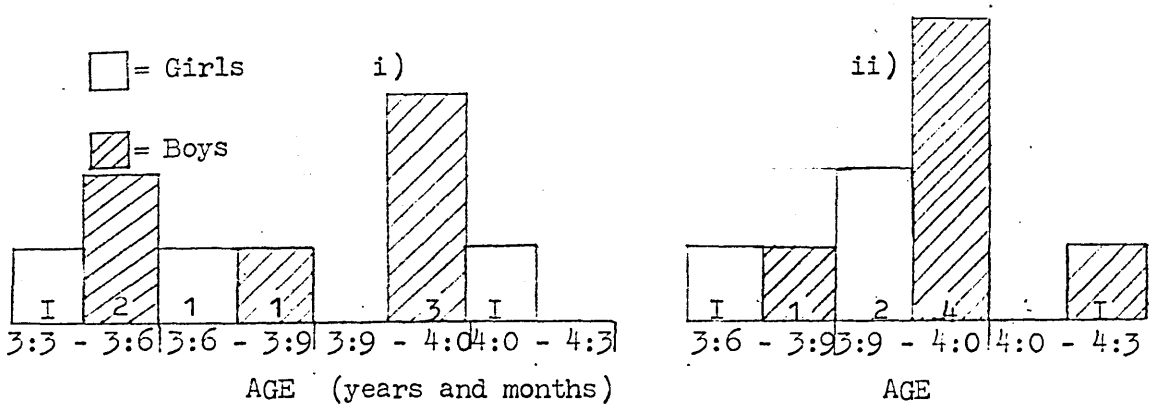
Diagram 3 The age and sex of children involved in group-painting.



Lego

Recordings of children playing with Lego totalled 2 hours. During the first session, after setting out the equipment upon the usual table, staff left the children more or less to their own devices; to come and go freely and to play with the materials as they chose. Only once, towards the end of the recording, did a teacher appear, briefly, to give instructions for clearing the toys away. In contrast, a teacher was present throughout the second session, making her own individual constructions while the children made theirs; commenting upon their efforts and managing their behaviour. Again, the children decided for themselves what to make and there was no suggestion from the teacher that they might work in co-operation or along any particular lines. See Diagrams 4i and 4ii below for the age and sex of the children involved in the first and second recording respectively. Four girls and two boys were the main speakers during the first session; seven girls and four boys during the second. Five other children who appeared briefly and made relatively minor contributions have not been included.

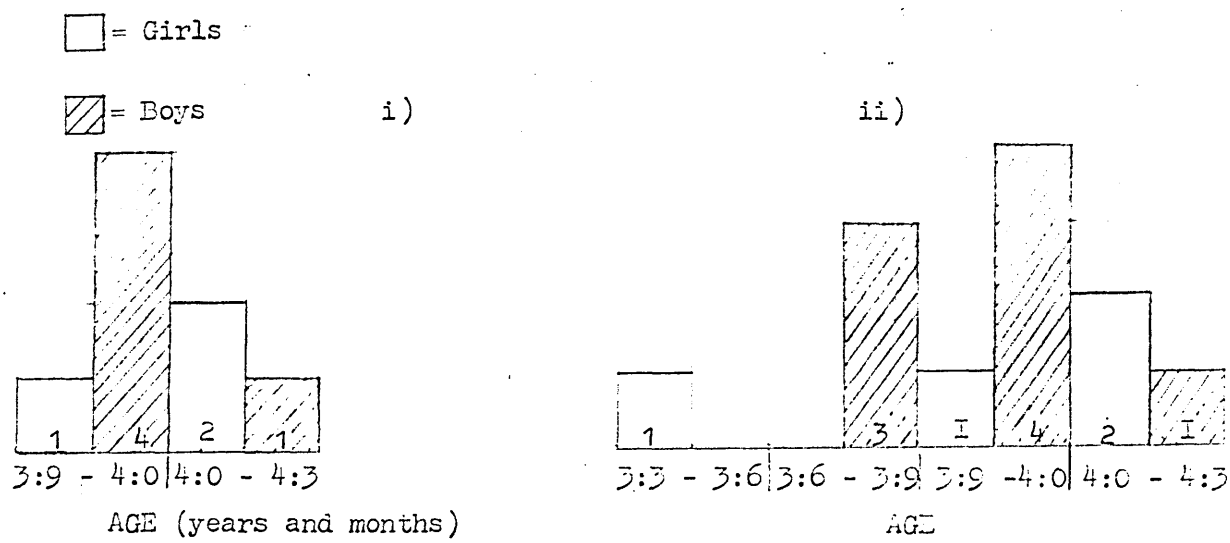
Diagram 4 The age and sex of children at play with Lego.



Clay.

A total of 2 hour's recording was of children playing with clay. As in the case of Lego, this had been provided, as usual, upon a table around which the children gathered as they pleased. During both recording sessions a teacher was in attendance most of the time. During the first session the main contributions of speech were made by three girls and six boys; during the second by three girls and six boys. In all, ten other children made minor appearances.

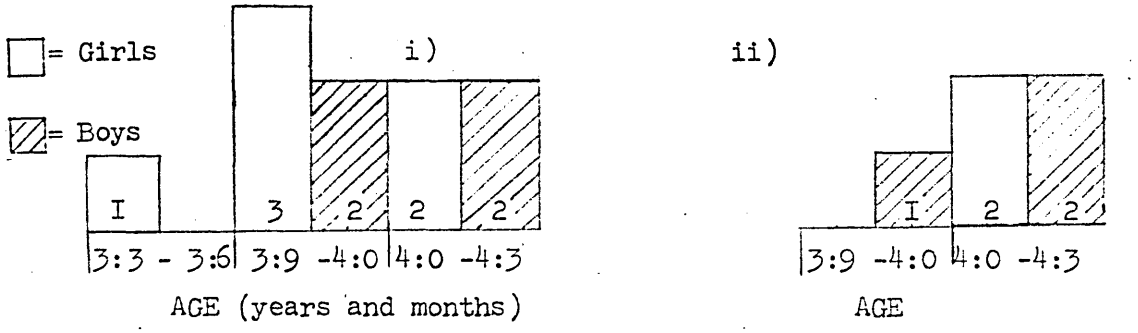
Diagram 5. The age and sex of children recorded playing with clay.



Water

Play at the water-trough was recorded for a total of 2 hours. Funnels, sieves, pipes and other paraphernalia were provided, entailing a great deal of splashing in their use, so it is not surprising that the children remained under close adult supervision throughout both sessions or that four only were allowed to play at any one time. While both of the teachers involved encouraged the children to be active and entered into play with them, they appeared, nevertheless, to strike a predominantly managerial note, concerned to prevent misbehaviour and to police the turn-taking. Six girls and four boys were the main speakers during the first session, two girls and three boys during the second (see Diagram 6 below), nine other children in all appearing momentarily.

Diagram 6 The age and sex of children at play with water.



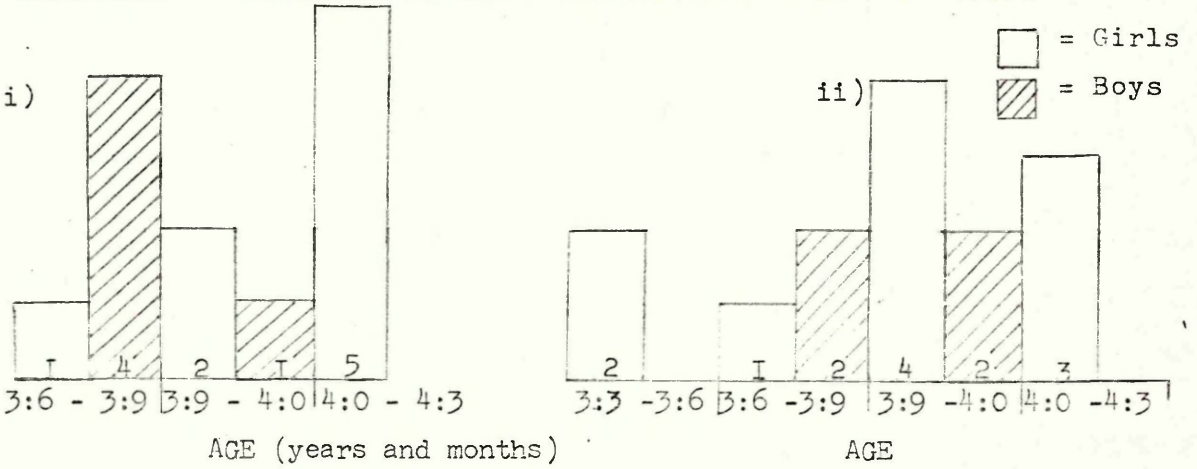
Wet-sand

Play at the wet-sand trough was recorded for a total of 2 hours. The children were supervised for much of the time during the recording sessions, having their sleeves rolled up and their over-boisterous activity curbed by teachers apparently concerned to prevent too much mess being made. Play was predominantly imaginative and there were fantasies about "monster hands", "birthday cake" and so on, children, for the most part, working individually. However, co-operative play did occur towards the end of the first session when two girls, at the time sole occupants of the trough, joined together in pretending to make Smarties. An episode towards the end of the second session seemed, from the children's remarks, to involve joint action. Closer inspection,

'construction'.

Again no-one put forward themes which the children might take up and work upon together (although there were a few simple prompts to action such as "Try squeezing some"). One of the teachers occasionally asked interesting questions about the materials, such as "Why can't you make sand-pies with this sort of sand?", but there was little attempt, on the whole, to extend discussion and often the children's comments were repeated back to them, rather than explored. Eight girls and five boys were the main speakers during the first session, ten girls and four boys during the second (see Diagram 7 below), eleven other children making fleeting appearances.

Diagram 7 The age and sex of children at the wet-sand trough.

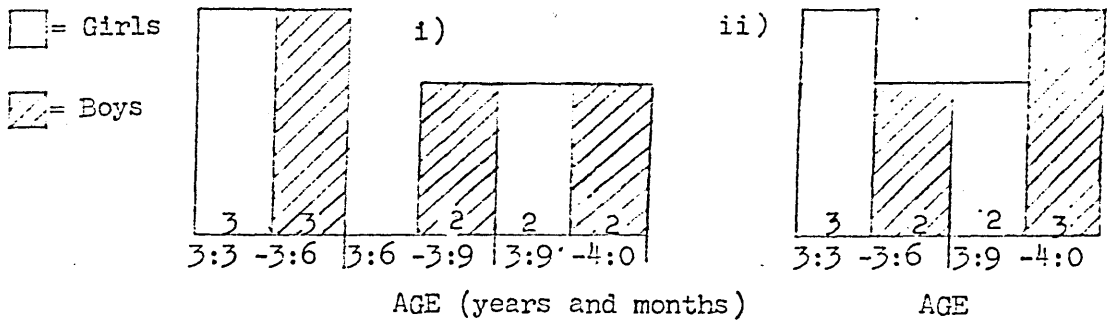


The Home Corner.

A total of 2 hours' recording took place in the Home Corner at Lenthall Nursery School. There were the usual pots, pans, chairs and so on, and, as expected, play was predominantly dramatic, with common domestic situations, such as preparing a meal, being acted out. The children were free to decide for themselves which themes to adopt, the only adult intervention being in the form of instructions to clear away at the end of each session. (A low screen, forming two walls of the Home Corner, in fact allowed the staff to 'keep an eye on the children', as they pleased, from outside it). This type of play was popular with

both sexes, five girls and seven boys being the main speakers during the first recording session, five girls and five boys during the second (see Diagram 8 below), nineteen other children appearing who made a relatively minor contribution to the record of speech.

Diagram 8 The age and sex of children playing in the Home Corner.



ANALYSIS I The influence of age and sex upon speech production. (The major categories).

The data were analysed as a 3-factor ANOVA (4 age-groups x sex x 4 speech categories).

Age-group I (9 boys, 6 girls) included children of 3 years, 3 months to 3 years, 6 months of age.

Age-group 2 (IO boys, II girls) included children of 3 years, 6 months to 3 years, 9 months of age.

Age-group 3 (5 boys, IC girls) included children of 3 years, 9 months to 4 years of age.

Age-group 4 (8 boys, 8 girls) included children of 4 years to 4 years, 3 months of age.

Speech category I comprised "cognitive-linguistic speech".

Speech category II comprised "speech serving primarily to express affect".

Speech category III comprised "speech serving primarily to maintain ongoing activity".

Speech category IV comprised "simple verbal responses to the pre-formulations of others".

The incidence of production or 'production rate' of each speech category was calculated: firstly, the utterances of each subject, during

participation in the various play activities, were allocated to the four categories outlined above; secondly, for each subject, the number of instances of each category was divided by the number of minutes during which the child was involved in the relevant activity. See Appendix 3 for ANOVA Table I.

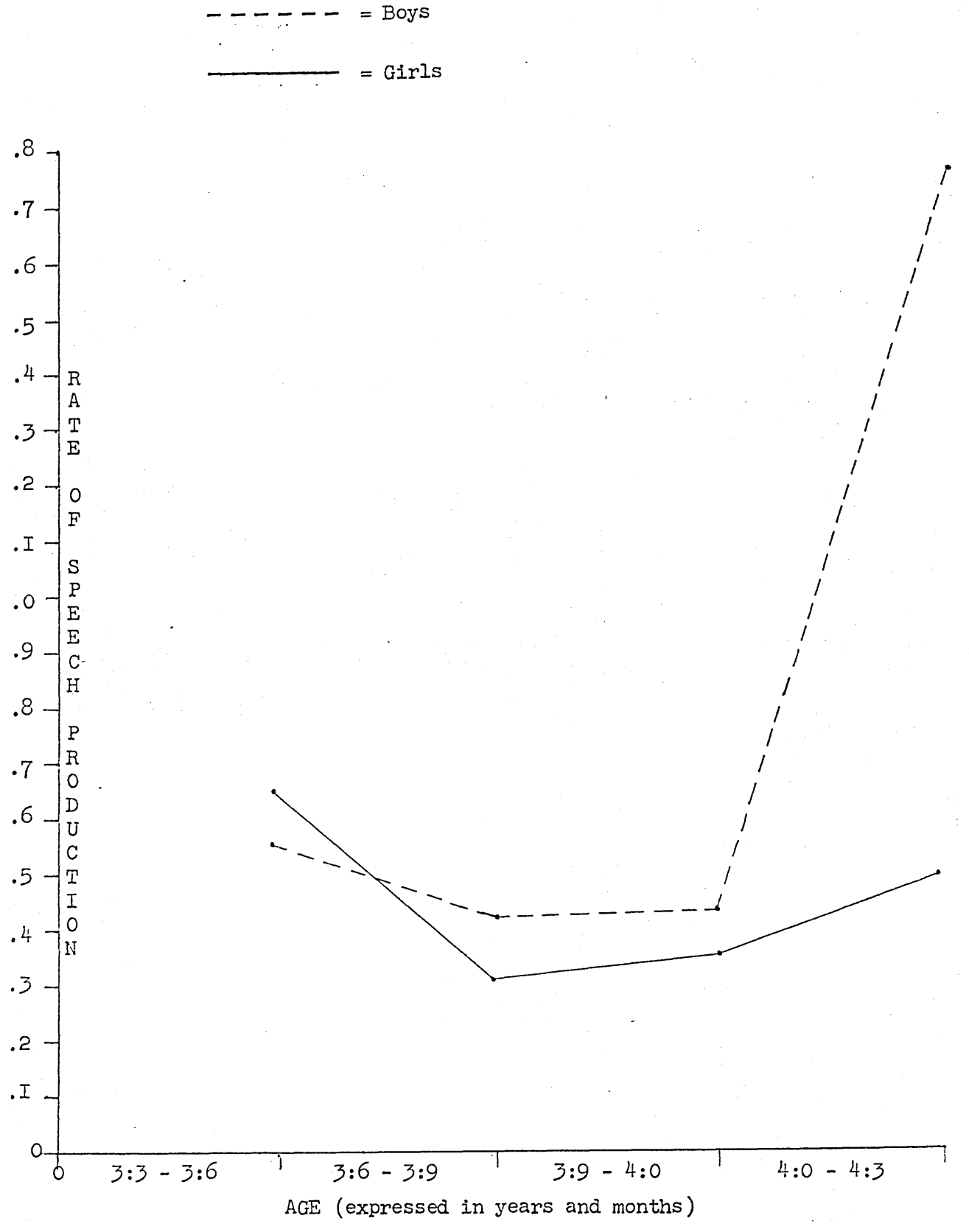
The effect of age was significant ($F= 7.027$, df 3, 59, $p<.01$). The respective age-group means were:-

0.554 (Age-group I)
0.365 (Age-group 2)
0.431 (Age-group 3)
I.II3 (Age-group 4)

The effect of sex was significant ($F= 6.798$, df I, 59, $p<.05$). The mean rate of speech production was 0.779 for boys and 0.438 for girls.

The effect of sex in interaction with age was also significant ($F= 5.546$, df 3, 59, $p<.01$). This interaction can be seen in Graph I overleaf.

GRAPH I The factors of sex and age in interaction with speech production.

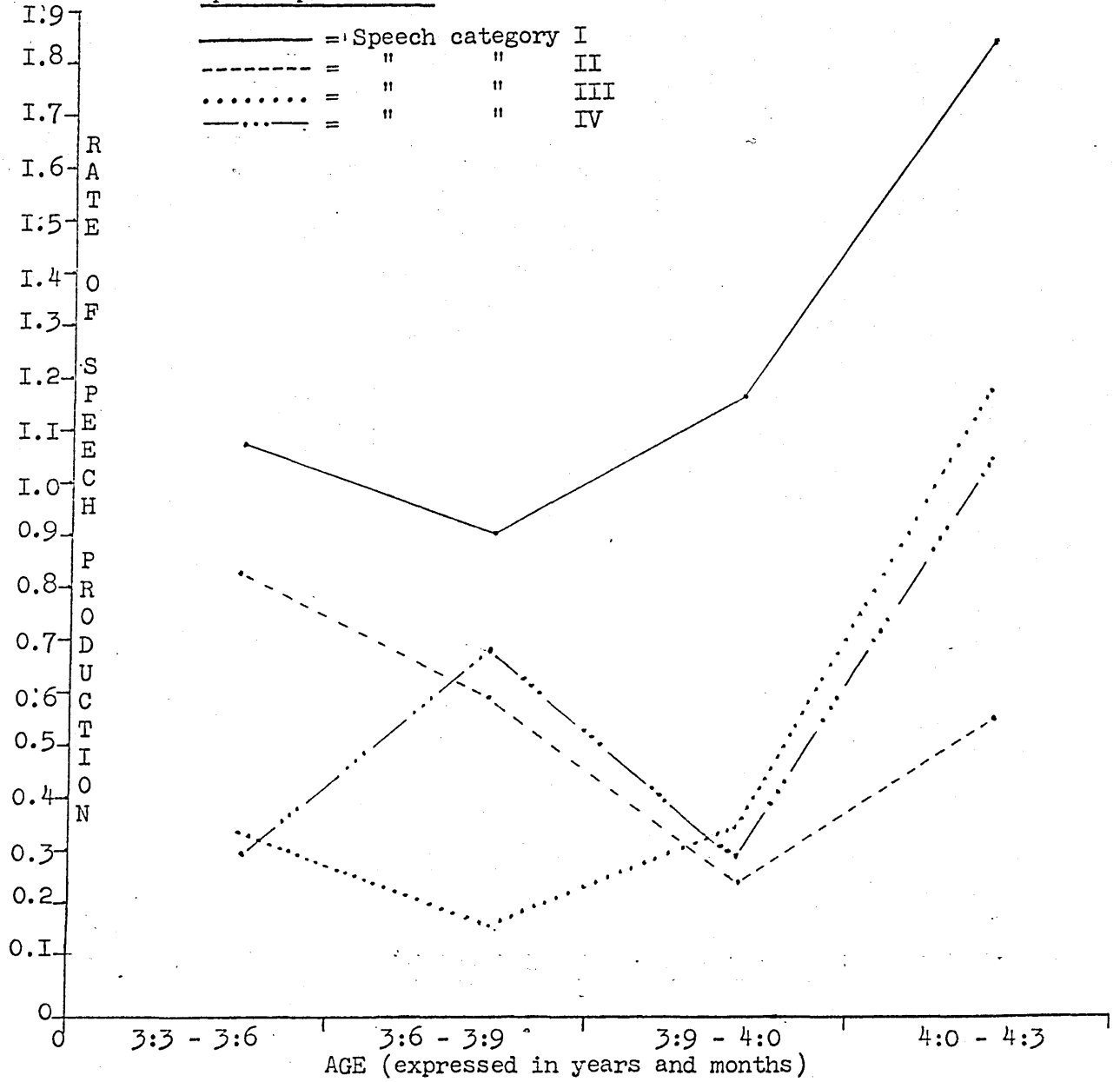


The rate of speech production varied, to a significant degree, with the factor of speech category ($F = 25.094$, df 3, I77, $p<.0I$). The category means were:-

Category I	("Cognitive -linguistic speech"):-	I.I76
" II	("Speech serving primarily to express affect"):-	0.437
" III	("Speech serving primarily to maintain ongoing activity"):-	0.404
" IV	("Simple verbal responses to the pre-formulations of others"):-	0.35

The factors of age and category in interaction had a significant influence upon the rate of speech production ($F= 2.952$, df 9, I77, $p<.0I$). These interaction means can be seen in Graph 2 below.

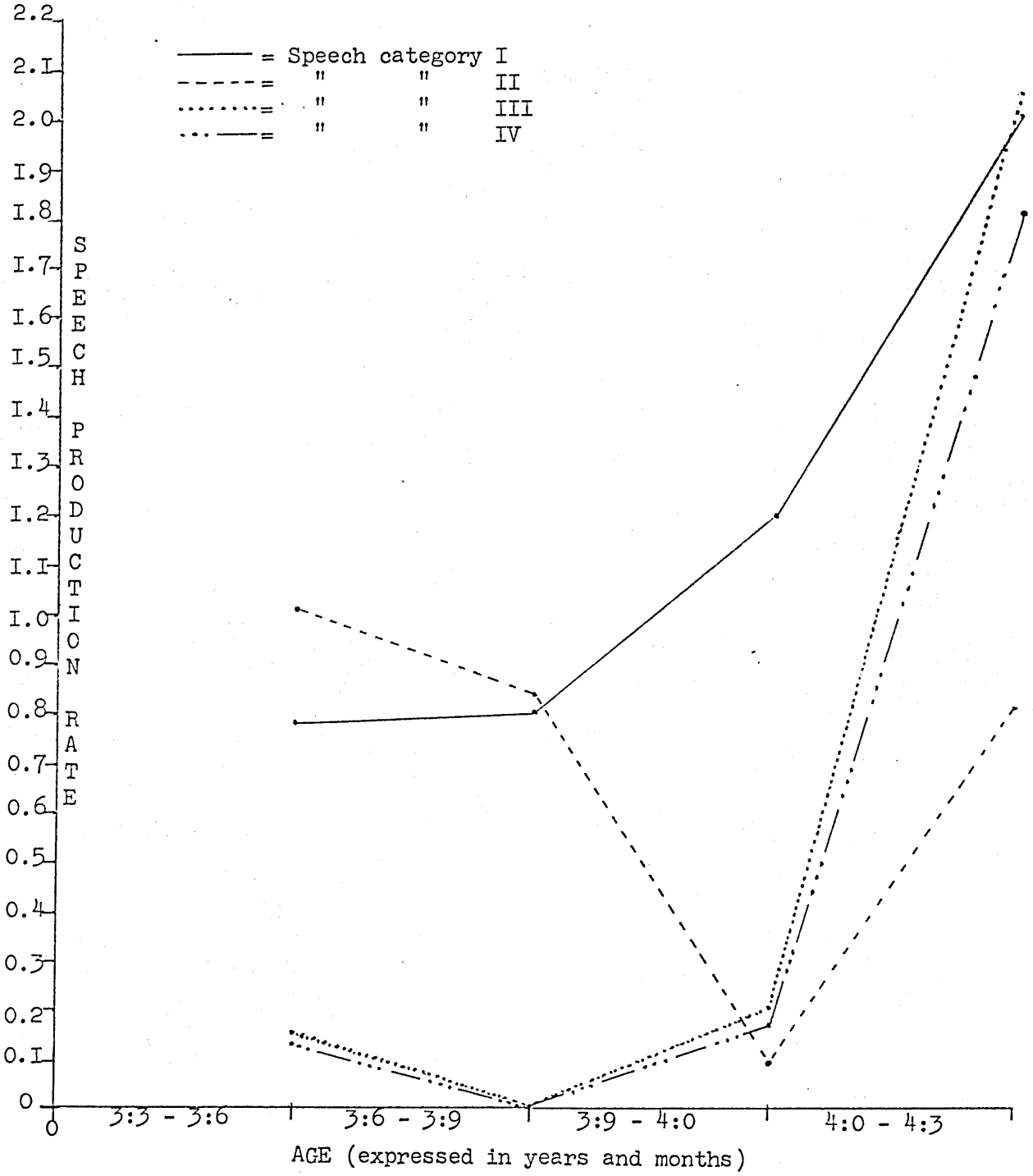
GRAPH 2 The factors of age and speech category in interaction with speech production.



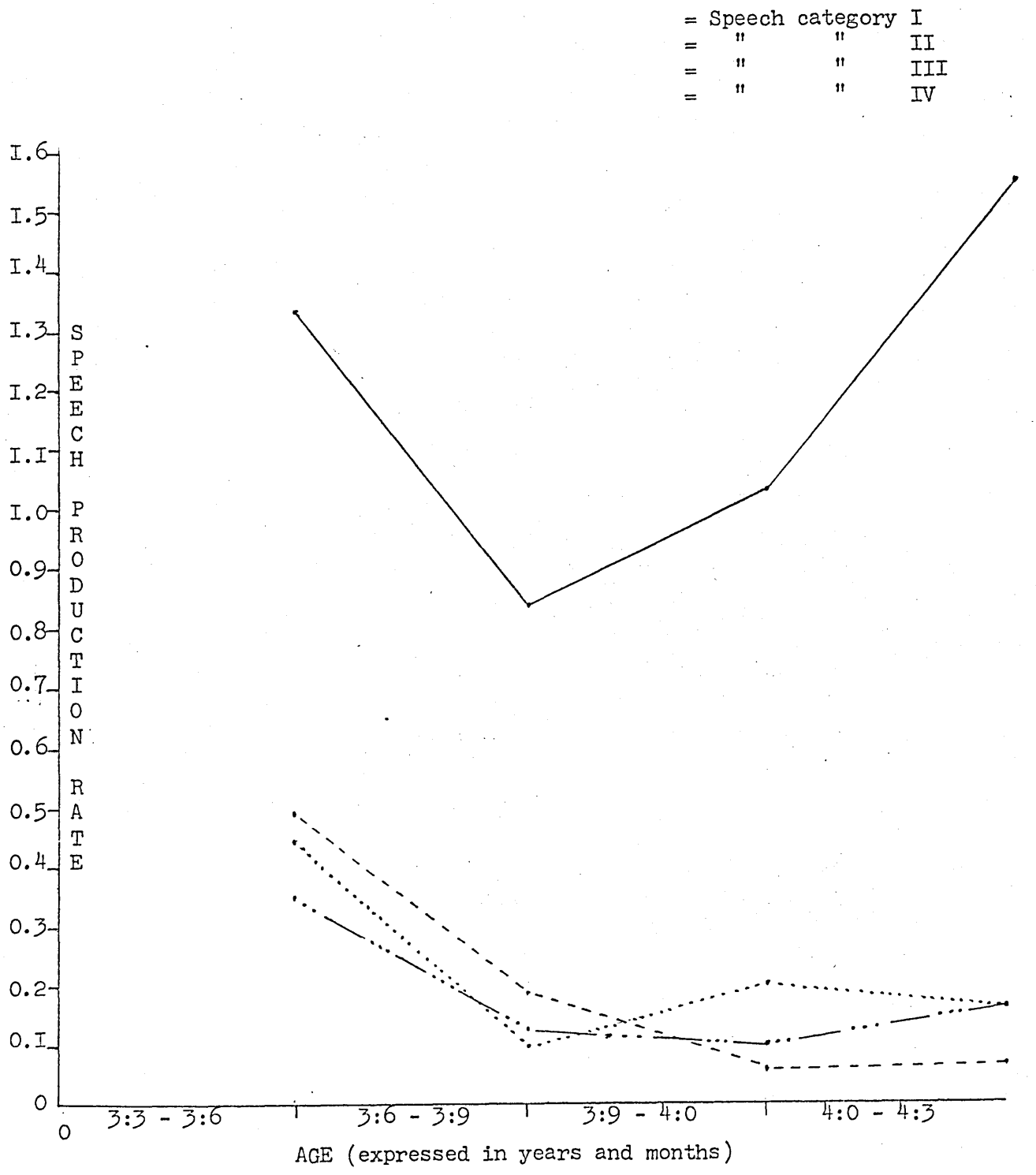
The factors of sex and category in interaction did not have a significant influence upon the rate of speech production (F= I.694, df 3, I77, n.s.).

The factors of age, sex and category in interaction did have a significant influence upon the rate of speech production (F= 2.338, df 9, I77, $p<.05$). This interaction can be seen in Graphs 3i and 3ii :-

GRAPH 3i (Boys)



GRAPH 3ii (Girls)



The present finding is that speech in these nursery situations was complex rather than simple; that while children frequently speak merely to 'let off steam' or to maintain elementary social contact, their language most often shows a degree of reflection. In addition, there is a tendency for children to become more vocal with age and for boys to be more vocal than girls. With respect to qualitative differences, Graph 3 reveals how girls, irrespective of age, used 'cognitive' speech much more often than they used other categories, the distinction increasing with age. Boys, in contrast, present a much less clear-cut picture - only those in age-group 3 using cognitive speech more than other categories.

The above finding - girls' characteristic use of more complex speech - could be taken to support the common belief that females have an advantage over males in respect of verbal processes. However, the few experimental studies on sex differences which have been carried out suggest that in young children female superiority is either smaller than believed or non-existent. According to Maccoby and Jacklin (1974) girls may be in advance of boys during the first three years of life - if the studies of the 20s and 30s, usually involving small samples, are to be relied upon. Also, adolescent girls are generally ahead on the specifically verbal skills of spelling, punctuation and the comprehension of written text. However, they argue, it would seem that boys catch up with girls by three years, few differences being observed, on tests of vocabulary and sentence comprehension, until adolescence. In respect of quantitative sex differences they found, in contrast with the present study, that pre-school girls appear to be more talkative than boys. While the immediate findings on sex differences appear to be out of step with the conclusions of Maccoby and Jacklin, attention should be drawn to the role of the oldest boys in the present study - who have made a major contribution to the age and sex differences found.

On the view that the child's speech develops from the 'autistic' or 'egocentric' function towards a 'directed' usage which is concerned with monitoring and manipulating a shared external reality (Piaget, 1929), regardless of the controversial relationship between language and thought (compare Vygotsky, 1962), we should expect to find an age-related trend among the children in our sample, all of whom are likely to be in Piaget's

Pre-operational Stage of cognitive functioning; namely, a tendency for the older children to produce a higher proportion of utterances which have a relatively complex semantic structure (i.e. speech in Category I as opposed to the remaining categories). In fact, as Graph 3 shows, there was indeed a tendency for speech in Category I to be used more by older children. However, no clear-cut relationship can be seen between age and the remaining speech categories. (These latter were produced less often by children in Age-group 2 than by those in Age-group I, but girls in Age-group 2 also produced less cognitive speech - which suggests that, in their case, the decline in other sorts of speech may simply have been part of a general tendency to talk less). The only other case of a noticeable reduction with age across sexes was that of Category 2 between Age-groups 2 and 3. Similar to the present findings on age were those of Caldwell et al (1970) who, examining the development of children from one to four years of age in a nursery day care centre, found that older children talked more and that simple conversation declined with a corresponding increase in more complex types of speech.

ANALYSIS 2 The influence of age and sex upon the production of the individual speech categories.

This time, the sub-categories of speech within the four categories outlined above were to be considered (see pp. IC8 - I27). Again the data were analysed as a 3-factor ANOVA (4 age-groups x sex x 74 speech sub-categories). The rate of production of each speech sub-category was calculated: in the case of each subject, during his or her participation in the various play activities, the number of occurrences of each sub-category of speech was divided by the time available (i.e. by the number of minutes during which the child was involved in the relevant activity). The ANOVA table can be seen in Appendix 4 (ANOVA Table 2).

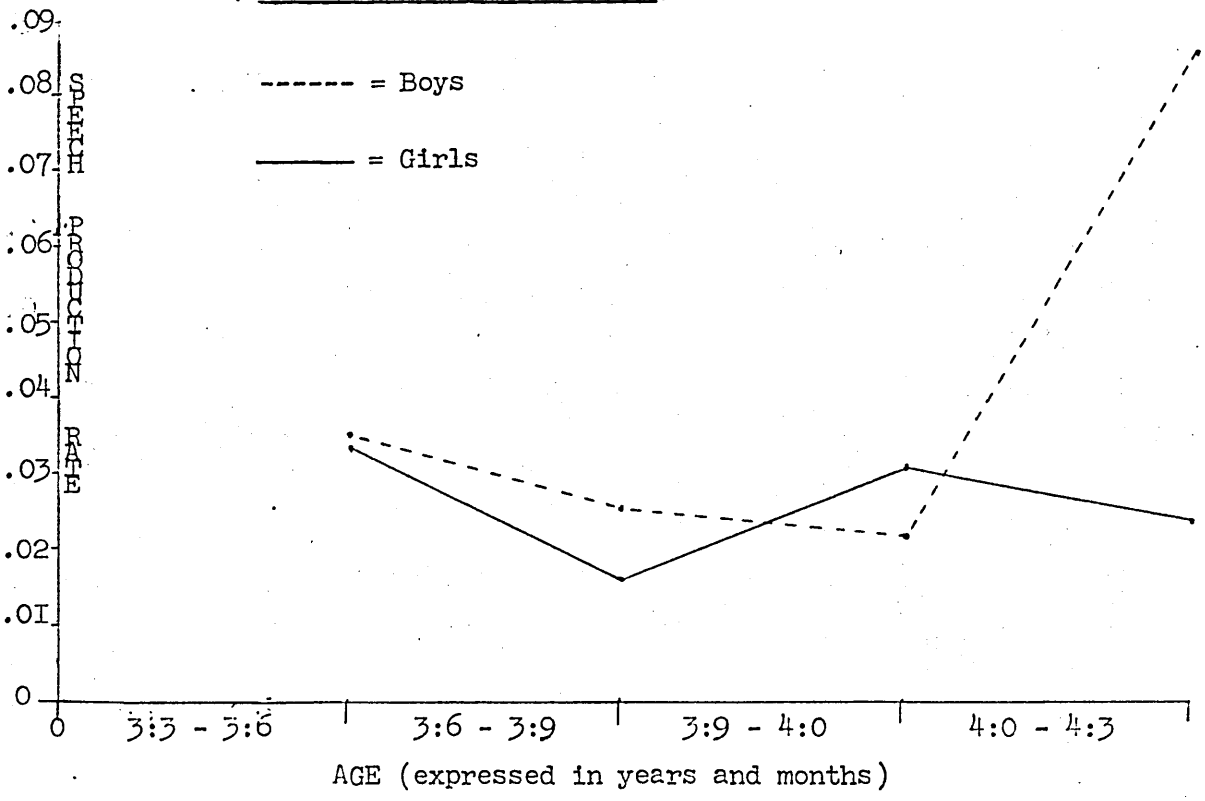
Again, the effect of age was significant ($F = 4.66$, df 3, 59, $p < .01$). The respective age-group means were:-

0.0317 (Age-group I)
0.0196 (" - " II)
0.0302 (" - " III)
0.0595 (" - " IV)

Again the effect of sex was significant (F= 4.4, df I, 59, p<.0I). The mean rate of speech production was 0.043 for boys and 0.026 for girls.

The effect of sex in interaction with age was significant (F=4.68, df 3, 59, p<.0I). This interaction can be seen in Graph 4:-

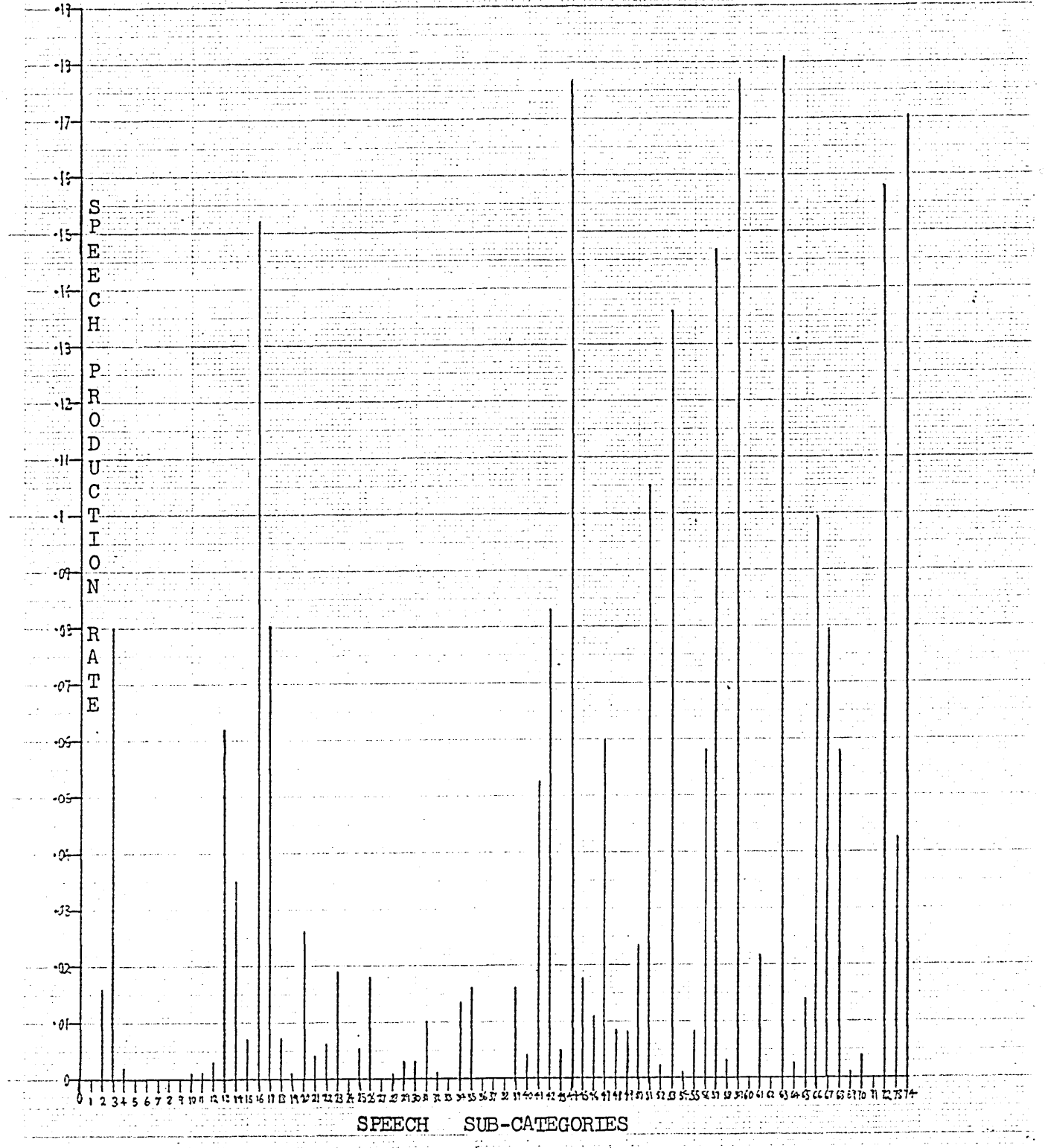
GRAPH 4 The factors of sex and age in interaction with speech production sub-categories).



The rate of speech production varied, to a significant degree, with the factor of speech sub-category (F= 3.768, df 73, 4307, p<.0I). The sub-category means can be seen in Histogram I overleaf.

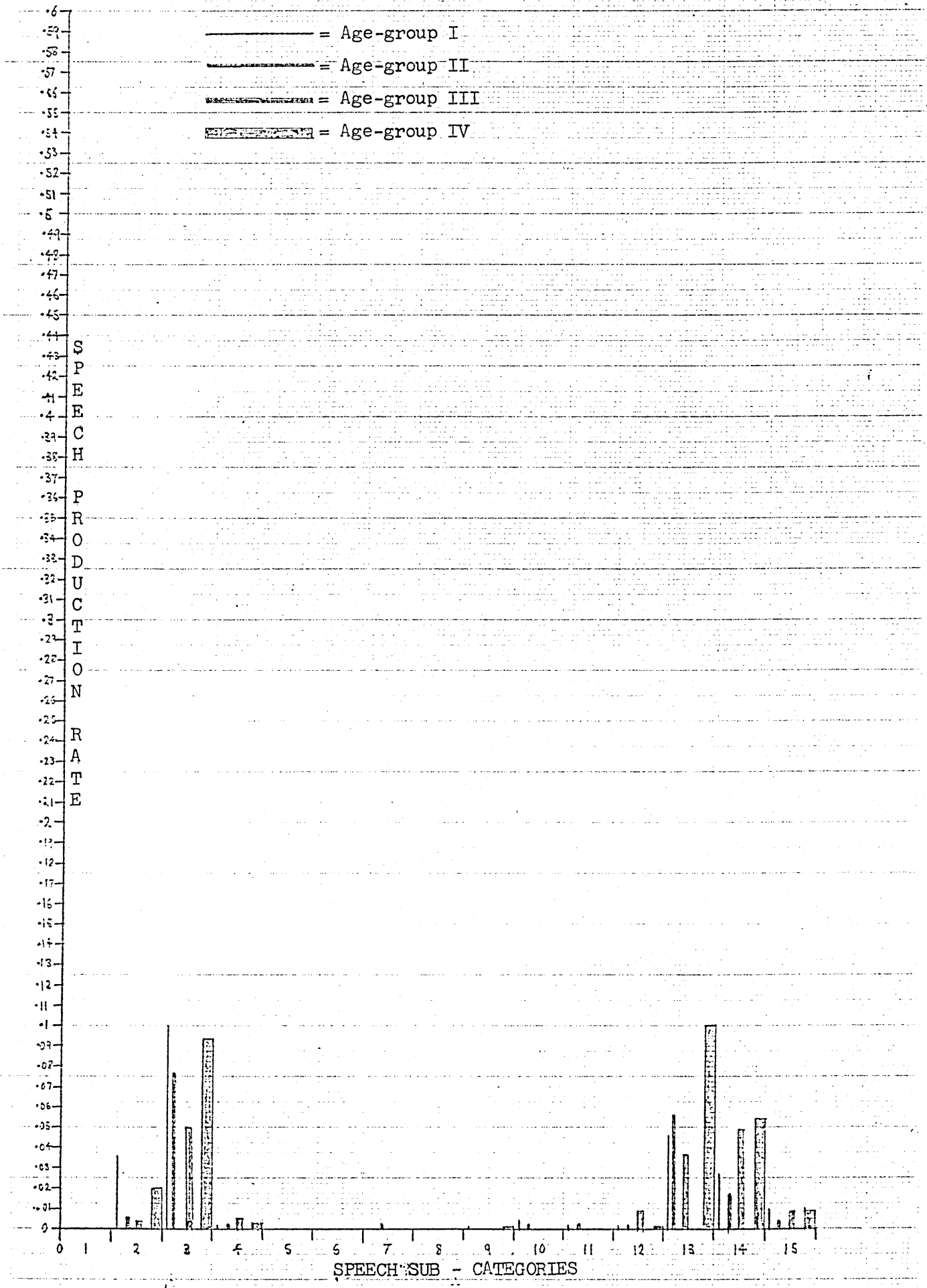
HISTOGRAM I

Mean rates of production of the speech sub-categories.



The factors of age and sub-category in interaction had a significant influence upon the rate of speech production ($F = I.465$, df 2I9, 4307, $p < .0I$). These interaction means can be seen in HISTOGRAM IIoverleaf.

The factors of age and speech sub-category in interaction (means).
(sub-categories I - I5) Category I



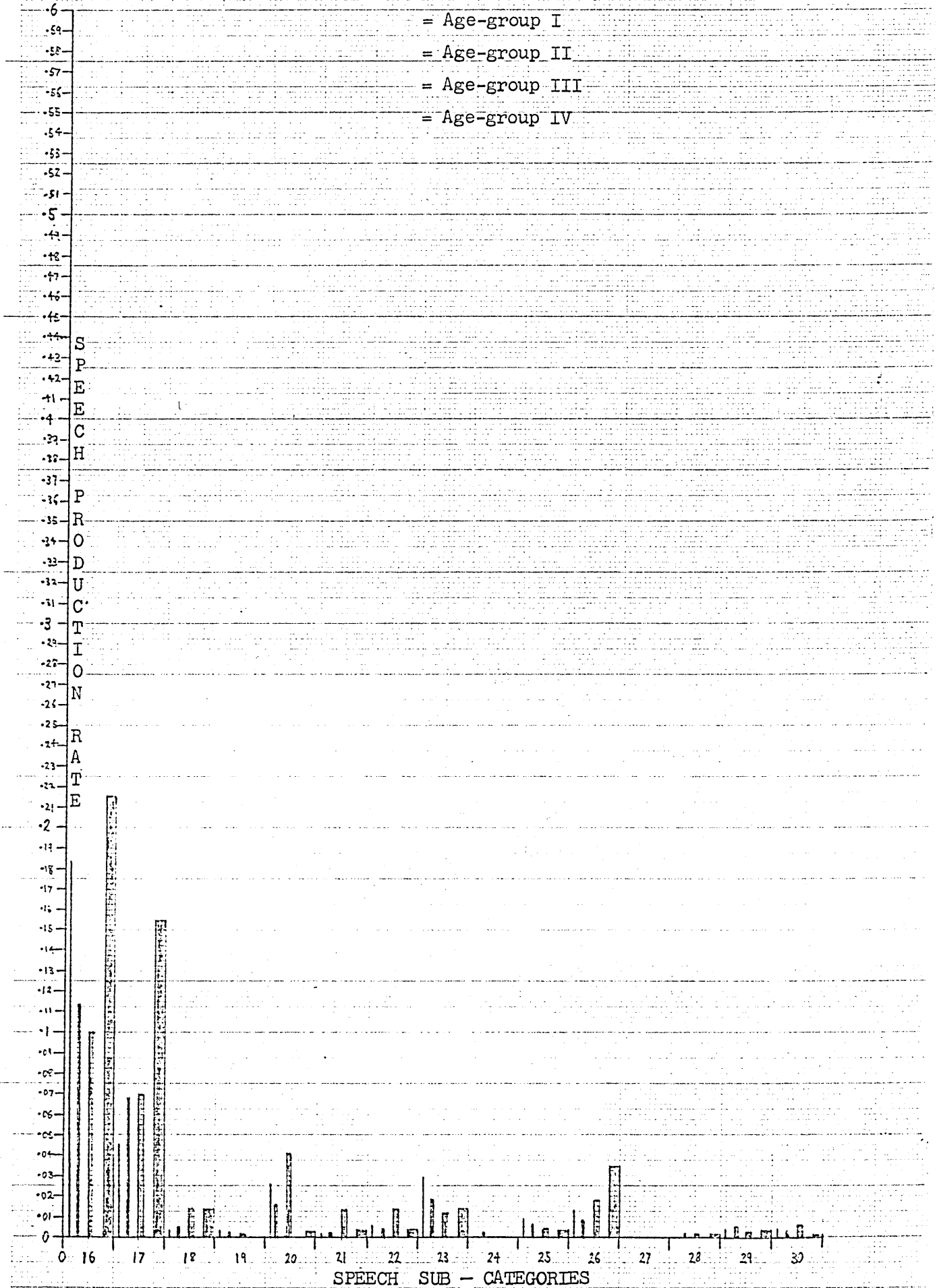
(Category I contd.. - sub-categories 16 - 30)

= Age-group I

= Age-group II

= Age-group III

= Age-group IV



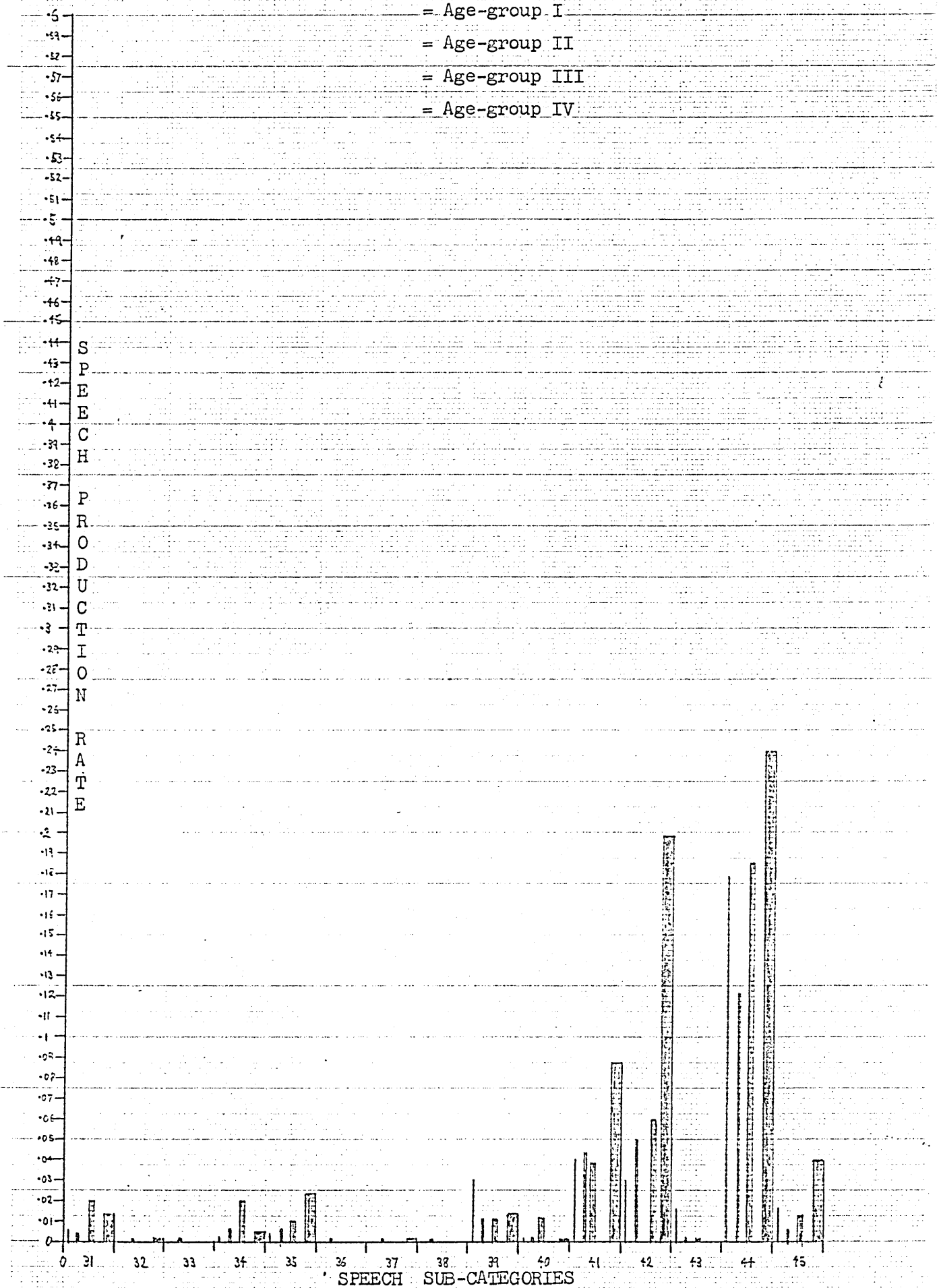
(Category I contd..- sub-categories 3I - 45).

= Age-group I

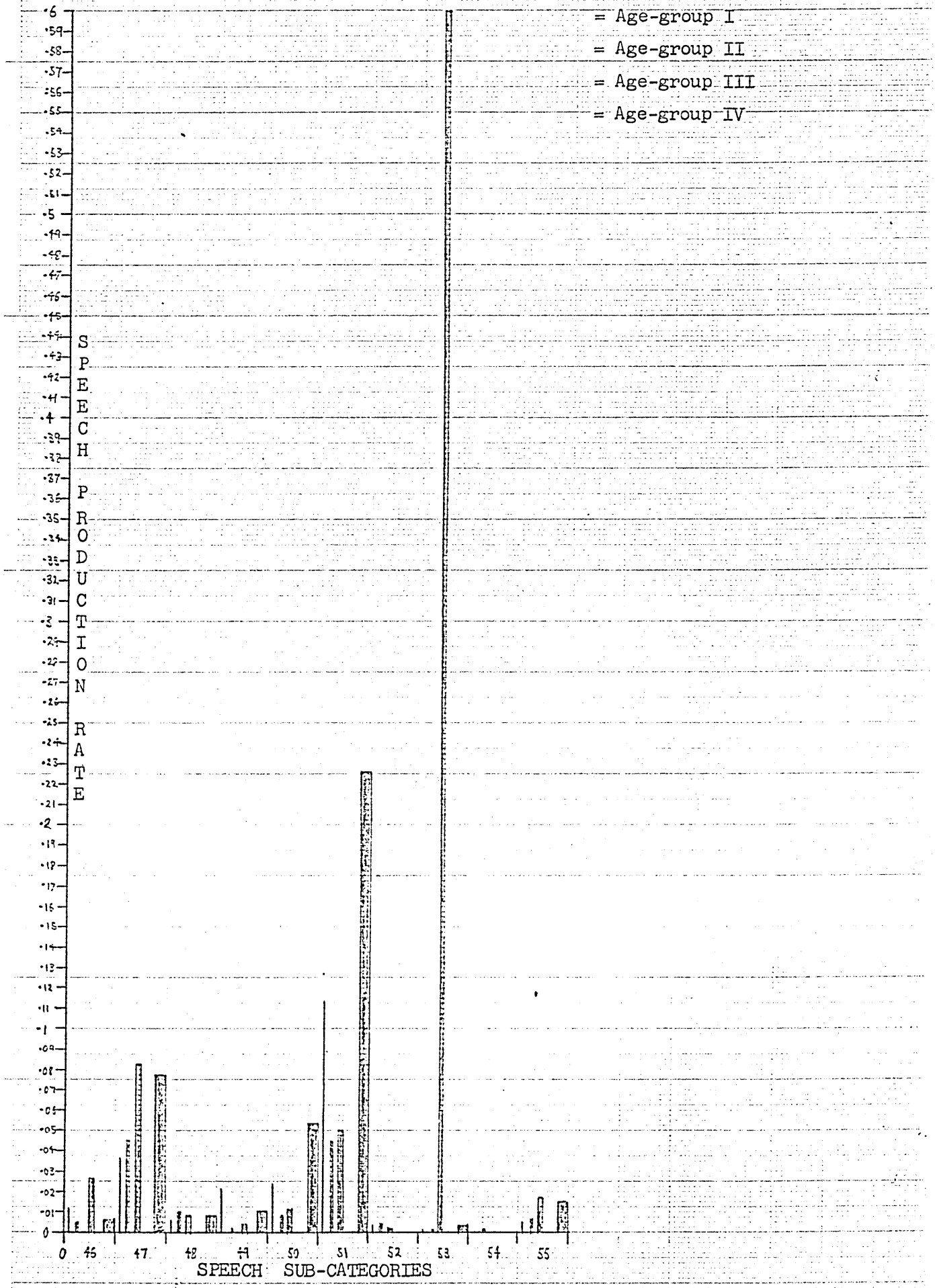
= Age-group II

= Age-group III

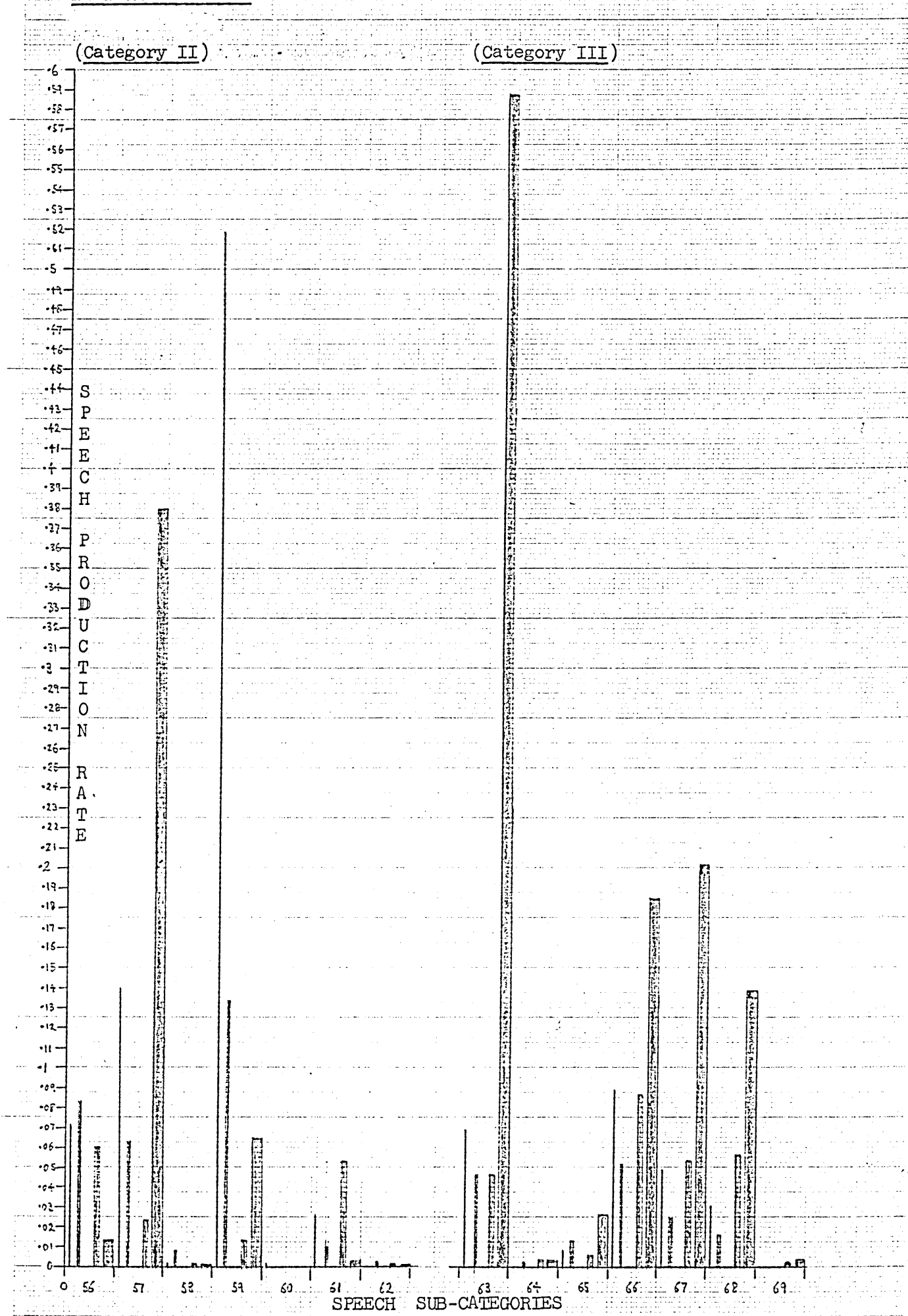
= Age-group IV



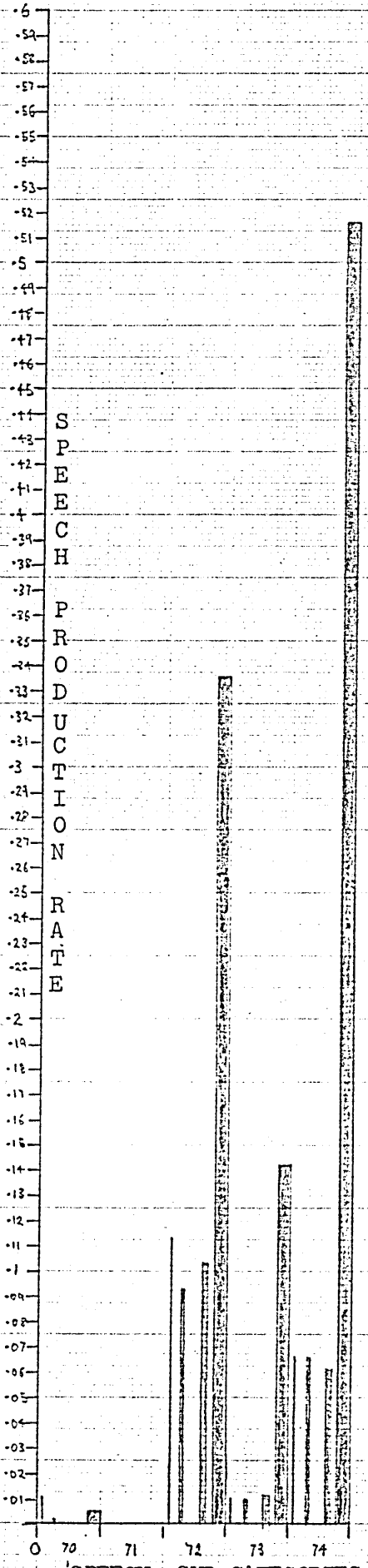
(Category I contd. -- sub-categories 46-55).



(Category II) (Category III)



(Category IV)

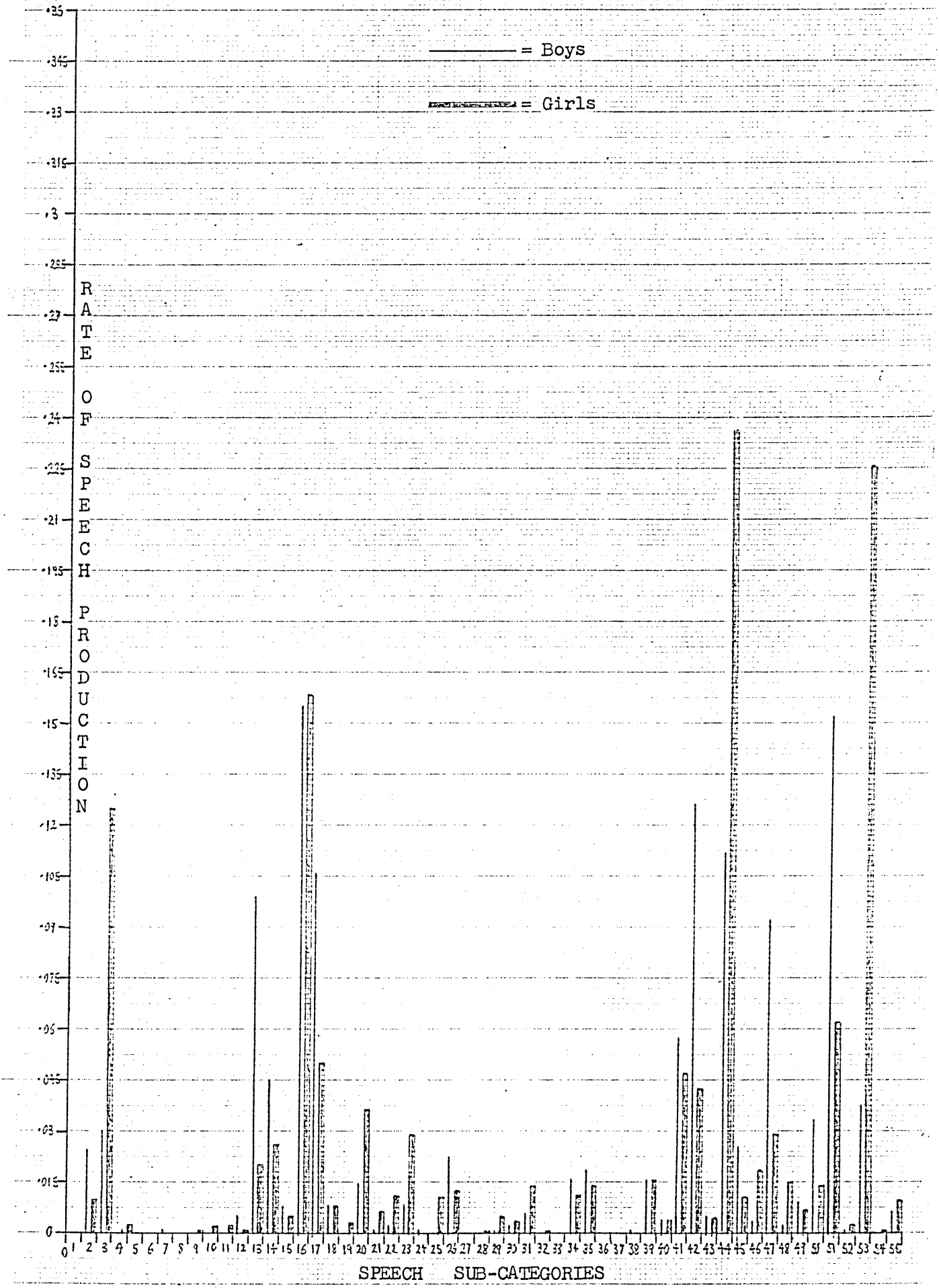

SPEECH PRODUCTION RATE
0
70
71
72
73
74
SPEECH SUB-CATEGORIES

The factors of sex and sub-category in interaction had a significant influence upon the rate of speech production ($F=I.693$, df 2I9, 4307, $p<0.0I$). These interaction means can be seen in Histogram III overleaf.

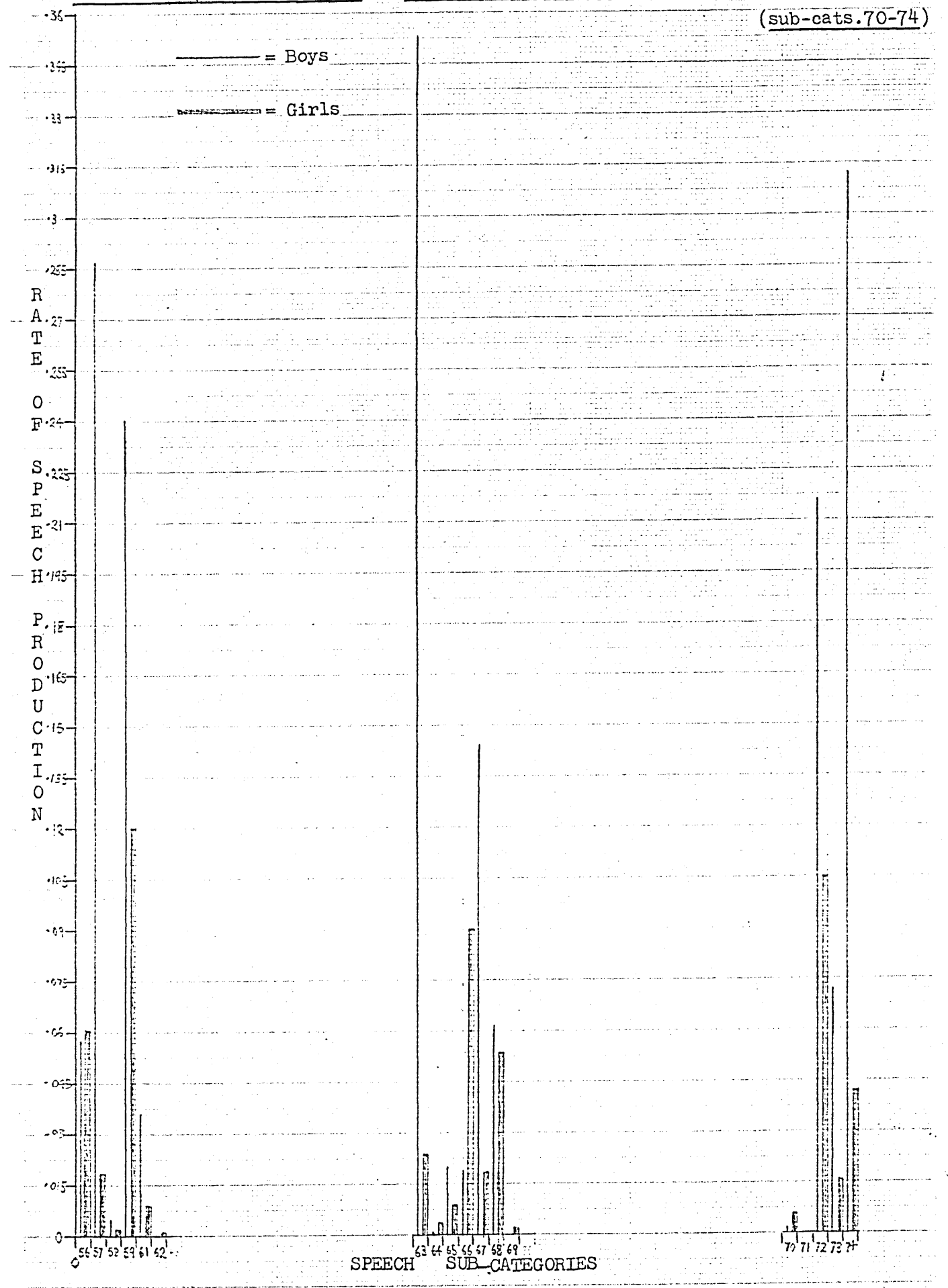
The factors of age and sex and sub-category in interaction did not have a significant influence upon speech production.

HISTOGRAM III

CATEGORY I (sub-categories I-55)



HISTOGRAM III



DISCUSSION OF ANALYSIS 2

Analysis I revealed the rate of speech production to be distributed unequally across the major speech categories. Analysis 2 seeks to reveal the extent to which this pattern of distribution can be attributed to particular sub-categories of speech.

The high rate of production of Category 4 speech ("Simple verbal responses to the pre-formulations of others") was found to rest upon the sub-categories "seeking confirmation", "providing confirmation" and "simple denial", major contributions being made by the oldest boys. There were few occurrences of "denial of knowledge" and "correction of language".

Within Category 3 ("Speech serving primarily to maintain ongoing activity"), the sub-category "attracting attention" predominated, "requests for materials or help", "requests for permission" and "guiding action" being also relatively prominent. Again, with the exception of "requests for permission" where the highest scores were obtained by Age-groups I and 3, the output of the oldest boys largely accounted for the high rates of production. Notably infrequent were "stimulating a response", "speech echoing actions" and "giving permission".

Many of the sub-categories in Category I occurred rarely, it appearing from Histograms II and III that boys and Age-groups 4 and 2, in particular, had a depressant effect. Exceptions, i.e. with a rate of production exceeding 0.03 instances per minute, were "simple command", "describing current events", "describing past events", "concepts of action", "conception of an attribute", "spatial concepts", "statement of intentions", "expression of desires and wishes", "expression of fantasy", "statement about possession", "evaluation of behaviour", "indicating a need" and "indicating a contingency". Within these categories the oldest boys were the most voluble, except for "simple command" (in which the youngest girls led), "spatial concepts", (led by girls in Age-group 3), "expression of fantasy" (led by the oldest girls) and "indicating a contingency" (led by girls in Age-group 3). No substantial sex difference occurred in the case of "concepts of action" (in which the youngest and oldest children gained highest scores).

In the case of sub-categories in Category 2, "squealing", "crying" and "simple expression of hostility" occurred relatively seldom. Once more boys were largely responsible for raising the levels of speech production, the oldest boys leading in "laughter" and "onomatopoeia", the youngest in "ejaculation" and Age-group 3 in "word play".

ANALYSIS 3 The influence of play activity and sex upon the production of speech within the major categories.

In Analysis 3 the speech production rate in each of the four speech categories was analysed to see if there were differences according to activity and sex. The subject numbers were as follows:-

	Home Corner	Easel Painting	Lego	Water	Wet sand	Group Painting	Clay
Girls	I0	7	6	8	I8	4	7
Boys	I2	7	I2	7	9	8	I3

The design was thus a 3-factor ANOVA (7 play activities x 4 speech categories x sex) with subjects nested within sex. The ANOVA table can be seen in Anova Table 3 overpage (p.166a).

The sex factor was significant (F= 5.9I, df I, I27, p<0.05), the boys' mean speech production rate being 0.687, the girls' 0.462.

There were significant differences among individual children (F= 2.306, df I27, 357, p<0.0I).

The effect of speech category was again significant (F= 48.0, df 3, 357, p<0.0I), the means being:-

Category A:- I.I95
" B:- 0.404
" C:- 0.35
" D:- 0.3I6

There were significant differences among the rates of speech production across the play activities (F= 3.09, df 6, 357, p<0.0I). The activity means can be seen in Table 4 below (p.166b).

There was an interaction between the factors of sex and speech category which was significant at the 0.05 level of probability (F= 3.22, df 3, 357). The interaction means are shown in Table 5 (Appendix 5).

The interaction between play activity and speech category was not significant (F= I.I4, df I8, 357). See Table 6 (Appendix 6).

ANOVA Table 3

(See p. 166)

	df	Sums of Squares	Means of Squares	Variance Ratio (F)	Probability
Sex	1	6.4812	6.4812	5.91	$p<0.05$
Subject	127	139.178	1.096	2.306	$p<0.01$
Category	3	68.46	22.82	48	$p<0.01$
Sex X Category	3	4.597	1.53	3.22	$p<0.05$
Activity	6	8.8214	1.47	3.09	$p<0.01$
Activity X Category	18	9.656	0.54	1.14	n.s..
Error	357	169.7	0.475		

Table 4 (see p.I66) Amounts of speech produced in the play activities.

	Home Corner	Easel Painting	Lego	Water	Wet sand	Group Painting	Clay
Means	0.592	0.39I	0.479	0.648	0.729	0.324	0.6I6

ANALYSIS 4 The relationship between the speech of children and of teachers.

Here the purpose was to assess the likelihood that childrens' speech was influenced by that of their teachers.

The extent to which teachers used 'cognitive-linguistic speech', rather than any other category, was remarkable. In descending order, the 'production rates' (see p.145) were:-

'Cognitive-linguistic speech'	-	31.99
'Speech serving primarily to express affect'	-	0.35
'Speech serving primarily to maintain ongoing activity'	-	0.83
'Simple verbal responses to the pre-formulations of others'	-	4.26

There was also variation in the extent to which the different categories of speech were produced by the teachers in each play situation. The rates of production were as follows:-

i) 'Cognitive-linguistic speech'

Home Corner	-	6.5
Lego	-	7.94
Group-painting	-	5.47
Easel-painting	-	3.6
Clay	-	3.14
Wet-sand	-	2.87
Water	-	2.47

ii) 'Speech serving primarily to express affect'

Water	-	0.21
Lego	-	0.08
Group-painting	-	0.03
Wet-sand	-	0.02
Clay	-	0.01
Easel-painting	-	-
Home Corner	-	-

iii) 'Speech serving primarily to maintain ongoing activity'

Lego	-	0.33
Water	-	0.27
Wet-sand	-	0.13
Clay	-	0.07
Group-painting	-	0.03
Easel-painting	-	-
Home Corner	-	-

A significant association was found between the children's sex and their production of the different speech categories. In contrast, the variations in speech which distinguished the play activities were not found to be statistically significant overall, even though, as can be seen from Table 6 (p. 241), some of the differences which obtained between selected pairs of activities (e.g. between water-play and easel-painting in the case of the category 'Simple verbal responses to the pre-formulations of others') are considerable. This may suggest that the type of activity may indeed be influencing speech, but that a larger sample would be necessary to clarify the interactions involved. Consequently, where a category is produced to an extent which cannot be accounted for solely in terms of the age and sex of the participants, it may be reasonable to attribute the remaining variance to the difference in type of activity.

'Cognitive-linguistic speech' was used much less at both easel-painting and group-painting than it was elsewhere. Since two of the sub-groups who make, overall, relatively good use of this category (the oldest boys and the youngest girls) had few, if any, representatives at these activities, this finding may not be considered particularly surprising. Nevertheless, about half of the sample at the easels and half of that at group-painting consisted of children from generally 'high-scoring' sub-groups, and it might be argued that an explanation is required for why their presence did not serve to increase the amount of 'cognitive-linguistic' speech recorded. If we consider in what way these two activities differ from the others, we may notice that both types of painting differ from the other varieties of play in that neither involves co-operation, as in the case of the Home Corner, nor a communal handling of materials, as did water, Lego, clay and wet-sand. It may be that when children have to share materials and are necessarily in close physical proximity to each other, they are stirred to communicate or express their thoughts and ideas in a manner in which they are not when dealing with their own exclusive piece of paper and paint-brush. It would be appropriate to describe the painting situations as comparatively 'egocentric' activities, in Piaget's term, and therefore

more likely to produce 'egocentric monologue' than 'directed speech' (ref. Piaget, 1927) to which our category of 'cognitive-linguistic speech' is related (compare, for example, the instances: "Ithink she's in the quiet-room, isn't she? I heard her in the quiet-room, that's why" (offering an explanation for an inference) and "Well... well it would still be dinner if we cooked it, 'cause hot potatoes can be dinner" (offering an explanation for prediction about hypothetical changes).

The activities were clearly distinguishable in terms of the amount of 'affective speech' produced. Wet-sand, clay, water, the Home Corner, easel-painting, group-painting and Lego were associated, respectively, with decreasing amounts of this speech category. In seeking a plausible account of this finding, it may be argued that the activities can be graded according to the property of 'uncertainty' in a manner parallel to the varying amounts of affective speech production. We may hold that, in practice, Lego blocks and paint-brush suggest to the child a narrower range of likely responses than do sand, clay and water, which are comparativly amorphous and unstructured. Within the framework of this explanation, the pots, pans and other furniture of the Home Corner would offer an intermediate degree of flexibility. Knives and forks, for example, suggest more than one obvious action, e.g. pretending to eat, without occasioning such a wide range of responses as clay, for instance, which can be beaten, rolled, pricked, squeezed, and so on, and made to represent almost anything at will. The idea that relative lack of structure or predictability in a stimulus situation can itself be a source of emotional reaction, such as anxiety, curiosity, or even humour, has become something of a commonplace in several areas of psychology. Thus children are said to need the structure of knowing what is allowed and what is not, and to be likely to 'test out the limits' if it's not evident; in the field of cognitive style, 'convergent' thinkers differ from 'divergent' ones in their preference for rule-bound tasks, whereas the latter enjoy and thrive in open-ended situations; Rokeach's (1960) 'closed-minded' subjects find it hard to revise the structures they impose upon cognitive material; and at the

pathological extreme, the obsessional's tense intolerance of even trivial looseness or disorder is diagnostic. In terms of general theory, the inability to anticipate reliably is seen as a basic cause of emotion in 'personal construct theory' (Kelly, 1963, Ch.2).

When we consider Lego, group-painting, easel-painting and the Home Corner, it is not clear how far the quantity of affective speech produced is attributable to play characteristics, since, in each case, it is in line with what might have been expected from a knowledge of the age and sex of the children involved. Two-thirds of those involved in group-painting, and all but two at the easels (the activities associated with the lowest amounts of affective speech) came from the sub-groups generally producing low amounts of this speech category (girls between three-and-a-half years and four years three months and boys between three years nine months and four years). An intermediate amount of affective speech was produced at the Home Corner, where children could be divided more or less evenly into those groups generally producing high amounts (boys between three years three months and three years nine months and between four years and four years three months) and those producing intermediate amounts (girls between three years three months and three years six months).

The remaining play situations, however, do require us to invoke an additional factor relating to the characteristics of the particular play activities themselves, because we see that in the cases of wet-sand, clay and water (all associated with high amounts of this category) a substantial majority of the children were from the sub-groups of 'low producers' (see above).

Turning to the question of the relative amounts of speech 'serving primarily to maintain activity', we see that the activities can be considered to fall into four groups on this criterion: in descending order they are:- i) wet sand ii) easel-painting and clay iii) Home Corner, Lego and water iv) group-painting. When we look at how much of this 'maintaining' speech children of different ages and sex made, we observe that, on the whole, they produced comparatively low amounts of it than did any

other children. It follows that where a particular activity is associated with high levels of maintaining speech, but was attended by proportionately few of the oldest boys, it is reasonable to appeal to the nature of that particular activity as a relevant additional variable. This also applies where an activity is associated with low levels of maintaining speech but the oldest boys formed a high proportion of the children participating. In fact, of the children playing at the sand-trough, easels and clay-table, a relatively small proportion, if any, were of this sub-group. Therefore, as far as the present data go, there is no need to invoke any special hypothesis relating to the nature of the activity. Similarly, no inference needs to be made about the influence of activity upon the production of this speech category in the cases of group-painting, the Home Corner and the Lego-table, which all showed low levels of this speech category, since very few of these oldest boys were taking part.

In the case of water-play, where more than one-quarter of the children were boys of the oldest sub-group, and where, once more, there was low production of 'maintaining speech', it is appropriate to speculate whether there is some situation-specific factor which is counter-acting the effect expected from the presence of these particular participants. Water-play was, in fact, the only activity in which teachers not only remained present throughout, but also initiated specific play manoeuvres, such as producing a fountain effect with tubes and sieve. It may be that this level of firm control pre-empted the need for the children to use certain kinds of speech to keep the action going.

'Simple verbal responses to the pre-formulations of others' was produced in considerably greater amounts at the water-trough and in the Home Corner than they were elsewhere (an average of 0.6115 as against that of 0.2016), as we see from Table 6. The remaining activities varied from each other within a relatively narrow range. In the case of water-play, this finding may be accounted for solely by the factors of sex and age, since, as mentioned above, the oldest boys, who in general produced far greater amounts of this speech category than did any other sub-group, made up a substantial proportion of the participants.

However, in the case of the Home Corner, no such boy took part, and it may have been the case that the relatively high amount of 'simple verbal responses' were attributable to the nature of Home Corner play: that much of the children's speech produced there arises during role-play and tends to be simulated, rather than genuinely other-directed; to need simple acknowledgment, rather than an elaborated response.

In the case of the remaining activities there is no need to ascribe the findings to any properties of the activities themselves, since the values are compatible with what is to be expected from the distribution of subjects within the groups.

iv) 'Simple verbal responses to the pre-formulations of others'

Home Corner	-	1.5
Easel-painting	-	0.8
Group-painting	-	0.63
Lego	-	0.5
Clay	-	0.29
Water	-	0.27
Wet-sand	-	0.27

Significant associations between the profiles of teachers' and childrens' speech were found to exist in Lego, water, sand, group-painting and clay ($p<0.05$). No such significant associations were found in the instances of Home Corner play and Easel-painting. The Spearman Rank Order Correlation Coefficients were as follows:-

Home Corner	-	0.1827
Easel-painting	-	0.1513
Lego	-	0.5771
Water	-	0.3172
Wet-sand	-	0.4342
Group-painting	-	0.3636
Clay	-	0.4593

(Histograms IV - X show the relationship between the teachers' and childrens' speech in the different activities).

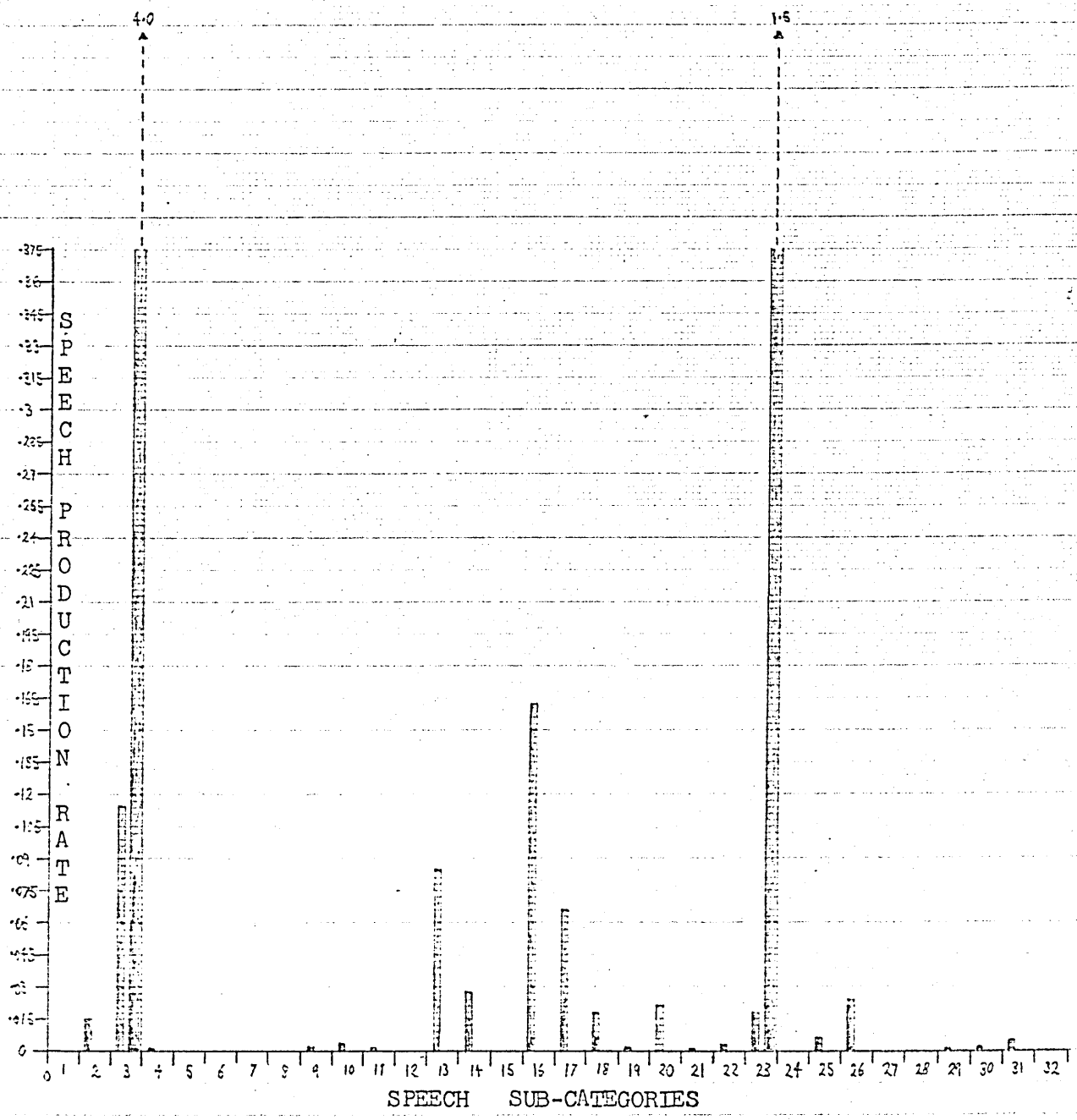
In the case of each play activity, the amounts of each speech sub-category produced by teachers varied in the degree to which they were associated with the amounts produced by the children. At Lego, the highest degrees of association were found in the following cases (in descending order):- i) 'auditory concepts' and 'offering explanations for an inference';ii)'following a set of commands'; iii) 'identification of an object by touch', 'scanning a complex array by verbal cues', 'completing a sentence', 'immediate memory for objects, labels or events','multiple concepts', 'definitions', 'dialogue skills', 'identifying causes of an event observed', 'offering explanations for the construction of objects', 'laughter' and 'ejaculation'. The lowest degrees of association were found in:- 'elucidation of a previous statement'; 'a simple command'; 'general proposals of activity'.

HISTOGRAM IV HOME CORNER

(Sub-categories I - 32)

= Children

= Teachers

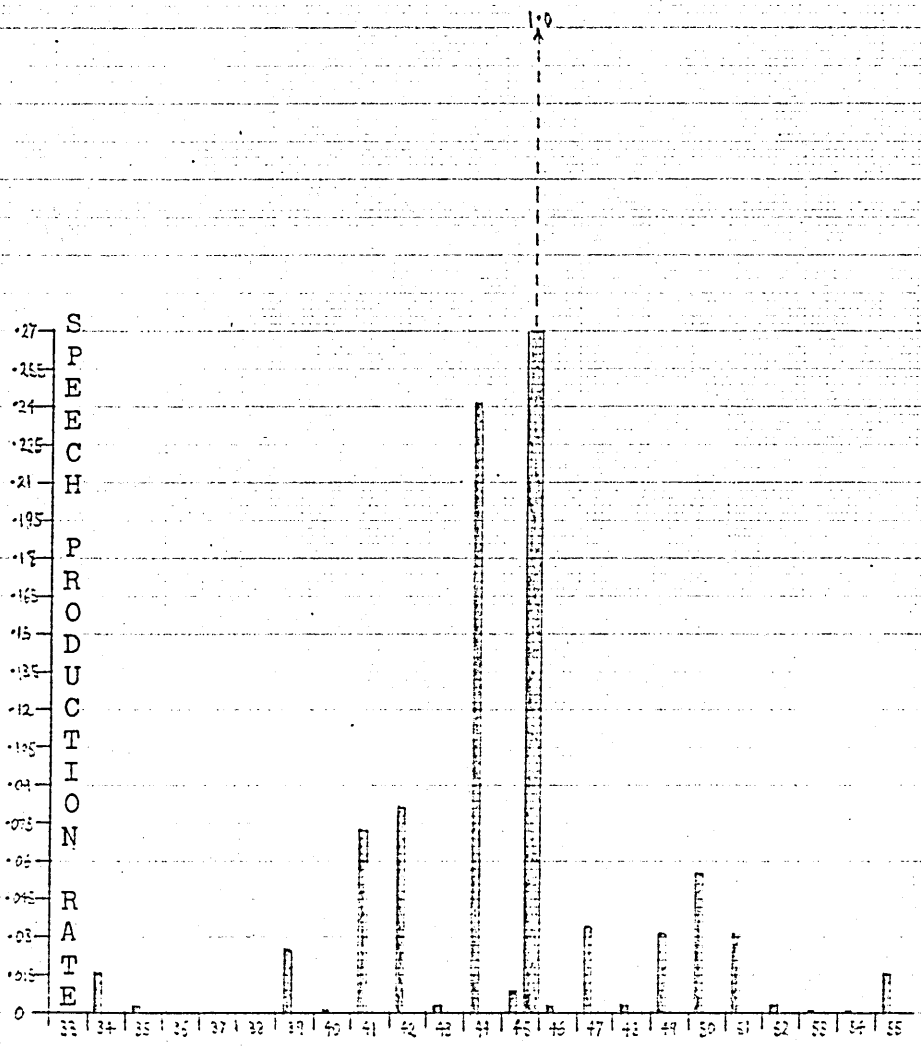


HISTOGRAM IV cont'd. HOME CORNER

(Sub-categories 33 - 55)

= Children

= Teachers



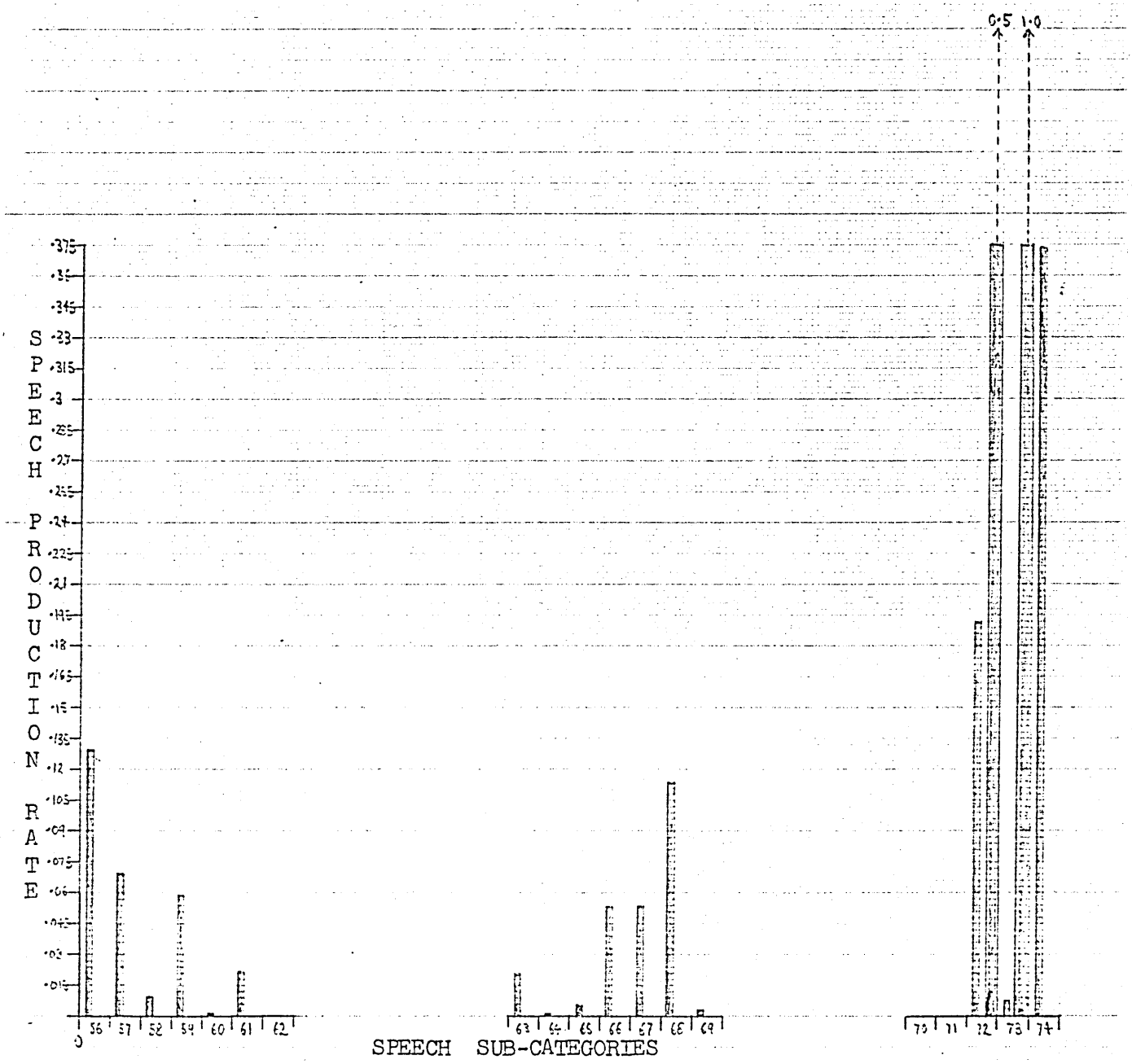
SPEECH SUB-CATEGORIES

HISTOGRAM IV HOME CORNER
contd.

(Sub-categories 56 - 62; 63 - 69; 70 - 74)

= Children

= Teachers

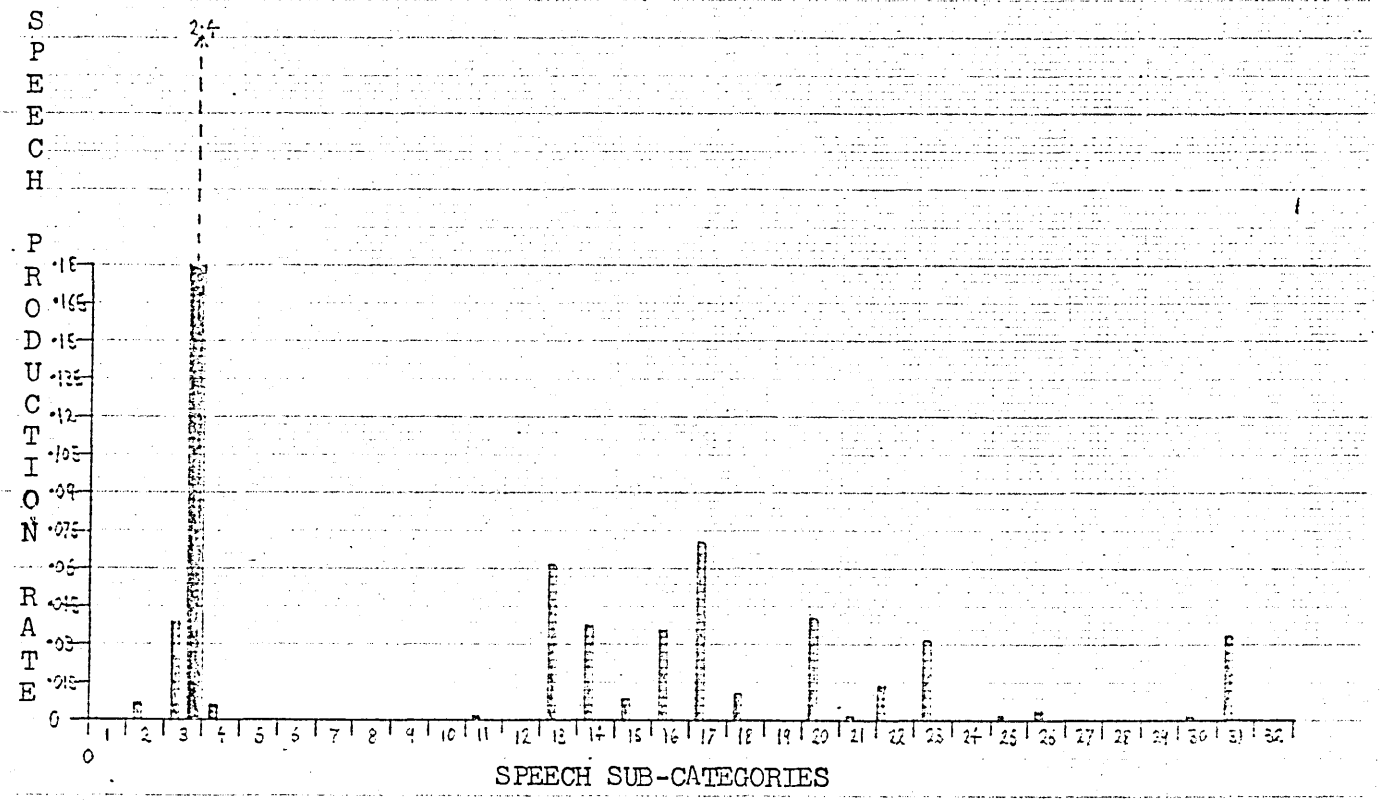


PROGRAM V BASED PAINTING

(Sub-categories I - 32)

=Children

=Teachers

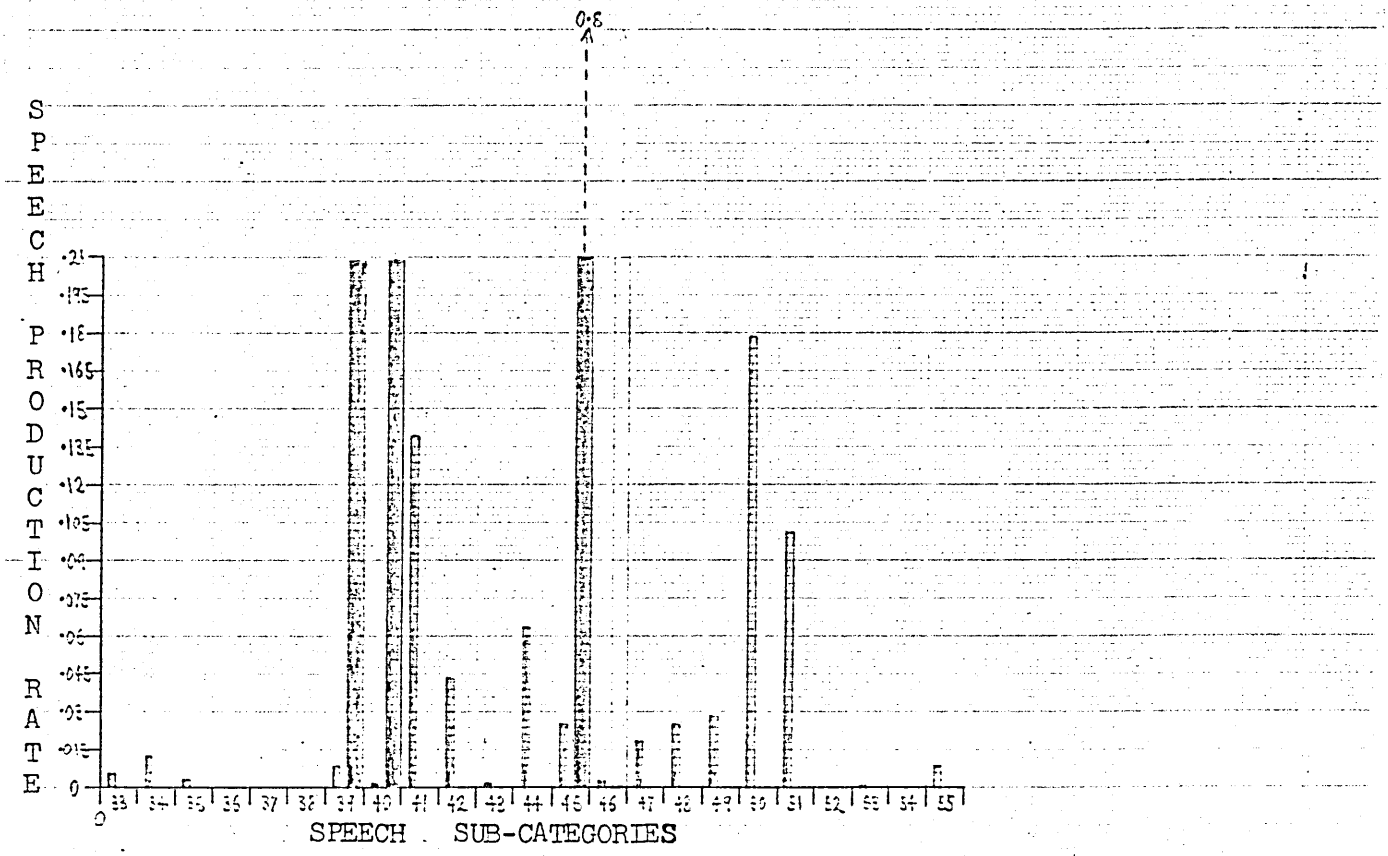


HISTOGRAM V contd. EASEL-PAINTING

(Sub-categories 33 - 55)

=Children

=Teachers

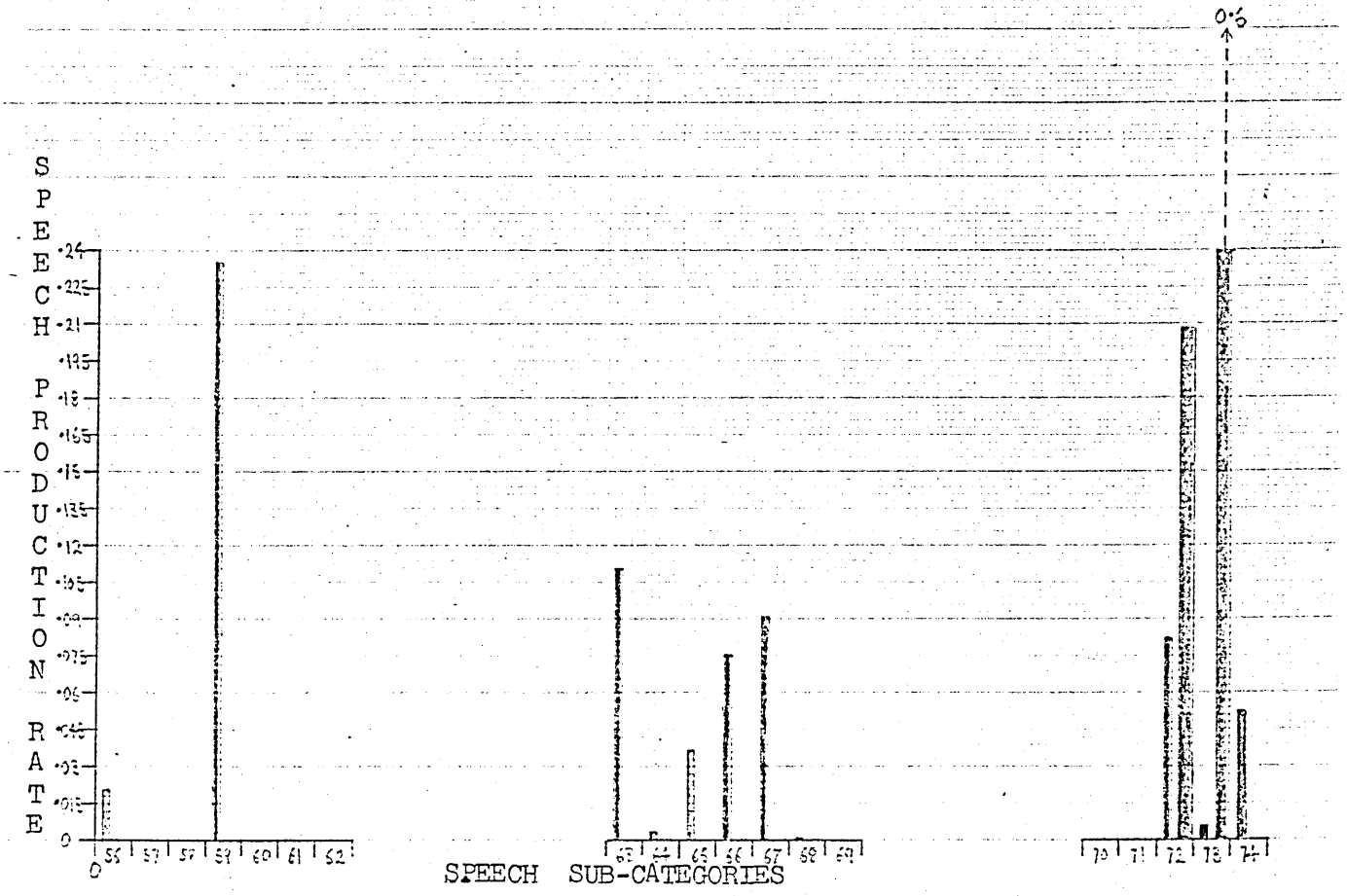


HISTOGRAM V contd. EASEL-PAINTING

(Sub-categories 56 - 62; 63-69; 70-74)

= Childre

= Teacher

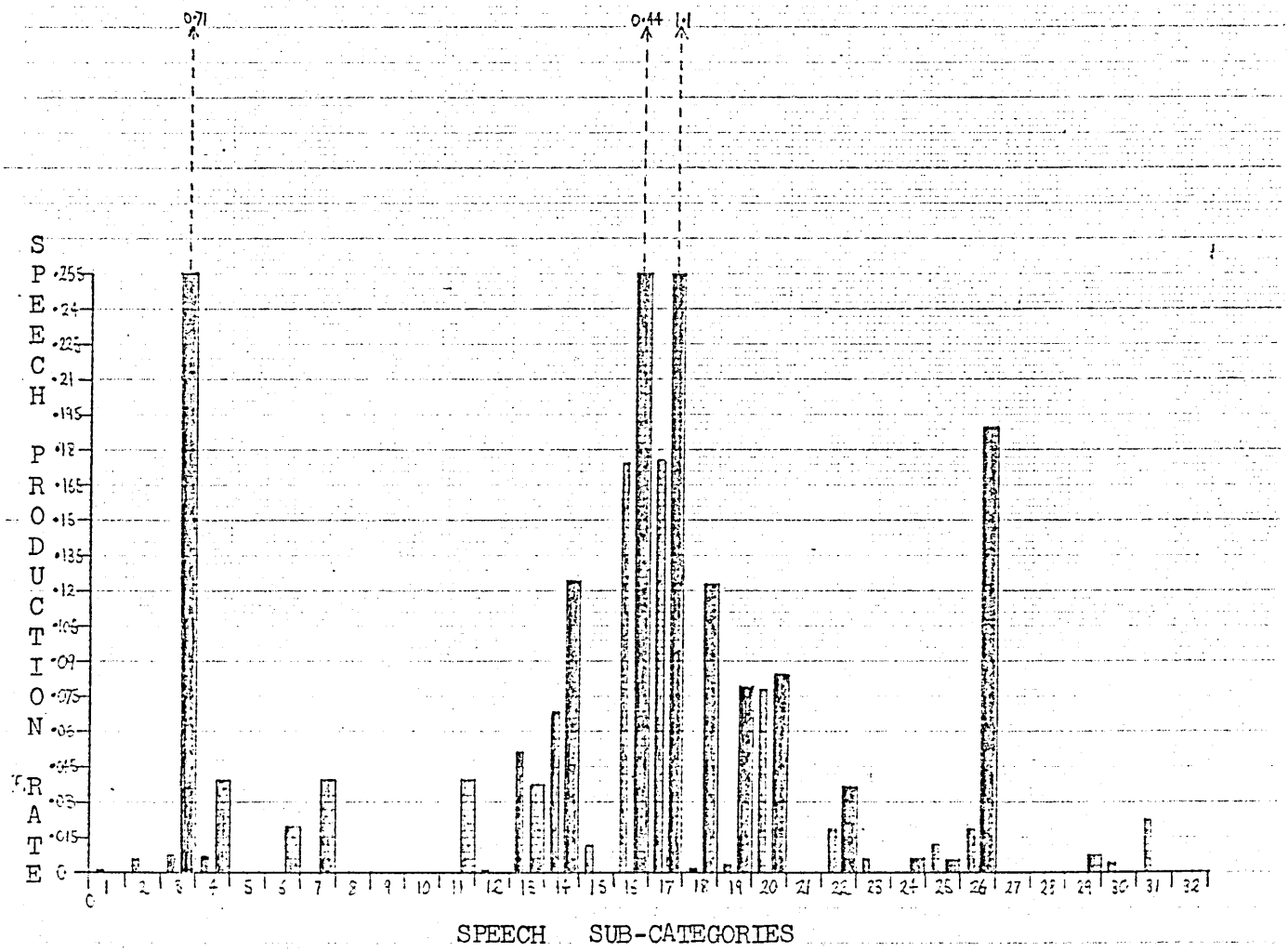


HISTOGRAM VI LEGO

(Sub-categories I - 32)

=Children

=Teachers

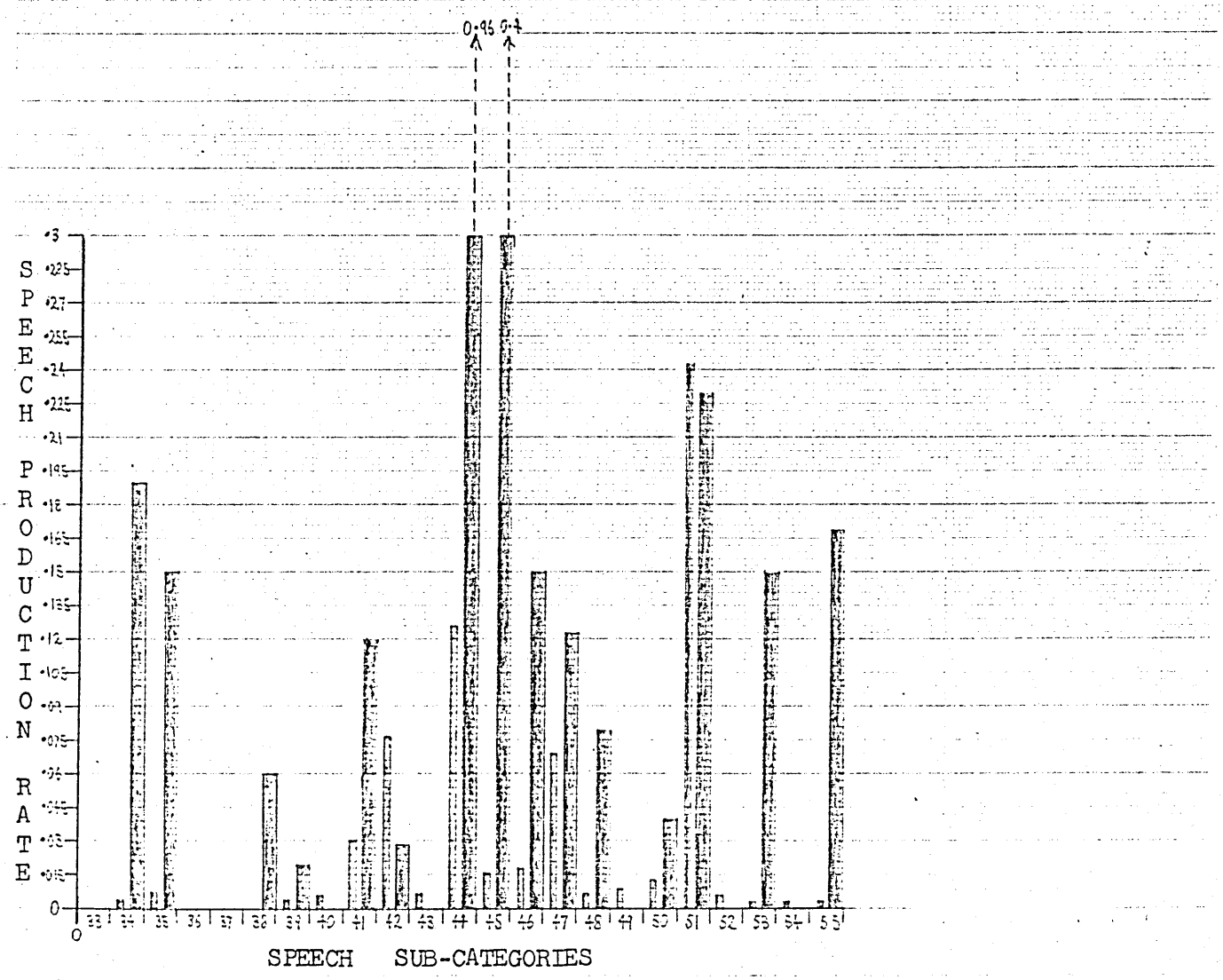


HISTOGRAM VI contd.. LEGO

(Sub-categories 33 - 55)

= Children

= Teachers

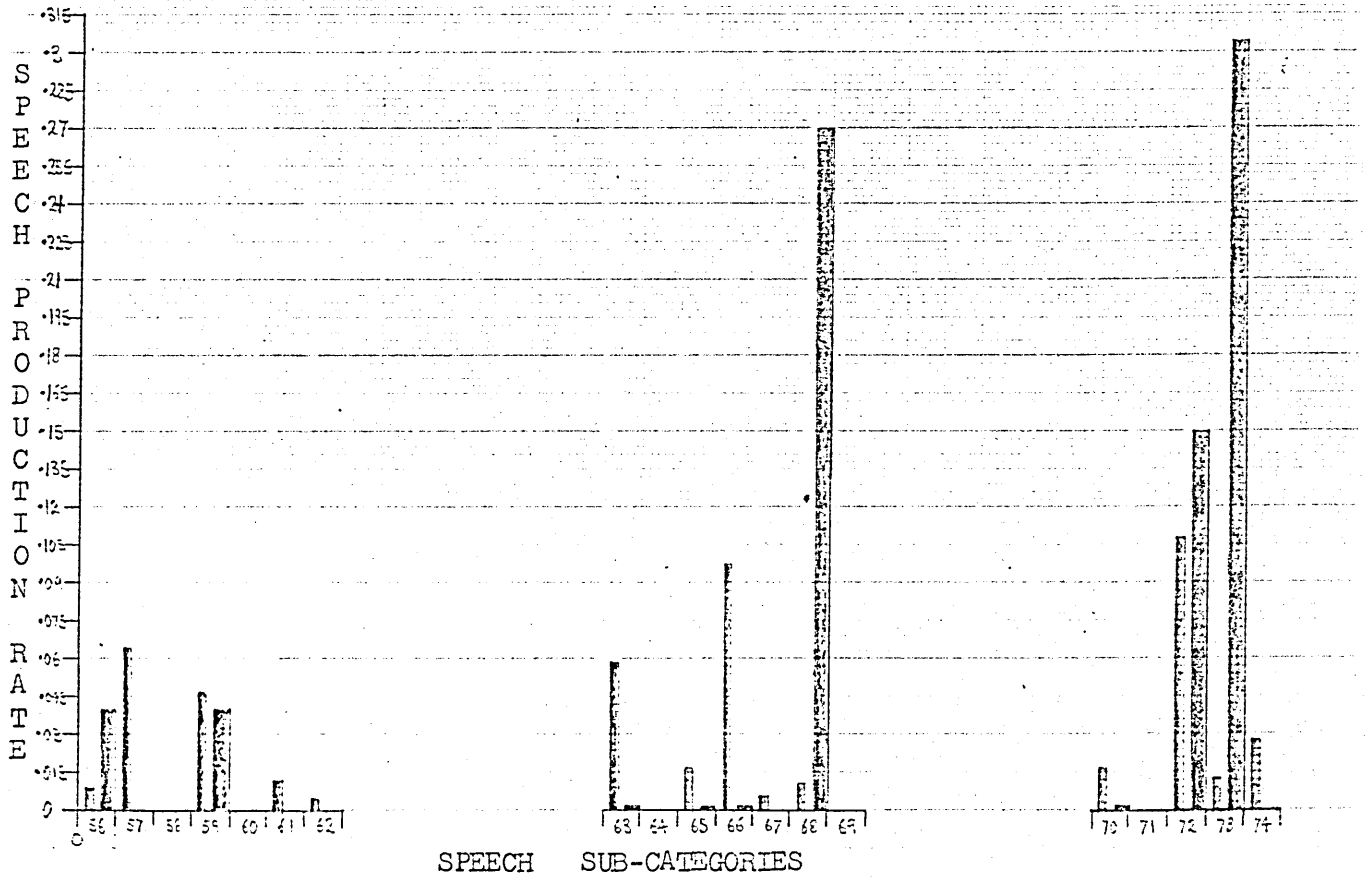


HISTOGRAM VI contd. LEGO

(Sub-categories 56 - 62; 63 - 69; 70 - 74)

=Children

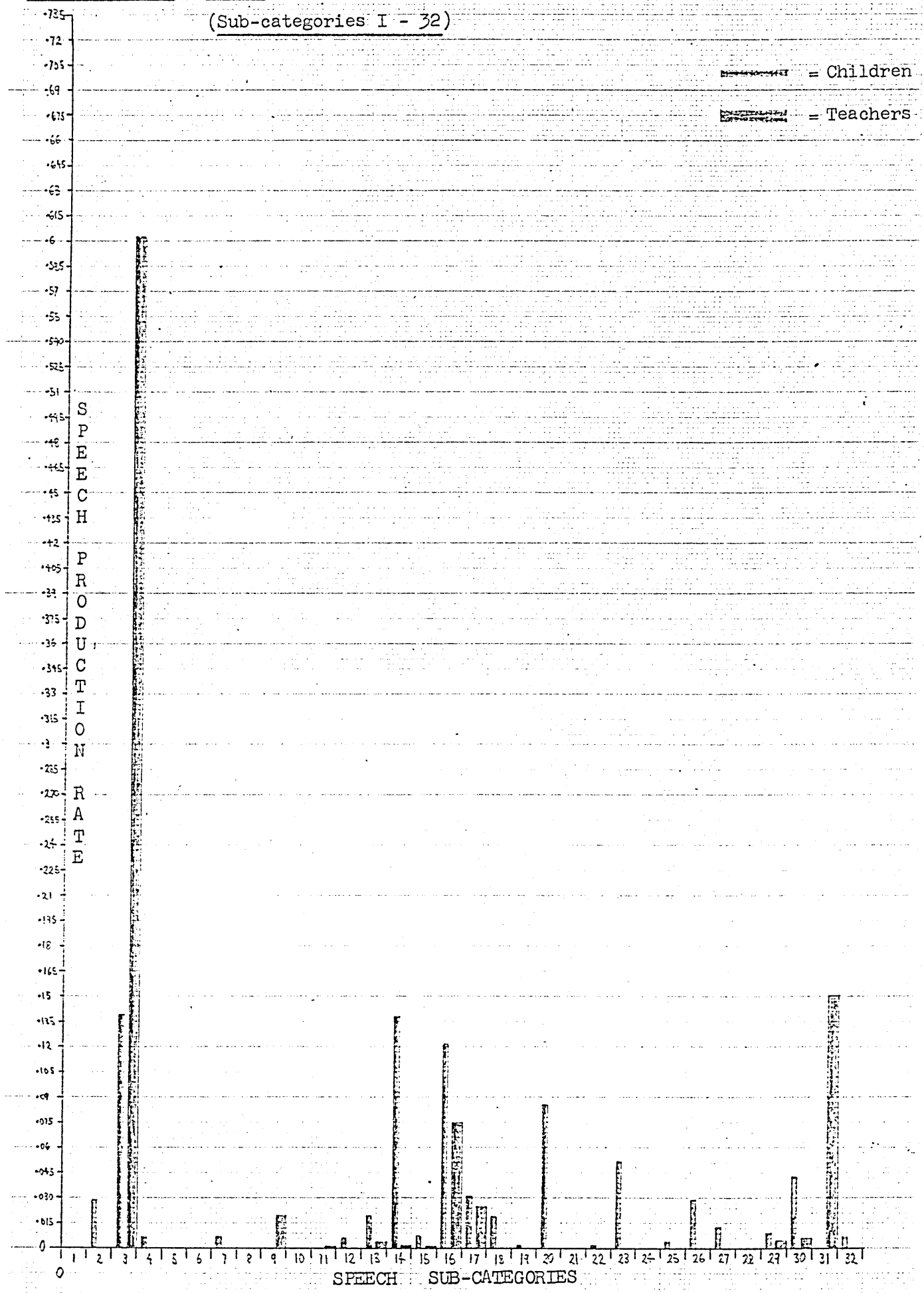
=Teachers



SPEECH SUB-CATEGORIES

HISTOGRAM VII WATER

(Sub-categories I - 32)

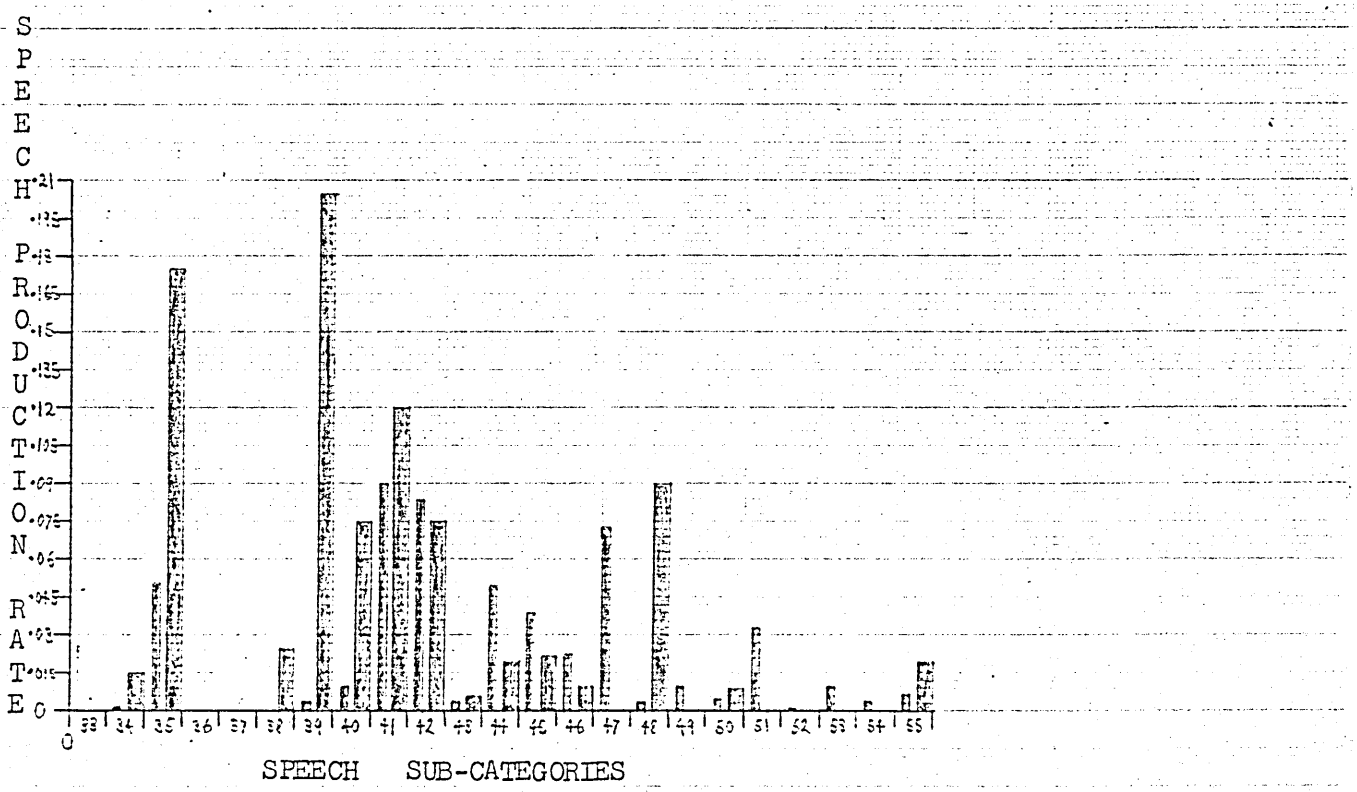


HISTOGRAM VII — WATER

contd. (Sub-categories 33 - 55)

= Children

= Teachers



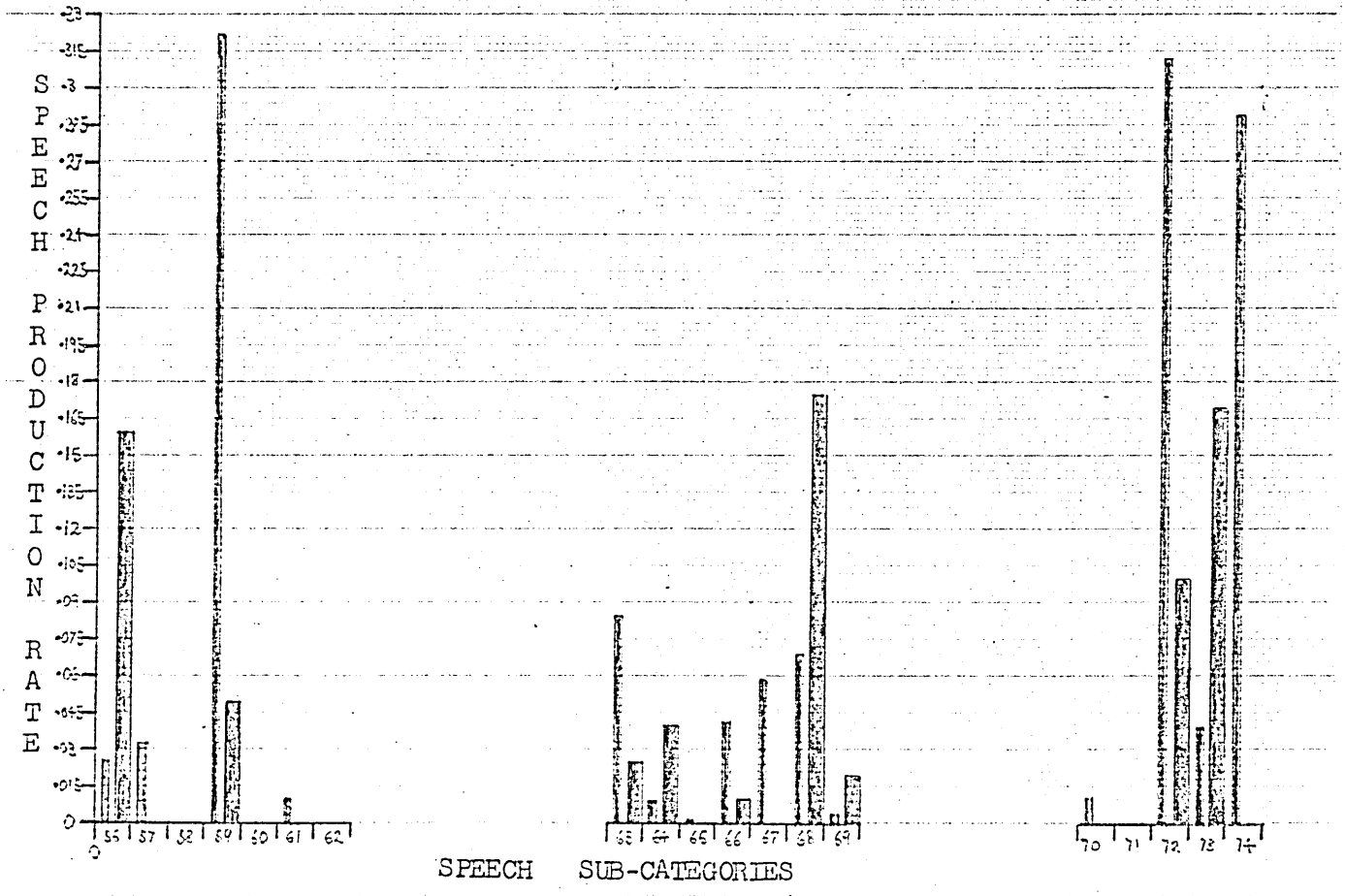
HISTOGRAM VII — WATER

contd.

(Sub-categories 56 - 62; 63 - 69; 70 - 74)

= Children

= Teachers

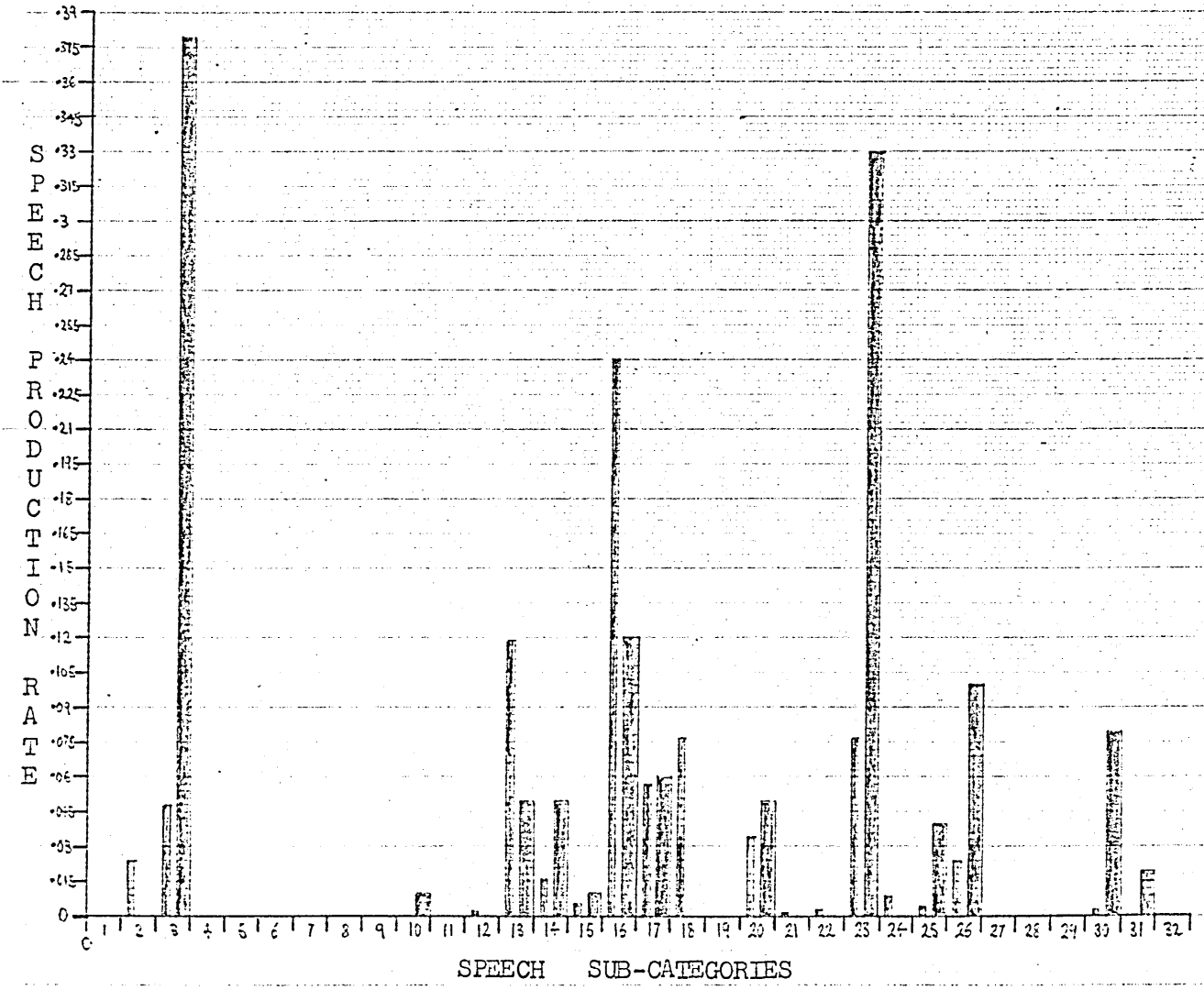


HISTOGRAM VIII ---- WET SAND

(Sub-categories I - 32)

= Children

= Teachers

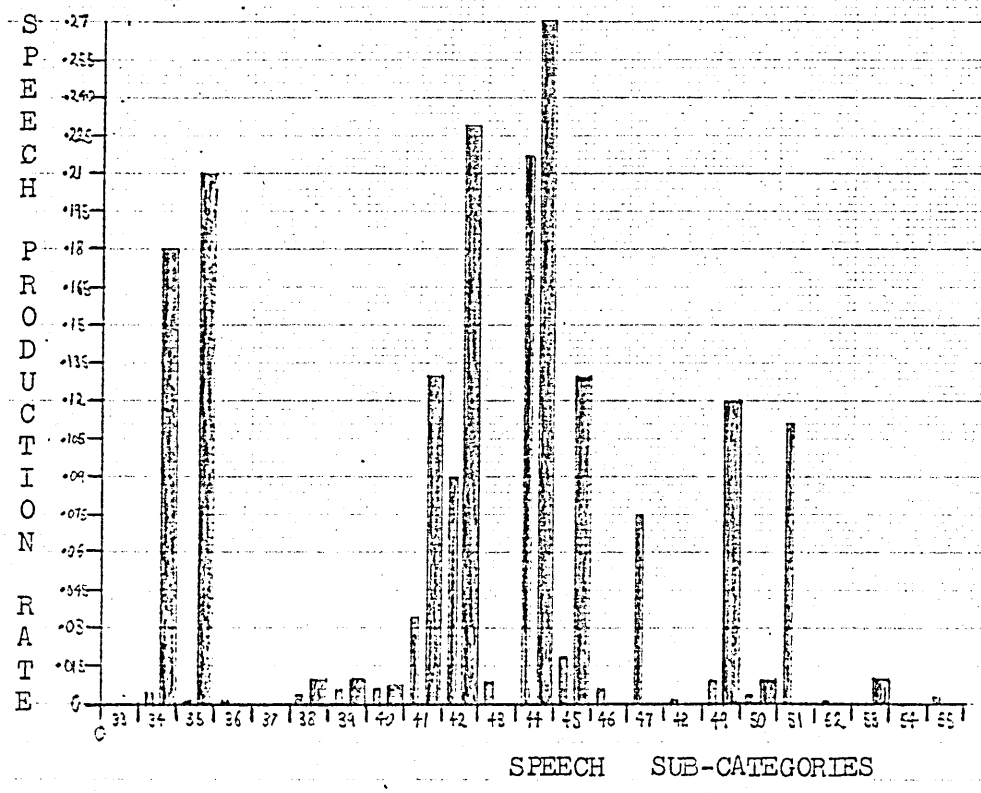


HISTOGRAM VIII WET SAND

contd. (Sub-categories 33 - 55)

= Children

= Teachers



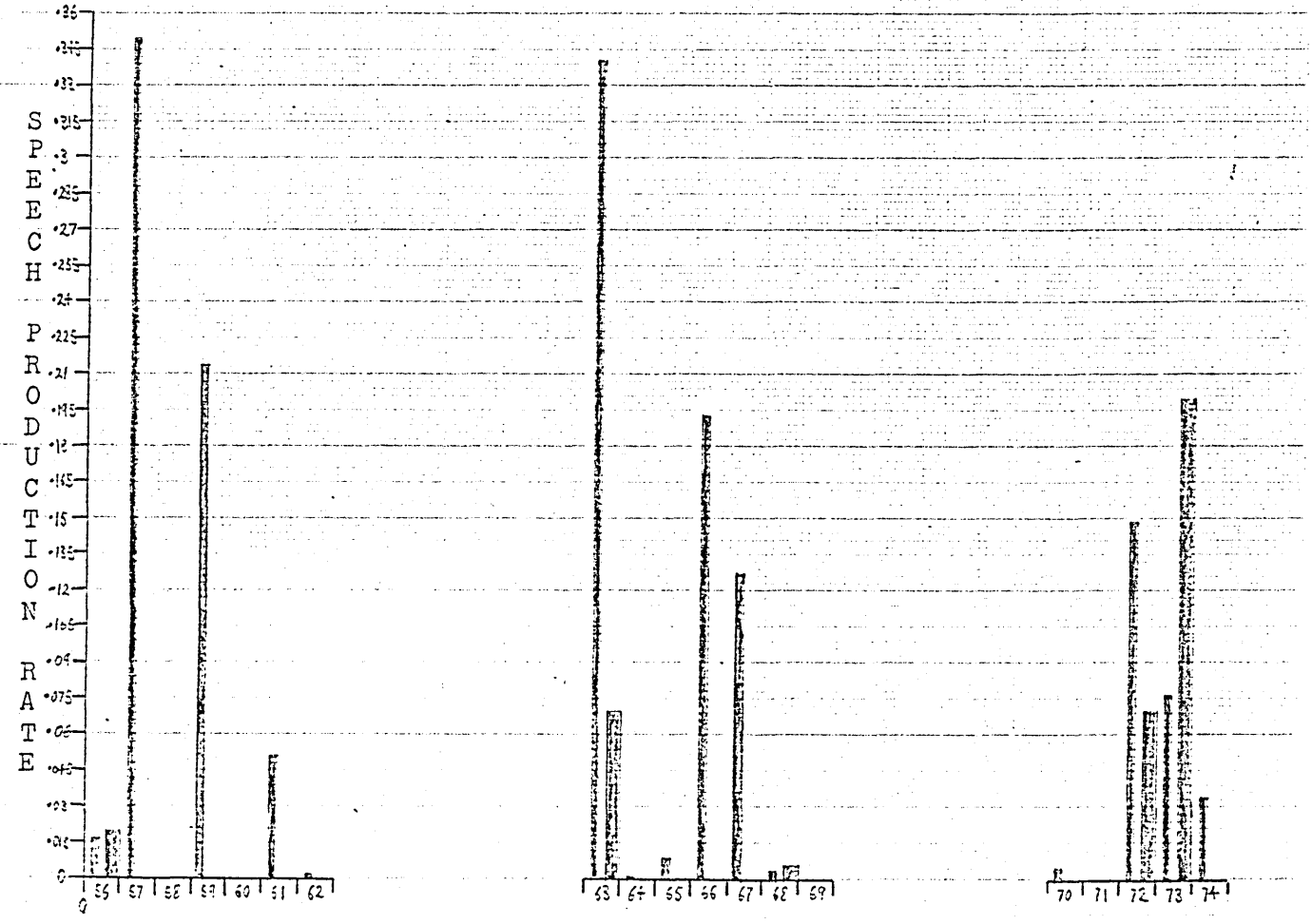
HISTOGRAM VIII WET SAND

cont'd.

(Sub-categories 56 - 62; 63 - 69; 70 - 74)

=Children

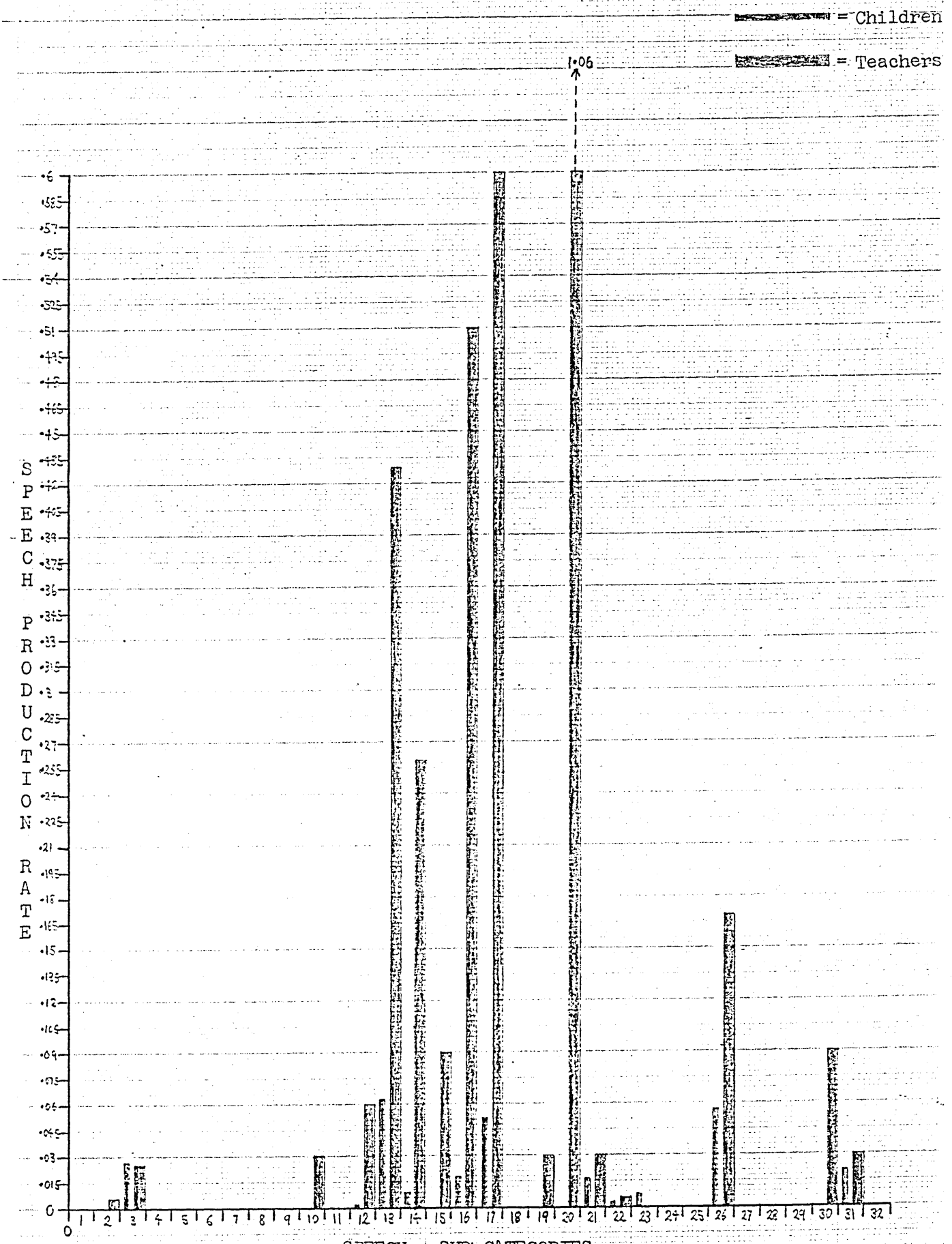
=Teachers



SPEECH SUB-CATEGORIES

HISTOGRAM IX GROUP PAINTING

(Sub-categories I - 32)



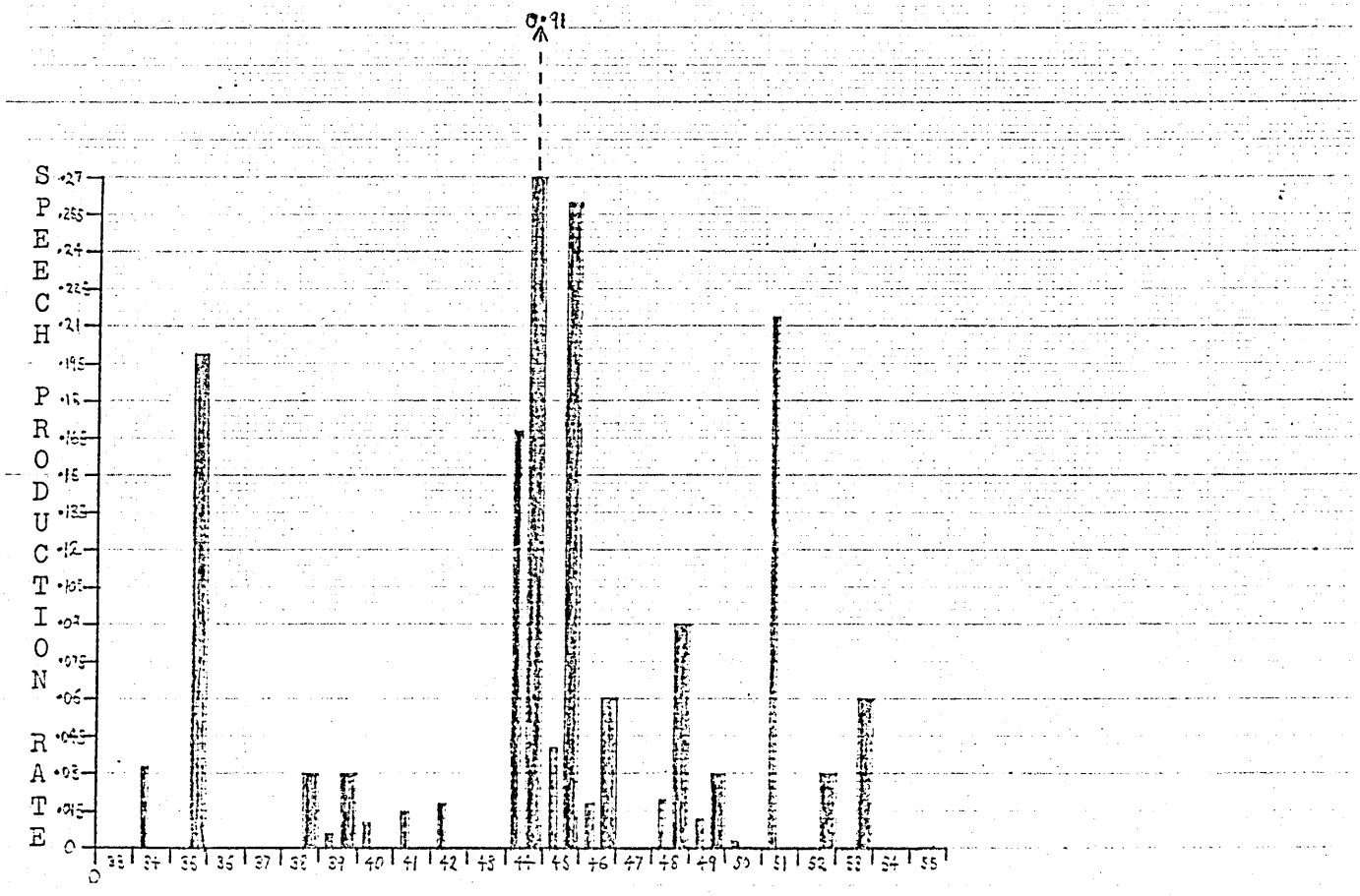
HISTOGRAM IX contd.

GROUP PAINTING

(Sub-categories 33 - 55)

= Children

= Teachers

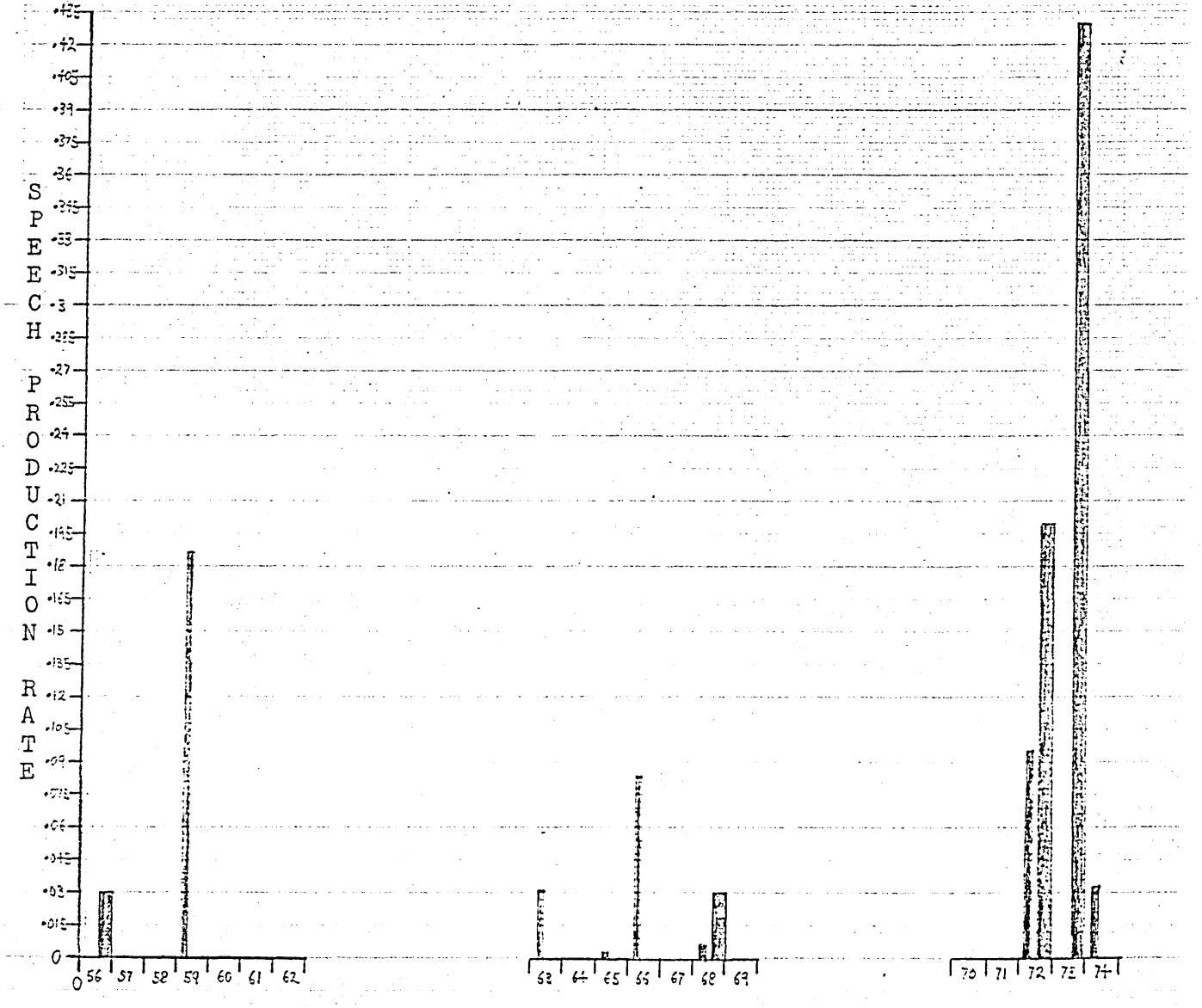


SPEECH SUB-CATEGORIES

HISTOGRAM IX contd. GROUP PAINTING
(Sub-categories 54 - 62; 63 - 69; 70 - 74)

= Children

= Teachers

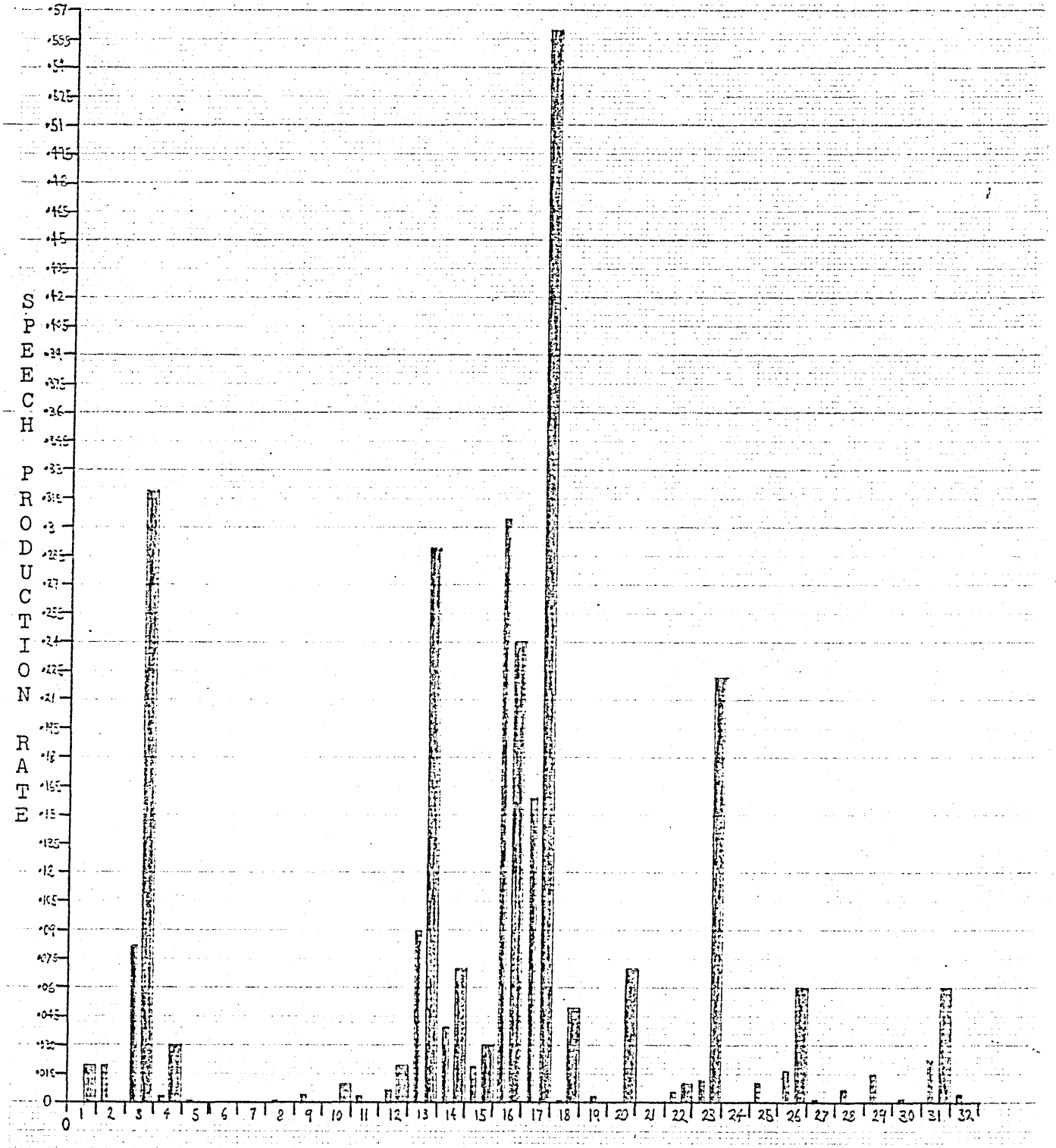


HISTOGRAM X CLAY

(Sub-categories I - 32)

= Children

= Teachers

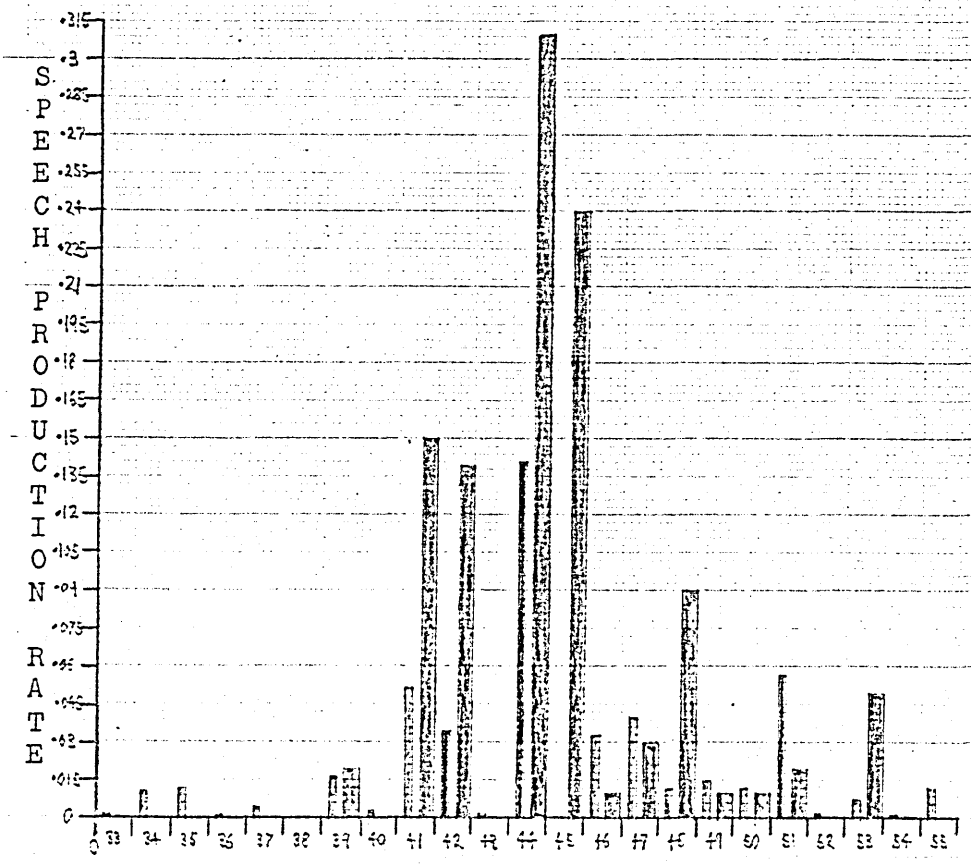


HISTOGRAM X — CLAY
contd.

(Sub-categories 33 - 55)

=Children

=Teachers



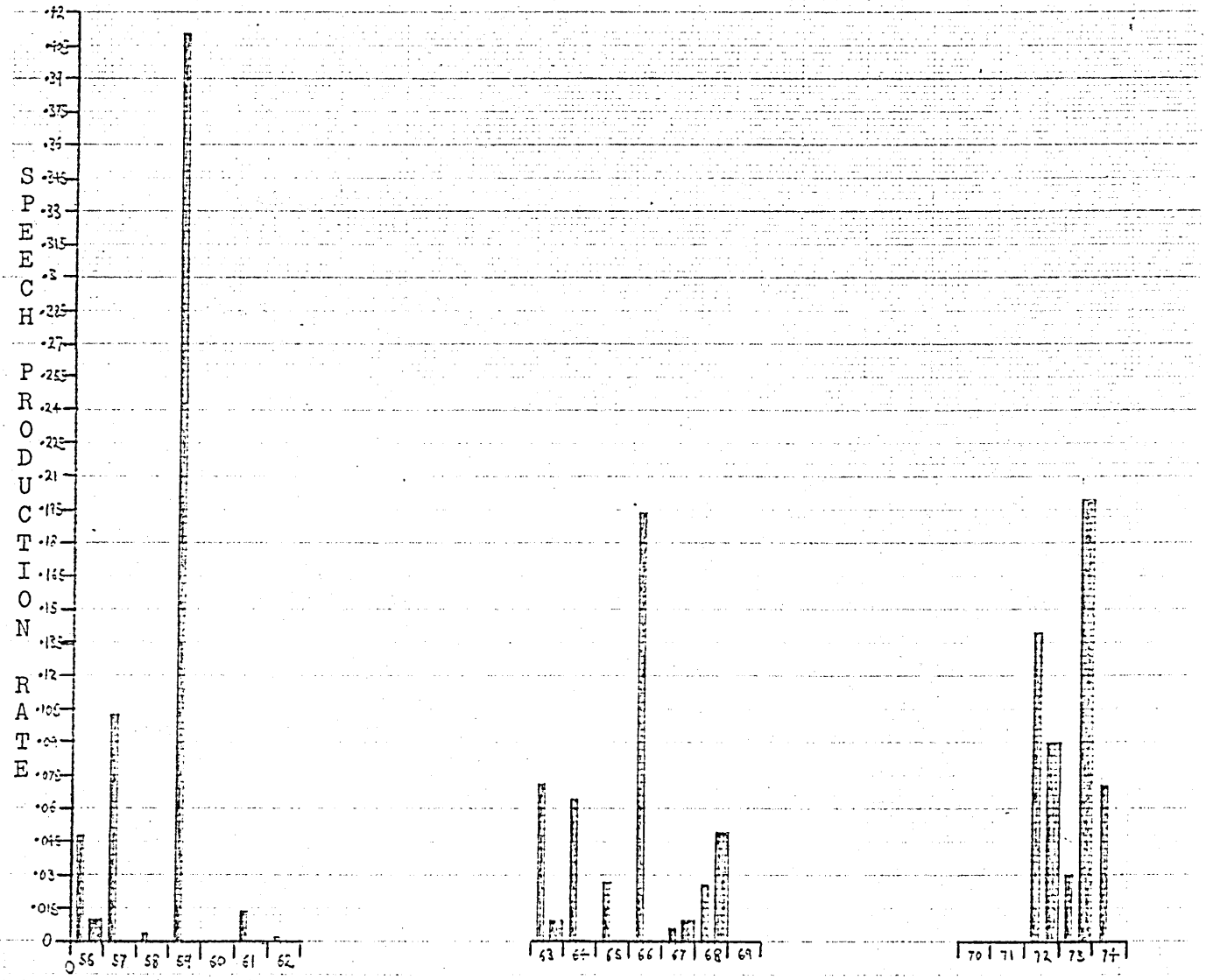
SPEECH SUB-CATEGORIES

HISTOGRAM X — CLAY
contd.

(Sub-categories 56 - 62; 63 - 69; 70 - 74)

= Children

= Teachers



SPEECH SUB-CATEGORIES

In five of the seven activities there were significant correlations between the speech of children and of their teachers (the two cases of non-significant correlation (Home Corner and Easel-painting) being where teachers were present for least time). However, this can not be taken to show that teachers and children were influencing each other, since significant correlations were also found in the majority of unconnected instances - for example between the speech of children at play with Lego and that of teachers at the wet-sand trough.

When comparing teachers' and childrens' production of the individual sub-categories, in only a few instances is there a suggestion that teachers are having an influence (in as much as the childrens' speech production rate was seen to correspond with the teachers'): teachers only used the sub-category "multiple concepts" during group-painting, where it also gained its highest production rate among the children. Similarly, teachers used "giving permission" only in water-play, where it gained its highest production rate among children. In the latter case, it is more parsimonious to believe that children gave permission in response to the demands of the play situation rather than in imitation of their teachers. In both cases it must be borne in mind that teachers might have increased their rate of production in line with the childrens' rather than the other way round.

CONCLUSION

Children's choice of play activity was found to be associated with how much they speak. There were also considerable quantitative differences in the type of speech thus produced, but these were not statistically significant. Possible sources of these variations were the influence of teachers and characteristics of the children themselves. In fact, no meaningful relationship was found between the speech of nursery staff and that of the children, but it was clear that both the quality and quantity of children's speech was influenced by the factors of age and sex.

CHAPTER 8

GENERAL DISCUSSION OF THE FINDINGS

The present finding that the highest rate of speech production occurred in the "cognitive-linguistic" category is surprising perhaps in view of the priority frequently given by pre-school practitioners to socio-emotional, rather than intellectual, development (e.g. Clift et al, I980; Turner, I977) and those studies which have found demanding, intellectual usage of language to be rare in nurseries (e.g. Tizard, Philps and Plewis, I976; Wood et al, I980). A comparison was made here of how adults and children distributed their cognitive speech across activities - but no clear relationship between the distributions was revealed.

The emergent picture is of an atmosphere both cheerful (laughter was relatively frequent and crying rare), friendly (expression of hostility was also rare), and lively (onomatopoeia and ejaculation were both relatively frequent). Linguistic functioning might be described as somewhat circumscribed and was rather present-centred, there being relatively little discussion of the past, the future or the hypothetical. (The present study appears to confirm the conclusion of Bruner (I980) and of Wood et al (I980) - that in the pre-school an emphasis is laid upon the immediate context). The relatively frequent occurrence of the sub-category "simple command" may indicate that teachers were rather managerial during their interactions with the children, certain recent studies (e.g. Wood et al, I980) having found this to be a salient feature of communication in the pre-school.

In a sample as small as the present one, care must be taken not to over-generalise. In some cases idiosyncratic features may have been influencing behaviour and operating as confounding factors. One

such feature, potentially, was the presence of the recording equipment, which was less unobtrusive at some play locations than at others, and which, on a couple of occasions became the subect of discussion. (It is relevant to mention here that Ingleby and Cooper, (I974) , cited in Ingleby and Cooper, I974, gained the overall impression from their experimental research that direct observation by means of video recording did not need inordinate secrecy in order to yield sensitive measures of behaviour). It may be considered unsafe, particularly in the case of children, to assume that the amount of reference to the equipment was a straightforward index of the degree to which there was awareness of it influencing behaviour. While observation of the video recordings gave the impression that neither children nor staff were 'playing to the gallery', reasons readily suggest themselves for why the adults might indeed have been doing so. The obvious but, in the present case, rarely practicable , solution is that recording take place in a daily, routine manner over a prolonged period. (It is interesting to speculate upon whether the sex of the observer is influential and whether, in the context of the pre-school, where staff are invariably female, a female researcher, as in the present case, may have less curiosity value, and fewer of the contingent problems, than should a male).

Given that play in the Home Corner was observed in a separate nursery, so that staff characteristics were not held constant across the play activities, it is conceivable that personality factors were confounding variables. (Somewhat ambiguous support for this suggestion comes from Miller (I975): teacher "personality", most often assessed by ratings, questionnaires or tests, has been found - mostly at levels above pre-school - to show little relationship to child performance competence: but it may be, she argued, as Gordon

and Jester (1973, p. 212) have suggested, that personality factors have more important effects upon very young children. Miller cites also Beller (1969), who found significant relationships between teacher personality and problem-solving ability in the pre-school, but points to the difficulty that most of the so-called personality "traits" have been shown (e.g. by Mischel (1973) ibid.) to be quite sensitive to situational variables).

In addition, it remains a possibility that adults were more likely to become involved whenever a particular child was engaged upon a certain sort of activity e.g. whenever an especially disruptive child was present at the water or wet-sand troughs or clay-table, or whenever a particularly dependent-seeming child was engaged upon a task-oriented activity.

It has long been recognised (e.g. Foster, 1930) that the characteristics of the children in her care may influence how the pre-school teacher distributes her time among them. While the putative influence of children's age and sex upon their linguistic performance has been relatively well-aired, it has been less common for the age and sex of adults, as potential influences upon their manner of interaction with children, to be taken into account. However, teachers in the pre-school, invariably female, may share more closely the play interests of girls than of boys, as Tizard et al (1976) point out, and this may imply that teachers' conversation with children is differentiated according to the sex of the latter. Supporting the possibility that the age of pre-school staff is influential upon their linguistic behaviour is the observation of Tizard et al (1976) that young pre-school staff, in particular, preferred to interact with children through play, and that their communication tended to be impoverished if this method was discouraged.

It is noteworthy that, in the present study, the staff at Hartley Brook Nursery, although seldom co-operating with the children in joint endeavours, played in parallel with them on occasion, while this never occurred in the Home Corner observed at Lenthall Nursery - where all of the staff appeared to be much older.

Social class of the children may well have been a confounding factor since, as reported by nursery staff, the two major social divisions were not equally represented and the factor could not be controlled. According to Wood et al (1980), it seems to be the case that the nature of the relationships between practitioners and children differs in a way that reflects, among other things, the children's home background. Along similar lines were the findings of Tizard et al (1980) that "cognitive" staff behaviour was directed more often towards middle-class children (no significant differences being found, however), and that working-class children were less likely to be found in extended interactions with their teachers, the language they heard tending to take the form of questions from the teacher. (Unfortunately, concerning the final point, no direct comparison is possible between the present findings and those of Tizard and her team because in the present study the emphasis was placed upon <u>functional</u>, rather than upon <u>structural</u> aspects of speech).

In the present study, a nursery assistant featured briefly during recording at one of the play locations. In all other cases, the adults involved were fully-trained teachers. While the extent to which staff of differing status were involved differentially in the setting-up and arrangement of play activities was not investigated, there is evidence that the status of staff in pre-school institutions is an important factor in determining the intervention made by them

(e.g. Clift et al, I980 ; Tizard et al, I972), and it may have operated to a certain extent in the present case as a confounding factor. There has been a recent increase of attention paid to the possibility that staff behaviour is influenced, not only by actual, but by perceived, aspects of their roles (e.g. Wood et al, I980). In addition, there is evidence (e.g. Wood et al, ibid.), that once an adult has acquired a reputation for maintaining a particular role, it will be reinforced by the children's own expectations. That children in the present study may have been reinforcing the supervisory, managerial behaviour ascribed here to the staff is given somewhat ambiguous support by the finding that requests for materials, for help or for permission, occurred relatively frequently. The observation of the present study - that adults spent a very small amount of their time actually playing with the children - is similar to the finding of Tizard et al (I976), which the authors attribute to the current ideology that play should be self-directed, arguing that, more simply than in terms of status, differences in staff behaviour in different types of school or nursery can be explained in terms of the influence of the avowed educational aims prevailing or of their absence.

A remaining potential source of influence, the investigation of which, like the factors indicated above, was beyond the scope of a relatively small-scale, naturalistic study, was the physical structure of the nurseries which, according to Wood et al (I980) is intimately bound up with the form that interactions take between pre-schoolers and adults.

It might be argued that the nursery staff should have spent more time in higher-level conversation with the children (exploring definitions, generalisations, and so forth) had their energies not been diverted towards controlling the children, tending towards

liveliness and playing with materials which were often messy. However, against this argument is the observation that adults did not appear to use the opportunities for higher-level types of conversation when they did occur: it might be considered that easel-painting especially provided such an opportunity, involving children playing quietly and in relative isolation - however, adults overall directed relatively little of their cognitive speech upon children at easel-painting. In the case of group-painting, during which the children were seated quietly around a teacher, it may have been the case that the group was too large for the teacher to assume an especially 'tutorial' role (Sylva et al (1980) point to the conversational benefits of small, intimate and quiet group settings).

It was possible, on a majority of occasions, to observe (through a window) play while it was being recorded. This experience, in addition to watching and listening to the recordings afterwards, meant that although formal content analysis was beyond the scope of the present study, it was possible, nevertheless, to gain a general idea of what was going on. It may be argued that there are indices other than verbal of how pre-school staff differentiate among play activities: that while from their overt speech behaviours adults appeared to be guided by the perceived requirements for control rather than for 'tutoring', objectives, more pedagogic in character, may have directed their arrangement and presentation of play materials. However, the general impression gained (see above) was that the play materials were set out in a routine, conventionalised manner, there appearing to be no emphasis upon the presentation of activities in accordance with specific temporary objectives. It has been suggested by Hutt (in press) among others, that play is not uniformly, or intrinsically, educational, and it seems reasonable to suggest that the apparent stereotyping of play

presentation was a factor involved in the rather narrow, circumscribed nature of the range of cognitive utterances observed to occur in the present study.

Finally, it remains to comment upon an important feature of the present design: that speech was analysed according to a static frame of reference (as opposed to the dynamic frame employed by Garvey (1974), for example). Sequential analysis of interaction (beyond the scope of the present study) may reveal many important aspects of pre-school communication - whether, for instance, the occurrence of speech in a particular functional category affects the probability of occurrence of speech in other functional categories. Fortunately, an important advantage of video recording techniques, as opposed to 'on - the - spot' methods, is that, at any time, further forms of analysis are possible.

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APPENDIX 1

Please familiarise yourself with the utterances below which are transcriptions of speech recorded in a nursery school. Also shown are the categories into which the speech has been placed. That you might have the context for each utterance, I shall present the actual recordings for you to see and hear.

1. "You do it like this, Amanda. Like that."
   Suggested category: 'Imitation of action'.

2. "Look,[1] I've got a wheel.[2]"
   Suggested categories: 1. 'Attracting attention'.
   2. 'Identification of an object by sight'.

3. "That noise was just Mrs. Walsh."
   Suggested category: 'Identification by sound'.

4. "Have you seen the little ones like this with holes in the sides?"
   Suggested category: 'Scanning a complex array by matching'.

5. "It sounds like a fire-engine noise there."
   Suggested category: 'Auditory concepts'.

6. "Put the knobbly one in the middle, then the window at the side and then the chimney."
   Suggested category: 'Following a set of commands'.

7. "This one's Helen's."

Suggested category: 'Statement about possession'.

8. "Go and put it in the glue-tin."

Suggested category: 'A simple command'.

9. "I can feel the gun right down there."

Suggested category: 'Identification of an object by touch'.

10. "Find me something I can use for a window."

Suggested category: 'Scanning a complex array by verbal cues'.

11. "You put jelly in the ..."

Suggested category: 'Completing a sentence'.

12. "I knocked my thingies off."

Suggested category: 'Describing past events."

13. "We're going to see Father Christmas tonight and he's going to give us a present. Then we're going to my aunties."

Suggested category: 'Describing future events'.

14. "The long worm.... It's rolling along."

Suggested category: 'Concepts of actions'.

15. "I've got more than you."

Suggested category: 'Relational concepts'.

16. "What about its long, curly tail?"

Suggested category: 'Multiple concepts'.

17. "See what you can make without them first."

Suggested category: 'Conception of exclusion'.

18. "This looks like the Matterhorn."

Suggested category: 'Concepts of similarity'.

19. "What's a pomegranate?"

Suggested category: 'Definition'.

20. "What should you say when he gives you the present?"

Suggested category: 'Dialogue skills; role-taking'.

21. "What's that about."

Suggested category: 'Formulating (or asking for a formulation of) a generalisation'.

22. "That will mark the table."

Suggested category: 'Prediction'.

23. "I bet he falls down because it's very steep that mountain."

Suggested category: 'Explanation for proposed (predicted) actions or observations'.

24. "Why has it got a hole in like that?"

Suggested category: 'Explanation relating to the construction of objects'.

25. "I think she's in the quiet-room isn't she? I heard her in the quiet-room, that's why."

Suggested category: 'Explanation for an inference drawn'.

26. "I'm just going to sign Mrs. Purvey's card."

Suggested category: 'Statement of intentions'.

27. "I want a sweet. I want a sweet."

Suggested category: 'Expression of desires and wishes'.

28. "Your sauce is ready."

Suggested category: 'Expression of fantasy'.

29. "I can."

Suggested category: 'Simple denial'.

30. "This is for making it stand."

Suggested category: 'Indicating the function of an object or action'.

31. "Amanda!"

Suggested category: 'Simple expression of hostility'.

32. "Come on."

Suggested category: 'Stimulating a response'.

33. "Put that there."

Suggested category: 'Speech echoing actions'.

34. "I want a rolling-pin."

Suggested category: 'Request for materials of help'.

35. "That's mine, isn't it?"

Suggested category: 'Seeking confirmation'.

36. "Can you say 'The Yellow-Spotted Bird-Catcher'? The Yellow-Spotted Bird-Catcher."

Suggested category: 'Imitation of language'.

37. "What did she do to you before?"

Suggested category: 'Short-term memory for objects, labels or events'.

38. "Tidy up. I said 'Tidy up'. Tidy up all this mess."

Suggested category: 'General proposals of activity'.

39. "Oh, I thought you couldn't play."

Suggested category: 'Justification of behaviour'.

40. "Can I do it? Can I do it?"

Suggested category: 'Request for permission'.

41. "Alright do it like this.[1] Empty the water in.[2]"

Suggested categories: 1. 'Guiding action'.

2. 'Simple command'.

42. "Yes."

Suggested category: 'Providing confirmation/disconfirmation'.

43. "They've fallen on the floor. All mine has fallen on the floor."

Suggested category: 'Describing current events'.

44. " 'Blooming' isn't rude, is it Kerry?"

Suggested category: 'Attribute concepts'.

45. "One's got pyjamas on and one hasn't."

Suggested category: 'Concepts of difference'.

46. "It's too soggy."

Suggested category: 'Explanation for barriers to action'.

47. "Yes, it'll get warm when your hands play on it, cos your hands will make it warm, won't they?"

Suggested category: 'Explanation related to predicted hypothetical changes'.

48. "When it sunk."

Suggested category: 'Correction of language'.

49. "Hello. Hello Mr. Comeback. Come back wee-wee."

Suggested category: 'Word play'.

50. "Aah, that's naughty Neil. He's thrown that on the floor."

Suggested category: 'Evaluation of behaviour'.

51. "You're making our white paint go all orange aren't you?"

Suggested category: 'Conception of material change'.

52. "Mmh."

Suggested category: 'Confirmation of a pre-formulated statement'.

53. "Look and it's our dinner-time as well.[1] I don't mean real dinner. I mean it's pretending-dinner.[2]"

Suggested categories: 1. 'Elucidation of previous statement'.

2. 'Expression of fantasy'.

54. "I don't know."

Suggested category: 'Denial of knowledge'.

55. "There were a man.... There were a man walking in... walking in the wood."

Suggested category: 'Long-term memory for objects, labels or events'.

56. "Only part of this is wet."

Suggested category: 'Part-whole relationships'.

57. "Put it on the bottom."

Suggested category: 'Spatial concepts'.

58. "It's my turn next time."

Suggested category: 'Temporal concepts'.

59. "We've got to tidy up now. You're mummy and we've got that to do."

Suggested category: 'Statement of action(s) necessary for task completion'.

60. "Ah, we've got a lot of bubbles in here, haven't we?"

Suggested category: 'Concepts of quantity'.

61. "I don't mind as long as it doesn't bite me. If it bites me I shan't be too keen."

Suggested category: 'Indicating a contingency'.

62. "Only four people can play."

Suggested category: 'Indication of rule(s)'.

63. "Well, he's there because he's staying for dinners."

Suggested category: 'Identifying the causes of an event observed'.

64. "Because it fell off."

Suggested category: 'Identifying the causes of an event not observed'.

APPENDIX 2

EXAMPLE OF THE QUESTION SHEETS USED IN THE VALIDATION STUDY

Below are further instances of speech heard in the nursery. In each case, after hearing and seeing the speaker, please indicate whether you agree or disagree with the suggested category.

		Agree	Disagree
7.	"Er, Michelle, would you go and put that back on the peg in the cloakroom, please?" Suggested category: 'Simple command'.	☐	☐
8.	"Go and get your shirt please." Suggested category: 'Simple command'.	☐	☐
9.	"Put an apron on, Theresa." Suggested category: 'Simple command'.	☐	☐
10.	"Pick them up. Pick them up." Suggested category: 'Simple command'.	☐	☐
11.	"Oh well, throw it... throw it in the bin." Suggested category: 'Simple command'.	☐	☐
12.	"Put them away on the easels now, please, Catherine."	☐	☐
13.	"Well go and wash your hands and off you get."	☐	☐

APPENDIX 3

(See p.146).

ANOVA Table 1

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUMS OF SQUARES	MEAN SQUARED	VARIANCE RATIO (=F)	SIGNIFICANCE LEVEL
Age	3	23.3201	7.7734	7.027	$p<0.01$
Sex	1	7.5205	7.5205	6.798	$p<0.05$
Age x sex	3	18.4044	6.1348	5.546	$p<0.01$
Age x sex x subject	59	65.2686	1.1062	–	–
Speech category	3	30.0741	10.0247	25.094	$p<0.01$
Speech cat. x age	9	10.6139	1.1793	2.952	$p<0.01$
Speech cat. x sex	3	2.0306	0.6769	1.694	–
Speech cat. x age a sex	9	8.4058	0.934	2.338	$p<0.05$
Residual	177	70.7081	0.3995	–	–
Total	267	236.346	0.8852	–	–
Grand total	267	236.346	–	–	–
Grand mean	0.601	–	–	–	–
Total no. of observations	268	–	–	–	–

APPENDIX 4

(See p. 152)

ANOVA Table 2

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUMS OF SQUARES	MEAN SQUARED	VARIANCE RATIO (=F)	SIGNIFICANCE LEVEL
Age	3	1.11284	0.37095	4.66	p 0.01
Sex	1	0.35084	0.35084	4.4	p 0.05
Age x sex	3	1.1179	0.37263	4.68	p 0.01
Age x sex x subject	59	4.70008	0.07966	-	-
Speech sub-cat.	73	13.31164	0.18235	3.768	p 0.01
Speech sub-cat x age	219	15.52738	0.0709	1.465	p 0.01
Speech sub-cat x sex	73	5.98222	0.08195	1.693	p 0.01
Speech sub-cat x age x sex	219	11.72698	0.05355	1.106	n.s.
Residual	4307	208.45997	0.0484	-	-
Total	4957	262.28984	0.05291	-	-
Grand total	4957	262.28984	-	-	-
Grand mean	0.0342	-	-	-	-
Total no. of observations	4958	-	-	-	-

APPENDIX 5

(see p. 166)

Table 5

i) Sex and speech category (means)

Grand mean	0.566
Boys	0.687
Girls	0.462
"Cognitive-linguistic speech"	I.I95
"Speech serving primarily to express affect"	0.404
"Speech serving primarily to maintain ongoing activity"	0.350
"Simple verbal responses to the pre-formulations of others"	0.3I6

ii) Interaction between sex and speech category. (See p.I66)

	Boys	Girls
"Cognitive-linguistic speech"	I.I53	I.23I
"Speech serving primarily to express affect"	0.642	0.I98
"Speech serving primarily to maintain ongoing activity"	0.498	0.222
"Simple verbal responses to the pre-formulations of others"	0.454	0.i96

APPENDIX 6

(See p. I66)

Table 6 Interaction between play activity and speech category.

	Home Corner	Easel Painting	Lego	Water	Wet Sand	Group Painting	Clay
"Cognitive-linguistic speech"	I.2I	0.836	I.378	I.275	I.304	0.8	I.3I3
"Speech serving primarily to express affect"	0.33	0.258	0.I37	0.4II	0.673	0.2I7	0.585
"Speech serving primarily to maintain ongoing activity"	0.254	0.329	0.235	0.258	0.676	0.I6I	0.326
"Simple verbal responses to the pre-formulations of others"	0.574	0.I4I	0.I66	0.649	0.263	0.I99	0.239

APPENDIX 7

(See p. I66)

Table 5 Interaction between play activity and speech category.

	Home Corner	Easel Painting	Lego	Water	Wet Sand	Group Painting	Clay
"Cognitive-linguistic speech"	I.2I	0.836	I.378	I.275	I.304	0.8	I.3I3
"Speech serving primarily to express affect"	0.33	0.258	0.I37	0.4II	0.673	0.2I7	0.585
"Speech serving primarily to maintain ongoing activity"	0.254	0.329	0.235	0.258	0.676	0.I6I	0.326
"Simple verbal responses to the pre-formulations of others"	0.574	0.I4I	0.I66	0.649	0.263	0.I99	0.239