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INTELLECTUAL DEVELOPMENT AND EARLY CHILDHOOD EDUCATION IN THE REPUBLIC OF IRELAND

by

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INTRODUCTION

Background to Study

Compulsory education begins in the Republic of Ireland at the age of six and there are a variety of institutions concerned with Early Childhood Education for the three to six year old.

The principal forms of provision are as follows:-

1. Junior and Senior Infants of the Primary schools (children aged from four to six). This includes Junior and Senior Infants in *Gaelscoileanna* - all-Irish speaking primary schools. [These cater for approximately 95 percent of the five year olds and 60 percent of the four year olds (Department of Education, 1990).];
2. Nursery Schools (most are Montessori Schools for children aged three, four and five);
3. Pre-School Playgroups for children aged three to five. [Divided into Home Playgroups and Community Playgroups];
4. *Naíonraí* - Irish-speaking or bilingual playgroups (children aged three, four and five).

A recent development has been the inauguration of "Early Start" classes for the three to four year olds in Primary Schools in disadvantaged areas. Eight were set up by the Minister for Education in 1994/95 and twenty-five have opened in 1995/96.

There is presently a N.C.C.A. [National Council for

Curriculum and Assessment] Committee which is looking at the Infant Curriculum for Primary Schools. It is likely to make more prescriptive the 1971 "New Curriculum".

In the area of "Early Years" Education, Ireland lags behind almost every other European country. Primary teachers receive a limited training in the Infant Curriculum at the Colleges of Education and thereafter receive almost no in-service training. It is interesting to note that although the Irish National Teachers Organisation [INTO] has identified Infant and 'Early Start' classes as areas where teachers require extensive in-service training, the programme of in-service courses for primary teachers presently funded by the Department of Education infrequently includes this curriculum area. The voluntary sector, which provides most of the remaining pre-schools, is very poorly resourced. The training of the latter is largely based on courses set up and run by their own associations. Many of these early years educators feel inadequate when faced with a class of small children.

Classroom Research on the "Early Years" already carried out in U.C.C.

In the late 1970s, the Target Child Observational Schedule [Sylva *et al* (1980)] was devised as a means of evaluating child development through play and activity-based learning. A survey of early years provision in Oxford and Oxfordshire was subsequently undertaken by Brüner,

Sylva and others in the Oxford Pre-School Research Group. Over the past ten years, we in the Education Department at University College Cork have replicated this major study by investigating early years provision in Cork city and county [Horgan, M. (1987) Junior Infant Classes; Dunlea, C. (1990) Montessori Schools; Douglas, F.G. (1993a) Playgroups]. Recently, similar action research in German Kindergarten has been undertaken [Douglas, F.G. (1993b)].

In both major studies the ethnographic research strategy was found to be the most suitable method of assessing empirically the nature and frequency of play at this stage of the child's development.

Our investigation in Cork city and county was therefore eclectic in nature, employing a multi-faceted approach, encompassing the Target Child Observation Schedule, interviews, a study of classrooms, a questionnaire and an interaction analysis system. In all, 367 children have been observed during 120 hours of continuous observation. This figure accounts for approximately half the total time we spent in the pre-schools/infant classrooms.

It is from this background and from using such an ethnographic research strategy that we have sought to identify ‘good practice’ in the past and we propose to continue to do this in the future.

The Importance of 'Early Years' Education

Since the time of Aristotle and Plato eminent educationalists, philosophers and theorists have attempted to focus attention on the importance of educating young children but until the middle of the 19th century these appeals largely fell upon deaf ears. One thinks for example of Luther, Comenius, Rousseau, Edgeworth (the first important Irish man in this area) and Pestalozzi. It was not until the German political upheaval of the 1840s and the exile of the many disciples of Frederick Froebel that early years education became respectable and was taken up by the middle classes throughout much of the western world.

Interestingly, however, several members of the present Economic Union, such as Germany, Italy, Denmark and Belgium have over the past 30 years allocated huge sums of money to Early Years Education. Germany, for example, as part of the major overhaul of its education system in the early 1970s recognised the Kindergarten (the education of 3-6 year olds) as the first stage of education. The ensuing great debate on the most beneficial curriculum for children at this crucial stage was highly significant. The Belgian Government has also debated this area at length spending ten years compiling their Early Years Curriculum, which was finally produced in 1985 with a foreword by their (then) Minister of Education.

Indeed, there is now a general consensus on the

European mainland that Bloom (1964) was correct when he stated, more than twenty years ago, that half the intellectual development of the average child has taken place by the time that he or she is four. There is also a strong commitment in Europe to doing something about it. Even in England, over the last ten years, there has been an increased awareness of the importance of the Early Years. This has culminated in the Prime Minister John Major, at the last Conservative Party Conference, advocating the provision of a nursery place for every child who sought such provision. In addition, over the past ten years a number of English universities have followed the American practice of establishing Departments of Early Years Education.

The importance of the Early Years is only just starting to be appreciated in the Republic of Ireland. The vital nature of pre-school/infant education cannot be overstressed. From this flows children's linguistic, scientific and creative abilities which lead to future literacy and numeracy. Early Years Education has a cut off point in the primary curriculum of approximately 8 years of age and this is important since by then most children can be expected to have acquired the "basics". They should be able to read, write and have grasped the underlying concepts of arithmetic. They should have an extended verbal vocabulary and have escaped from much of what Halliday (1975) calls the "here and now" use of language.

They should be capable of what Margaret Donaldson (1978) calls "disembedded thinking" and language should by now have become "opaque". All future learning is of course based on the foundations laid in the first eight years. Attitudes to schooling and knowledge acquired during these early years fundamentally affect each child's subsequent performance.

Professor Margaret Donaldson, University of Edinburgh, stresses this very clearly when she says:-

"The period of life that stretches from around three to around eight years of age is a period of momentous significance for all people growing up in our culture. It is during this time that children enter the social world beyond the family and establish themselves, more or less easily and successfully, as members of a community of their peers. It is during this time too that they first encounter and deal with the challenges set to them by our system of education - challenges which, for many children, are unlike any they have ever met before.

By the time this period is over, children will have formed conceptions of themselves as social beings, as thinkers and as language-users and they will have reached certain important decisions about their own abilities and their own worth..., decisions which are of vital importance not only for their self-respect and general well-being, but also for their subsequent progress."

[Donaldson, 1978]

INTELLECTUAL DEVELOPMENT AND EARLY CHILDHOOD EDUCATION IN THE REPUBLIC OF IRELAND

In education Cognitive, or Intellectual Development, is the main focus of a pupil's well-being for that is what schooling is mainly about. However, this cannot be taken in isolation. The cognitive, emotional, spiritual, social, physical, linguistic and creative development of the child are all intertwined and cognisance cannot be taken of one without looking at the others. In this article an attempt is made to isolate the cognitive aspect of the young child's development.

As already mentioned, the "Target Child Observation Schedule" which forms the basis of this article was developed in Oxford by Sylva, Painter and Roy (1980) for use in their observation study of nursery school children which was one of several studies undertaken by the Oxford Pre-school Research Group under the directorship of Professor Jerome Brüner.

The schedule had the following advantages:

1. It had been specifically designed to observe young children playing;
2. It offered a method of observing and categorising a child's cognitive, linguistic and social development simultaneously;

3. It was ethnographic in nature and therefore allowed for the inclusion of supplementary categories (in this case, creative and physical development);
4. It allowed for the review of events in ways that retained some of their complexity and unexpectedness - despite this, its relatively high structure limited inference;
5. The fact that it had been used in Oxford (England) and was duplicated in Miami (Florida) with great success (Sylva *et al*, 1980) allowed comparisons to be made with those findings and with those of Dunlea (1990);
6. The schedule had validity and a high level of inter-observer reliability.

The target child method was considered a reliable coding system by Sylva *et al* (1980). The range of scores obtained by them, using the Kappa statistical test for inter-observer agreement, varied between 0.75 to 0.92. On this basis, direct comparisons were made in their findings with the Oxford and Miami studies (Sylva *et al*, 1980) and further studies in Oxford by Jowett (1981). Inter-observer reliability using the same test between Horgan, Dunlea and Douglas ranged between 0.82 and 0.97.

In the target child method, each child is observed for approximately twenty minutes as he or she goes about his or her normal routine in the classroom.

Observations were coded using a 42 category scale as developed by Jowett (1981) from the work of Sylva *et al*

(1980). Fifteen Junior Infant classes were studied by Horgan (1987); Ten Montessori classes by Dunlea (1990); and Twenty-four Pre-school classes by Douglas (1993) [11 Community Playgroups, eight Home Playgroups, two Pre-schools for Travelling Children (Montessori), one Parent and Toddler group, and two Montessori classes in the 'Before Five' Centre, Cork]. In total, 150 target children were observed by Horgan, 60 by Dunlea and 157 by Douglas.

Analysis of Findings of the Target Child Study - Cognitive Challenge

In the Introduction it was stated that Target Child Studies have been conducted in Cork city and county with Playgroups, Junior Infant and Montessori classes and, as also mentioned, they have been undertaken in Oxfordshire (England) and Miami (Florida) (Sylva *et al*, 1980). Hence, comparisons and contrasts between their findings are included where relevant.

Sylva *et al* (1980) discuss how the children's behaviour in various London day nurseries mirrored the organisation of the centre. "Thus, children in a factory crêche were organised into almost "production line" routines, while children in the crêche of a hospital were sometimes treated like young patients rather than healthy children" (p.130). Observations in the 49 pre-school/infant classes in Cork city and county revealed how the children's behaviour was circumscribed by various

situational constraints. These included the layout of the room and its contents, the child-adult ratio, and especially the amount of structure in the programme pursued.

In this context, structure implies a standardisation and regularity of both activity and time. With regard to the task structure, it is important to note that the activity and materials, in the twenty-four classes studied by Douglas (1993), were usually chosen by the children and were not imposed by adults. (This is in complete contrast to Horgan's (1987) findings for fifteen Junior Infant classes in Cork city and county primary schools.) Hence, the general atmosphere was one where freedom and choice on the part of the children were a frequent occurrence. In community playgroups, for example, there is usually freeplay where the children have complete freedom of choice as to what to do, within the limitations of the playgroup's equipment and space, up until the mid-morning lunch time after which there are more organised activities such as group work, reading stories and the like.

Cognitive Challenge

The table over is a simplified version of the main findings of these studies regarding the activities of the children observed and the cognitive challenge which they contained.

TABLE ONE

Summary of the Main Findings regarding the behaviour of the target children and cognitive challenge

Douglas (1993)

Category	Horgan (1987) Cork Junior Infants (n = 15)	Dunlea (1990) Montessori Schools (n = 10)	Community Playgroups (n = 11)	Mother & Toddler Group (n = 1)	Home Playgroups (n = 8)	Pre-Schools for Travelling Children (Montessori) (n = 2)	Before 5 Centre (Montessori) (n = 2)
Challenging 3Rs activity	9%	18%	3%	2%	3%	9%	10%
Playful activities that challenge the child	8%	41%	19%	19½%	26%	34%	45%
Playful activities that did not challenge the child	13%	13%	37%	38½%	26%	14%	12½%
Activities that contained no visible challenge	70%	28%	41%	40%	45%	43%	32½%

The cumulative body of knowledge regarding play and education had its origins in the theory of the philosopher, Plato. The many subsequent theories including those of Comenius, Rousseau, Pestalozzi, and notably Froebel, all searched for an educational theory based on a psychological understanding of the child and the appreciation of the sanctity of childhood. These individuals repudiated an educational system which fed the child with text-book pages. In contrast, they emphasised the need for a child-centred curriculum, which would allow for self activity, movement, creativity and happiness. Through action on the external world of people and objects, each child was to be allowed to unfold his nature at his or her own pace. Hence, the infants' playfulness, exploration and energy were finally seen as an indication of the self-evolving unity of nature and mind in a dynamic universe.

In a similar vein, Montessori and Dewey castigated traditional educational practice. Both sought liberty for the child and freedom of choice and activity. However, each stressed that this heuristic approach should be accompanied by guidance and adult contact and supervision. In more recent years, the importance of play in the child's cognitive development has been addressed by many. The most influential have been Piaget (1962), Brüner

(1975), and Sutton-Smith (1967). Piaget contended that the young child develops his mental structures (*schemata*) through activity and exploration of his environment. He stated that manipulation with objects enables the child to become aware of similarities and differences among the objects he encounters. This awareness is the start of true conceptual thought. Nevertheless, Piaget believed that this playful behaviour decreases as the child matures intellectually. This stance has been challenged by Sutton-Smith who believes that symbolic, playful and ritualistic behaviour continues into adulthood.

Both Sutton-Smith and Brüner emphasised how manipulative play "opened up thought" by enabling the child to focus on means rather than ends. This play, involving action with concrete objects, forms the first of Brüner's three stages of cognitive development, i.e. enactive coding. The other forms - iconic and symbolic coding - develop later. Since these three separate stages are hierarchical in order, the child's success at each level influences his subsequent progress. Hence, both Piaget and Brüner argue that the child cannot move towards abstract structure and reasoning without a broad base of direct sensory, dramatic and manipulative experience from which he can generalise and extrapolate.

Most empirical studies isolate play in some or all of these same areas as being of seminal importance in the child's cognitive maturation. Although manipulative play is found to be important in the development of intellectual functioning, the single most important type of playful behaviour to emerge from numerous studies is dramatic play. This reaches its zenith in early childhood when the child is aged between three and six years of age. Since this type of play offers the child opportunities to practice imagery and rehearse verbal skills, it has been valued as an important cognitive skill (Singer, 1973; Hutt, 1979). Dramatic play techniques and thematic play can be taught to children. Several studies indicate the profound effects of such tutoring. Children in playgroups which encouraged thematic fantasy play and socio-dramatic play were consistently superior to other control groups on most cognitive tests (Johnson, 1976; 1982 *et al*). As thematic fantasy play is not something which children begin of their own volition, it has been suggested that adult intervention is necessary (Saltz *et al*, 1977).

The observation of the 307 children, which was undertaken by Horgan and Douglas, sought to investigate their activity in the light of the aforementioned theories and studies. To facilitate analysis of the children's

behaviour, the Target Child Observation Schedule (1980; modified by Jowett, 1981) presents, as already stated, 42 activity categories. These are divided into three main sections: Categories 1 to 12; Categories 13 to 28; Categories 29 to 42. Cognitive challenge can be assessed in the first 28 of these categories. The final group contains activities, the cognitive challenge of which cannot be ascertained. These are labelled "Inscrutable".

In Douglas' research the single most significant finding that emerged from the Target Child Study of pre-school activities and their cognitive challenge was the wide variety of time during which children were engaged in cognitive activities in the different types of establishment observed (i.e. 55% of the total time observed in home playgroups to 67½% in the 'Before Five Centre'). Of this high challenging activity ranged from 55% in the 'Before Five Centre' to a low of 21½% in the Mother and Toddler Group. Nevertheless, within each category there were marked differences. In Community Playgroup No. 1 (the best) high challenge activities amounted to 43% of the total time while in Community Playgroup No. 2 (the worst) the children spent no time at high challenging activities.

The best Junior Infant class in which Horgan (1987) observed spent 22% of their time in 1-12 High Challenging

Activities while in the worst class she recorded no High Challenging Activity at all in these categories.

The variation was not so great, however, with Dunlea (1990) in Montessori schools as she recorded a high of 56% of 1-12 High Challenging Activities in her best class and a low of 24% in her worst. Since this article concerns the child's intellect and its development, a detailed analysis of the child's behaviour during this period of cognitive challenge follows.

The dramatic, manipulative and experiential learning which is so vital for the cognitive development of young children was allocated to categories 1 to 12.

These activity categories included:

1. Play with large scale equipment (e.g. boxes, planks);
2. Physical movement without apparatus or with fixed or moveable equipment;
3. Manipulation of miniature representational objects (e.g. doll's houses); and
4. Unstructured materials (e.g. sand, discontinuous materials).

Small scale construction with bricks and paper, play with structured materials (e.g. jig-saws), musical and artistic activities and pretend play were also encompassed by these

categories.

Analysis of the observations in Community Playgroups revealed that children spent over half of all their time engaged in these twelve types of activity. The same applied to the rest of the groups studied by Douglas (1993) where the percentages were approximately the same. The greatest difference between the groups emerged when intellectually stimulating play was looked at. Less than half of the total play was deemed to challenge the children in Community and Mother and Toddler groups. The Home Playgroups had 26% high challenge and 26% low challenge play while the Pre-schools for Travelling Children and the 'Before Five Centre' (both Montessori schools) surpassed all others in terms of the frequency of highly cognitively challenging play observed.

It is worth noting the huge difference between these results and those of Horgan (1987) in her study of Junior Infant classes. Here the children spent 70% of their time engaged in activities that contained no visible challenge compared with 45% for Home Playgroups which were the worst type of pre-school institution in Douglas' (1993) study. As regards highly challenging free-play activities (as defined by categories 1-12) the Junior Infants only engaged

in these for 8% of their time compared with 19% for the Community Playgroups, the worst in Douglas' study. Dunlea's (1990) Montessori classes, on the other hand, averaged 42% in this category while they only spent 37% of their time in activities that contained no visible challenge. Other forms of highly challenging 3R behaviour were recorded under the activity code categories 13 to 28. In Douglas' study, this was mainly comprised of looking at books and there is obvious scope for improvement here. However, Horgan's 9% of Challenging 3R activities were equalled by the figures for travelling children and exceeded in the 'Before Five Centre'. This result is surprising as one would imagine that Primary School classes would do well at this. However, once again Montessori schools, as observed by Dunlea (1990), exceed all others as they spent on average 18% of their time on challenging 3R activity.

Table Two illustrates how time was spent on 3R work in Junior Infants, Community Playgroups, Mother and Toddler groups, Home playgroups, Pre-schools for Travelling Children and the 'Before Five Centre' respectively. It is interesting to compare these findings with Miami and Oxford and Oxfordshire where only 3.4% and 0.6% of total time was spent in 3R activity respectively (Sylva *et al*, 1980).

TABLE TWO

Observed Categories of Three Rs Work

(Highly Cognitively Challenging by Definition)

Group	Categories of Work	Absolute (Observation in Half Minutes)	Percentage of Total Observation Time
Junior Infants	Looking at books	35	0.58
	Reading aloud	11	0.18
	Workcards	22	0.36
	Self-initiated writing	19	0.32
	Tracing	218	3.63
Community Playgroups	Looking at books	34	1.28
	Counting	10	0.37
	Other reading activity	2	0.08
	Writing which is self-initiated	1	0.04
	Other numerical work	9	0.34
	Tracing	3	0.11
	Written number work	9	0.34
Mother and Toddler Group	Looking at a picture	5	2.25
Home Playgroups	Looking at books	39	2.54
	Reading aloud	2	0.13
	Counting	1	0.07
	Looking at pictures	9	0.59

Pre-schools for Travelling Children	Looking at books Tracing	19 29	3.47 5.30
The ‘Before Five Centre’	Looking at books Looking at exercise books Counting Art skills - adult directed	27 8 7 5	5.84 1.73 1.52 1.08

All the above are encompassed under the broad heading of pre-reading, pre-writing and pre-maths activities. The amount of time spent looking at books in the Montessori 'Before Five Centre' (5.84%) compares very favourably with the findings for Junior Infant classes where the children undertook this activity for only 0.58% of the total observed time. The interview sessions with the 39 teachers of the target children (Horgan, 1987; Douglas, 1993) revealed an ambivalence towards the Three Rs activities for this age of child. Indeed, it emerged that parental pressure was frequently a significant determinant. The results of the nationwide survey carried out by both authors substantiated this.

In total, in all the six different types of establishments (Horgan, 1987; Douglas, 1993) three Rs activities only accounted for between 2% and 10% of the time each week. However, in Douglas' study, the children were frequently allowed the choice of structured or unstructured equipment and a choice of activity. This contrasts completely with Horgan's findings for Junior Infant classes in Cork city and county where children were confined to their seats for most of the day due largely to the very high staff-pupil ratio and the lack of equipment.

In Horgan's and Douglas' study, between one third to

two thirds of class time involved inscrutable behaviour. Some of this was concerned with adult-led group activity, tidying up, lunch time, directed movement and watching others. Beneficial though these activities were, they cannot be said to stimulate the child to any great extent. Even if one were to concede that such behaviour contained some level of cognitive stimulation, it could hardly be equated with the high challenge and rich stimulation which many influential researchers and educationalists, including Piaget, Brüner and Johnson, have seen to accrue from direct sensory experience by the child. Piaget and Brüner and many others agree that a broad base of direct dramatic sensory, and manipulative experience is a prerequisite to understanding abstract concepts This order of presentation was adhered to in the majority of the pre-schools visited. Unfortunately most of the activities which children undertook in the Junior Infant classes, presupposed Brüner's second and third stages of cognitive development, i.e. iconic and symbolic coding.

Considering that dramatic play was isolated in the review of the literature as the single most important type of playful behaviour embraced by this age group, it was especially disheartening to find that a negligible amount of time (2% of the total time observed in community playgroups, and less than 2% of observed time in Junior

Infants, for example) was spent on any form of dramatic activity. Moreover, dramatic play tutoring and thematic fantasy play were not observed in any pre-school/infant class. However, dramatic play was considered important by a number of the adult pre-school leaders as evidenced in their answers to the Questionnaire given out by both authors.

A comparison of the findings of this study with those of the Oxfordshire Centres sheds further light. Sylva *et al* (1980) isolated the overall size of the centre and the relative number of adults as one of the most influential determinants of activities therein. They divided their centres into those with "good" staff to child ratios (i.e. 1:8, 1:9, 1:10) and those with "excellent" ones (1:5, 1:6, 1:7). The adults included in these categories were paid staff members, student teachers or volunteer helpers who served at least two sessions per week. In this way, they compared nursery schools, nursery classes and playgroups according to the staffing ratios in each type of centre. With regard to outdoor play and domestic activities such as washing, eating and drinking, there was no apparent difference. Major differences emerged, however, when the indoor sessions were compared. It was found that centres with ‘excellent’ ratios specialise more in small scale construction, structured materials and art. Their study had also isolated these as being the most intellectually

challenging activities. Centres with ratios that were categorised as being 'good' had higher proportions of unstructured activity such as manipulation, rough-and-tumble play and pretend. Those with the poorest ratios were found to concentrate more on adult-led activities which was a means of preserving both order and the adults patience. The target child studies conducted in Oxford and Miami concentrated primarily on children in playgroups and other pre-school settings and hence their findings are directly comparable with the findings of Douglas' research. The pattern that emerges from the findings of his research can be seen from the following table (Table Three). Excellent staff ratios give rise to more work with structured materials and more small-scale construction, but otherwise the results contradict the Oxford research.

A comparison of Cork community playgroups, Cork Junior Infants and playgroups in Oxfordshire and Miami follows (Table Four). This presents the percentages of the total time spent in 'goal structured', 'loosely structured' and 'passive' activities. It shows how children in Irish community playgroups engage in considerably more 'goal structured' activity than the others. The average staff/child ratios vary considerably (in Oxford the ratio approximated 1:7; Miami, 1:12; Cork Junior Infants, 1:30; and Cork community playgroups, 1:7) and this would appear

to have little effect on the degree of structured activity adopted. The pattern for loosely-structured activities indicates that playgroups differ from primary schools. This in turn effects the percentages recorded in the passive/non-engaged type activities, which reached their zenith in the Cork city and county study for primary schools.

TABLE THREE

Percentage of Total Time Spent in Selected Activities

according to Staff Ratio

(adapted from Sylva *et al*, 1980, p.160)

	OXFORD		**CORK (Community P.G.s only)**	
	Good Ratio (1:9)	**Excellent Ratio (1:6)**	**Good Ratio (1:9)**	**Excellent Ratio (1:6)**
Structured Materials	3.0	6.0	3.6	9.4
Art	6.0	11.0	9.9	5.3
Small-scale construction	3.0	6.0	3.4	10.0
Pretend	12.0	9.0	0.4	5.3
Manipulation	13.0	11.0	12.4	17.4
Rough-and-tumble	4.0	2.0	2.9	2.0
Adult-led group activities	10.0	6.0	0.5	5.9

TABLE FOUR

Percentage of total time spent in 'goal structured', 'loosely structured' and 'passive' activities

(adapted from Sylva *et al*, 1980, p.177)

	Cork Community P.G.s	**Cork Junior Infants**	**Oxfordshire**	**Miami**
GOAL STRUCTURED Construction, Structured Materials, Art, Adult-directed Art & Manipulation Skills, Three Rs, Problem solving.	28%	18½%	19%	20%
LOOSELY STRUCTURED Gross motor play, pretend, manipulation, scale-version, toys, music, social play with spontaneous rules, rough-and-tumble, non-playful interaction, examination	31%	12½%	49%	39%

PASSIVE/NON-ENGAGED/ ROUTINE Adult-led group activities, watching, waiting, aimless standing around, wandering or gazing, cruising, distress. Group routine, purposeful movement organised games with rules.	41%	69%	32%	41%

Analysis of the activities that challenge children in the four studies is very informative. Despite the differences in location, type of school and cultural background, the consistency of findings in this respect is enlightening. Results from Oxfordshire, Miami and Cork clearly elucidate the great similarity which exists between intellectually stimulating activities in each setting. The table below presents the rank order of the various action categories according to yield of cognitive challenge.

TABLE FIVE

Activities that challenge and those that do not

in Cork, Miami and Oxfordshire

(Table adapted from Sylva *et al*, 1980, p.177)

	Cork Community Playgroups	**Cork Junior Infants**	**Miami**	**Oxfordshire**
Highest yield of challenge	Three Rs Small scale construction Pretend	Three Rs Small scale construction Art	Three Rs Music	Three Rs Adult-led art and manipula-tion skills
High Yield	Structured materials	Pretend Structured materials	Large scale construction small-scale construction Pretend Art	Music. Art. Small-scale construc-tion. Large-scale construc-tion. Structured materials
Moderate Yield	Manipulation	Music Manipulation	Adult-led art and manipulation skills. Structured materials. Organised games with rules. Manipulation	Pretend. Scale version toys. Manipula-tion
Low yield	Gross motor play. Art.	Non-playful interaction. Gross motor play.	Social play with spontaneous rules. Non-playful	Non-playful interactionSocial play with spontaneous

			interaction. Gross motor play.	rules. Gross motor play.
Lowest yield	Watching	Informal games (e.g. horse play)	Scale version toys Informal games.	Informal games. Organised games with rules.

The fact that these types of material and tasks afford cognitive challenge to the children observed in the three countries should be of benefit to teachers and parents and, indeed, to everybody who is concerned with the intellectual growth of young children. However, pre-school teachers wishing to promote cognitive challenge need to know which specific activities enhance it and which activities detract from it. In this respect, the following table, compiled from the coding sheets of the 78 target children observed in the community playgroups highlights the activities which were found to give High, Moderate and Low Challenge and should be of help to the practitioner. The observed concentration span is shown but must not be confused with high challenge. It is possible to concentrate on an activity but yet not to be cognitively stretched by it.

TABLE SIX

A Sample of Activities which give rise to a high or low level of cognitive challenge with 3-5 year old children

(Taken from observations of 78 target children in eleven Community Playgroups)

HIGH YIELD (judged to be of high cognitive challenge)	**OBSERVED CONCENTRATION SPAN**
Play with water	13½ minutes
Building with wooden bricks	9½ minutes
Playing with model animals	8½ minutes
Cutting out shapes and sticking them to paper	7½ minutes
Completing an alphabet jigsaw	6½ minutes
Making a Lego car	6 minutes
Comparing, enlarging, shortening two columns of bricks	6 minutes
MODERATE YIELD (judged to be of high cognitive challenge)	
Building with wooden bricks	5 minutes
Putting plastic numbers in order	4½ minutes
Kicking ball to knock down skittles	4½ minutes
Building with stickle bricks	4½ minutes
'Reading' picture book	4½ minutes
Making pegboard patterns	4 minutes
Putting coloured beads into their 'correct' compartment	4 minutes
LOW YIELD (judged to be of low cognitive challenge)	
Cutting up a magazine	11 minutes
playing with Playdough	10 minutes
Doing 'easy' jigsaws	7 minutes
Building with stickle bricks	6½ minutes

CONCLUSION

The 157 children observed in Douglas' (1993) study were being cognitively stretched for approximately one quarter of the time if they were in a playgroup and for approximately one half of the time if they were in a Montessori setting. 3R activities were limited to less than two and a half percent of the total observation time in the playgroups and less than six percent in the Montessori classes. Between one third to one half of class time involved inscrutable behaviour which could not be assessed for cognitive challenge and it was found that the staff/child ratio has little effect on the types of activity that children engage in. The children in Cork Community Playgroups spend a much greater percentage of time in goal structured activity than do their counterparts in Oxfordshire and Miami and there is a remarkable consistency in the play activities that provide the highest and lowest levels of cognitive challenge for three to five year old children in England, Ireland and America.

In the Junior Infant classes studied by Horgan (1987) (150 Target Children) it is disheartening that, on average, they only engage in cognitively stimulating activity for a mere 17 percent of the time. It is quite ironic that

although the structured and free-play goal-orientated situations, which the 1971 curriculum advocates, were hemmed into this small segment of the child's time at school, they were the only activities which actually fostered intellectual challenge. The remainder of the child's time was devoted to activities with a low cognitive challenge and especially to behaviour (e.g. watching, group repetition) which proffers no apparent stimulation.

The most striking conclusion of this article is that the Montessori method of teaching young children surpasses all others with respect to high cognitive challenge. This is not directly the result of class size, as there were, for example, up to twenty children in each of the 'Before 5 Centre' classes; nor was it the result of the length of time spent in teacher training, where the Junior Infant class teachers would have received the longest. Rather, it was the result of a highly structured environment, which was very carefully planned by those responsible. There was also a difference in attitude, which is most likely linked with the type and quality of initial and in-service training. Horgan's (1987) study showed that most Junior Infant teachers find themselves in over-crowded, badly equipped classrooms. The majority do not teach at this

level by choice and few have pursued any additional pre/inservice courses in Early Years Education. Consequently, many of them lack direction, which results in diminished enthusiasm for their work. Most of the playgroup leaders, although enthusiastic, adopted a *laissez-faire* approach, whereas the Montessori teachers were enthusiastically putting into effect a highly structured, although child centred, programme. Indeed, experience does not appear to make much difference with the Montessori teachers, as the two teachers of the pre-schools for travelling children had the most experience of any in the sample while those in the 'Before 5 Centre' had almost the least. It is interesting to note that the most cognitively challenging community playgroup found by Douglas (1993) was also the most structured. The structure of the curriculum would therefore seem to correlate highly with the enhancement of a child's intellectual development and the teacher's attitude and training would seem to be of vital importance.

BIBLIOGRAPHY

BLOOM, B.S. (1964). *Stability and Change in Human Characteristics*. New York, Wiley.

BRUNER, J.S. (1975a): From communication to language: a psychological perspective. *Cognition*, 3.

BRUNER, J.S. (1975b): "The orthogenesis of speech acts." *Journal of Child Language*, 2, 1-19.

DEPARTMENT OF EDUCATION - IRELAND (1990). *Tuarascáil Staitistiúil (Statistical Report)*. Dublin: Stationery Office.

DONALDSON, M. (1978). *Children's Minds*. Fontana/Collins, Glasgow.

DOUGLAS, F.G. (1993): "A Study of Pre-School Education in the Republic of Ireland with Particular Reference to those Pre-Schools which are listed by the Irish Pre-School Playgroups Association in Cork City and County." Unpublished Ph.D. Thesis, University of Hull.

DUNLEA, C.P. (1990): "The Relevance of Montessori Education: A Study of Montessori Schools in the Cork Area", Unpublished M.Ed. Thesis, University College, Cork.

HORGAN, M.A. (1987): "A Study of the importance of Play in the Education of Junior Infant Class Children in Cork City and County", unpublished M.Ed. Thesis, University College, Cork.

HUTT, C. (1979): 'Exploration and Play.' IN: B. Sutton-Smith (ed.) *Play and Learning*. New York, Gardner Press.

JOHNSON, J.E. (1976): 'Relations of divergent thinking and intelligent test scores with social and non-social make-believe play of pre-school children.' *Child Development*, 47, 1976.

JOHNSON, J.E., ERSHLER, J., & LAWTON, J. (1982): "Intelligence correlates of pre-schoolers' spontaneous play." *Journal of Genetic Psychology*, 106, 115-22.

JOWETT, S. (1981): "The effects of pre-school education on

the behaviour of working class children in the reception class." Unpublished M.Litt. Dissertation. Oxford University.

PIAGET, J. (1962): "Comments on Vygotsky's Critical Remarks." Massachussetts, M.I.T. Press.

SALTZ, E., DICKSON, D. & JOHNSON, J. (1977): "Training disadvantaged pre-schoolers on various activities. Effects on cognitive-functioning and impulse control." *Child Development*, 48, 367-80.

SINGER, J. (1973): The Child's World of Make-Believe. new York Academic Press.

SUTTON-SMITH, B. (1967): "The role of play in cognitive development." *Young Children* 22, 361-70.

SYLVA, K., ROY, C. & PAINTER, M. (1980): "Child Watching at Playgroup and Nursery School." Grant McIntyre.