

# Profiles of the Abilities of Preschool Aged Children in an Isolated Northern Community\*

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This preliminary investigation into cognitive abilities, social competence, and home environments of preschool children living in a northern Labrador community was a first step in the development of an appropriate preschool program. The preschool was intended to help alleviate a pattern of school failure in the community. Eighteen children ranging in age from 34 to 46 months performed on standardized tests of language and cognitive ability at levels suggesting they were at risk of school failure. Even within this sample there is a subgroup who are at even greater risk and who are not receiving any early intervention. On a test of social competence both groups scored above the normative mean. These findings have implications for preschool intervention and for early schooling.

Cette recherche préliminaire axée sur les aptitudes intellectuelles, les aptitudes sociales et les milieux familiaux des enfants d'âge préscolaire d'une communauté du nord du Labrador a constitué la première étape de l'élaboration d'un programme préscolaire visant à contribuer à la diminution des échecs scolaires au sein de cette communauté. Les résultats des tests mesurant le langage et les aptitudes intellectuelles de 18 enfants âgés de 34 à 46 mois ont donné à penser que ces derniers risquaient d'échouer à l'école. Un sous-groupe encore plus susceptible d'échouer ne fait l'objet d'aucune intervention précoce. Dans un test portant sur les aptitudes sociales, les deux groupes ont obtenu des résultats supérieurs à la moyenne. Ces observations peuvent servir en matière d'intervention et d'éducation préscolaires.

This study grew out of a project to establish a preschool program in a northern

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Labrador community. I hoped through studies of cognitive abilities, social competence, and home environments to explain why the community's preschool-aged children typically go on to fail in elementary school and how that pattern of failure might be broken.

Research over the past 25 years indicates that preschool programs designed to improve intellectual and language development can help children from poor and disadvantaged environments to function in and benefit from public education (Bryant & Ramey, 1987; Lazar, Darlington, Murray, Royce & Snipper, 1982; Ramey & Campbell, 1984; Wright, 1983). This evidence comes predominantly from inner-city areas in the United States. Although social and educational problems in northern communities are well documented, there have been few interventions with, and little research on young children in such communities.

Taylor and Skanes' (1975, 1976, 1977) studies of the cognitive and linguistic characteristics of elementary school-aged children in Labrador communities found that these children perform below the norm on standardized tests of intelligence and language. The effects of low socioeconomic status on children's performance is similar in northern, isolated communities and in southern, poor, inner-city areas in the United States and Canada. There are no similar published studies of preschool-aged children from isolated northern Canadian communities.

The objective of this preliminary investigation was to gather information on the abilities of preschool aged children in this community. This information is essential if appropriate measures are to be taken to help prevent educational failure.

## METHOD

### *Subjects*

This study's sample consisted of 18 preschool-aged children comprising approximately 90 percent of all children aged between 2 and 4 living in the community. The children ranged in age from 34 months to 46 months, with a mean age of 39.22 months. There were 8 males and 10 females.

Of 18 children, 10 subsequently enrolled in the preschool program and 8 did not. There was no significant difference between the ages of those who enrolled in the preschool and those who did not. Preschool programs are voluntary, and controlling or matching the two groups was thus impossible. However, the results display interesting post-hoc differences.

The investigator and a community worker visited all families in the community with preschool-aged children to inform them of the preschool program and to request their assistance with preliminary data gathering. All parents reported prior knowledge of the preschool program. All parents whose children participated in the study spoke English. Only one preschool child, a male, was not of Inuit and/or Settler (that is, descendants of people of European origin who have lived in Labrador for approximately a century) origin. All children spoke English in the home and heard older persons speak Innuktituk.

### *Community*

The preschool centre was in a relatively large coastal community in Labrador, accessible by boat and plane during summer, and otherwise by plane. Television arrived in the late 1970s. The population includes Inuit, Settlers and outside transient workers (for example, teachers, police, hospital and government employees). It has tripled since the resettlement programs of the 1950s and the closure in the 1960s of small settlements mainly to the north. The transition from small group to large community living has been difficult. The community now has high rates of unemployment, alcoholism, family violence, teenage suicides, and low rates of school completion.

### *Measures*

The McCarthy Scales of Children's Abilities (McCarthy, 1972) provide a differentiated profile of children's abilities and indicate a general level of intellectual functioning. Its relatively recent standardization included children from different races and different socioeconomic strata.

The Peabody Picture Vocabulary Test-Revised (Dunn & Dunn, 1981) is widely used in intervention research. It primarily measures receptive vocabulary ability.

The Vineland Social Maturity Scale (Doll, 1965) is a standardized developmental schedule that measures level of social competence. During early childhood the scale indicates self-help skills. The most recent edition was not available at the time of the initial testing.

The High Scope Home Environment Scale (High Scope Educational Research Foundation, 1974) asks parents about the home setting and parent-child interactions. It assesses a number of areas, including mother's involvement, mother's teaching, child's participation in household tasks, playthings available, and books in the home.

*Procedure*

The children were tested before the beginning of the preschool year. All children took the Peabody Picture Vocabulary Test–Revised (PPVT–R) and the McCarthy Scales of Children's Abilities (MSCA). The mothers completed the Vineland Social Maturity Scale (VSMS) and the High Scope Home Environment Scale (HES).

Two experienced psychometrists tested all children in a quiet area of the preschool centre. Both psychometrists were female and assessed an equal number of males and females.

## RESULTS

Table 1 shows the means and standard deviations on the McCarthy Scales of Children's Abilities, the PPVT–R, and the VSMS.

TABLE 1  
*Means and Standard Deviations for the MSCA (General Cognitive Index), PPVT–R, and VSMS and the MSCA Subscales*

	<i>X</i>	<i>S.D.</i>
MSCA	64.44	13.81
PPVT–R	74.22	16.05
VSMS	118.11	21.13
MSCA Subscales		
Verbal	40.17	7.45
Perceptual-Performance	45.44	8.80
Quantitative	38.39	6.28
Memory	42.17	7.70
Motor	50.83	7.63

Scores on both the MSCA and the PPVT-R were significantly below the normative mean (that is, 100). The mean score on the VSMS, however, was above the mean for the normative sample. Scores on the MSCA General Cognitive Index (GCI) were higher than those on the PPVT-R.

Table 1 displays the means and standard deviations for the subscales of the MSCA.

The Verbal Scale and other scale performances did not differ significantly.

Initial variability of data distinguished children who, subsequent to testing, enrolled in preschool (group P) and those who did not (group NP).

Table 2 shows the means and standard deviations for the two groups on the MSCA, PPVT-R, and VSMS.

TABLE 2  
*Means, Standard Deviations and t Values  
 for the MSCA, PPVT-R and VSMS*

	<u>Group P</u>		<u>Group NP</u>		<i>t</i>
	<i>X</i>	<i>S.D.</i>	<i>X</i>	<i>S.D.</i>	
MSCA	91.30	8.36	75.88	14.47	2.66*
PPVT-R	81.00	13.78	67.50	14.70	2.29*
VSMS	124.00	18.88	111.00	21.40	1.29

\**p*<.05

T-tests indicated that group P had higher mean scores on the PPVT-R and the MSCA than group NP. Although children registered for preschool scored significantly higher on the PPVT-R than those not enrolled, the former were still below average compared to the normative sample.

Both groups' performance on the MSCA was closer to the normative mean than was their performance on the PPVT-R. Group P's MSCA mean score was within the average range, although their performance on the PPVT-R was

more than 1 S.D. below the normative mean. Group NP's performance on the MSCA was within 1 S.D. of the normative mean, but their performance on the PPVT-R was more than 2 S.D.s below the normative mean. Both groups' performance on the VSMS was above the normative mean, with group P's performance more than 1 S.D. above.

Table 3 presents the means, standard deviations and *t* values for the five subscales of the MSCA.

Of the three subscales included in the General Cognitive Index—Verbal, Perceptual-Performance, and Quantitative—group P's scores on the Verbal and Quantitative scales were significantly higher than those of group NP. Of the supplementary scales—Memory and Motor—group P's performance on the Memory scale was significantly higher than group NP's.

Group NP's mean discrepancy in level of performance on the Verbal and Perceptual-Performance subscales was significantly greater than that of group P. This indicates relatively lower verbal skills rather than more-developed perceptual abilities in the NP Group.

The Home Environment Scale provided some very preliminary information about these children's home environments. Both groups of mothers responded similarly to items about objects available in the home, household tasks that the child helps mother with, and hours of television watched. The few differences that did emerge (on items such as child is read to almost every day, mother and child talk about feelings) may indicate that parents of group P children interact more verbally with their children and this may account for higher verbal scores.

TABLE 3  
*Means, Standard Deviations and t Values for MSCA Subscales*

	<i>Group P</i>		<i>Group NP</i>		<i>t</i>
	<i>X</i>	<i>S.D.</i>	<i>X</i>	<i>S.D.</i>	
Verbal	44.80	4.00	34.37	6.67	3.88**
Perceptual-					
Performance	47.50	7.47	42.87	9.61	1.08
Quantitative	43.10	5.82	32.50	12.97	2.18*

Memory	46.10	5.05	37.25	7.61	2.78*
Motor	53.60	5.59	47.38	8.40	1.26

\* $p < .05$

\*\* $p < .01$

TABLE 4  
*Description of Sample*

	<i>X</i>	<i>S.D.</i>
<i>Father's occupation</i>		
Clerk	2	
Fisherman/fish plant worker	1	3
Labourer		1
On government assistance		1
Technician	2	
Government service	2	
Self-employed	1	
<i>Mother's occupation</i>		
Clerk	2	3
Fisherwoman/fish plant worker	1	
On government assistance	2	2
Homemaker		2
Technician	1	
Secretary		2
Teacher's aide	2	
Nurse's aide		1

Additional information about the families of these children was obtained by examining parents' occupations (see Table 4). Of the five fathers of group NP, three were fishermen or fish plant workers, one was a labourer, and one was unemployed. No father of a child enrolled in preschool was unemployed and seven of the ten fathers have blue- or white-collar jobs. There was no substantial difference between the two groups in the numbers of mothers working outside the home, nor did the mothers' occupations differ between groups.

#### DISCUSSION

Initial testing showed that these children's performance on both the MSCA and the PPVT-R is significantly below the norm for those tests. These data show that these children will be at a cognitive disadvantage when they begin school. Performance on the measure of social competence, however, indicated that these children have well-developed social skills.

Results on cognitive and language measures are similar to those reported for older children living in that area (Taylor & Skanes, 1975). However, these children's performance on the receptive vocabulary measure ( $X=74$ ) is somewhat higher than that Taylor and Skanes (1976) reported for school-aged children in northern communities ( $X_{\text{between}} 58$  and  $61$ ). These differences may be accounted for by the use of the revised PPVT or by the approximately 10-year gap between these studies, during which time there have been changes (for instance, the introduction of television in the late 1970s) that may facilitate vocabulary development. The inferior performance of the older school-aged children in the Taylor and Skanes study suggests that those who begin school at a disadvantage become more disadvantaged with age—a finding that would underscore the importance of early intervention.

The relationship between this receptive language measure and a more comprehensive measure of intellectual functioning is similar for the preschool children in this study and for older children studied by Taylor and Skanes. That is, both groups of children scored lower on the Peabody Picture Vocabulary Test than on the measure of general cognitive functioning. Lower PPVT than Stanford-Binet scores have been reported by Zigler, Abelson and Seitz (1973) in "disadvantaged" ethnic minority children in the United States. While the lower PPVT-R scores obtained may therefore indicate that some items are inappropriate for children living in isolated communities, generally the PPVT-R does correlate with school achievement (Sattler, 1988).

Educational materials used in northern schools are developed for Southern children; consequently, depressed scores on this measure of language skill may point to the need for educational materials better suited to such communities.

Performance on the Verbal Scale of the MSCA did not differ significantly from performance on the other subscales. This result contrasts with data reported for older children in similar communities. Taylor and Skanes (1975) reported significantly higher scores on performance than on verbal scales on the Wechsler Preschool and Primary Scale of Intelligence (Wechsler, 1967) for school-aged children. The present findings may be a result of these children being at an age when there is less differentiation between separate abilities.

Although all children require early intervention services, these data point to a sub-group at even greater risk of future school difficulties. On measures of both general cognitive functioning and receptive language, the children who did not subsequently enroll in preschool (group NP) performed significantly more poorly than those who enrolled in preschool (group P). That is, all children in the study are below average on the receptive language measure and on the comprehensive measure of general cognitive functioning, but the children who have greatest need for preschool experience are not receiving it.

The two groups' performance on the VSMS did not differ significantly; the mean scores were above average for both groups. Preschool children's mothers have previously been found to report higher levels of competence than the children's teachers (Kaplan & Alatishe, 1976), which may be a factor in these results. Perhaps in isolated, northern communities a more traditional involvement of children in daily living is encouraged; as well, the size and nature of the community (no strangers, no cars) might allow more rapid development of social skills than would a more modern community (Skolnick, 1976). These results are also consistent with the independence and autonomy Native parents encourage in young children (Guemple, 1979; McKenzie & Hudson, 1985). Preschool and school programs should take into account the well-developed social competence of these children.

As indicated earlier, there were no obvious demographic differences between the two groups. Information from the Home Environment Scale indicated that the homes of group NP children contain the same number of toys and other playthings as did the homes of the preschool group. However, the two groups' home backgrounds differ on several individual measures, including language experience. The higher verbal scores of the preschool group may be attributable to greater mother-child verbal interaction as reported by the mothers. Perhaps these parents are more likely to value such

interactions and recognize that advantages might stem from experiences during the early years. The fathers of children in group P work in skilled trades or white-collar jobs. Although wages of group P families may be higher than those of group NP families, attendance at preschool is thought not to be solely determined by financial considerations. Some of the families in the preschool group were receiving subsidies, and at the time of this study, additional subsidies were available.

There was no evidence that mothers who did not enroll their children in preschool were less interested in their children than those who did, and both groups' mothers were equally willing to participate in this study.

### *Recommendations*

Bryant and Ramey (1987) found that without some sort of systematic intervention during the preschool years, a significant proportion of children considered to be environmentally at risk are not likely to develop their full intellectual potential. These data indicate that children in isolated northern communities are at risk of later school failure and might benefit from early intervention. A variety of early intervention models can potentially influence development. This being so, preventive intervention for children at risk of educational failure should be tailored to the lifestyles and experiences of both the children and their families (Slaughter, 1983). Bronfenbrenner (1977) argues that an ecological approach generally is, and ought to be, more effective than intervention aimed at the child alone. Children's intellectual development improves most when children attend day care and families receive parent training or other services, regardless of variations in well-developed educational methods and practices (Bryant & Ramey, 1987). Services additional to the preschool program might be extended to all families through information services, parent get-togethers, book and toy lending libraries, mother-child groups, and drop in centres. Parents might be more willing or able to meet their children's needs if the program also meets their needs as adults and as parents.

The community I studied has included an extra year of schooling between kindergarten and grade 1. However, simply staying in school longer will not help these children. Rather, the first school year could be modelled after preschool instead of a typical kindergarten class. These children would benefit from a variety of experiences and the language stimulation that is more easily encouraged in a preschool-like environment which emphasizes experimentation, exploration, and social interaction.

## CONCLUSIONS

The children in this community are at risk of school failure. There is a sub-group—those who do not attend preschool—who are at even greater risk than the group as a whole and who do not receive any early intervention. I hope my data will help educators reexamine and revise educational practices to help these children and to build on their competences rather than on their weaknesses. Since research supports the value of preschool for children from lower socioeconomic families (Bryant & Ramey, 1987; Wright, 1985) it is important to identify factors that determine whether a parent enrolls a child.

There have been many studies of disadvantaged preschool children who receive early intervention. Such studies often do not include information on children's levels of functioning when they start the program, or comparisons with those who do not attend (Department of Health and Human Services, 1985). Yet, the level of a child's functioning at the start of any intervention may affect whether she/he benefits from such a program and may be an important consideration for designing effective intervention. This study highlights the need for further research in this area.

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