

KÜÇÜK ÇOCUKLARDA VERBAL KABİLİYET VE ZEKÂ

VERBAL ABILITY AND INTELLIGENCE IN YOUNG CHILDREN

by
B. ÖZBAYDAR

Institute of Experimental Psychology,
University of Istanbul.

Bu arařtırmada küçük çocuklarda erken konuşmanın ZB'ne etkisi olup olmadığı, ve şayet varsa, bunun daha sonraki yıllarda da devam edip etmediđi arařtırılmıřtır.

Aynı sosyo-ekonomik seviyeden olan dokuz tane 2 yařındaki çocuđa 1937 Stanford-Binet testi verilmiřtir. Deneklerin dördü erken konuşan, beři ise geç konuşan çocuklardır. Erken konuşan grupta üç kız, bir erkek, geç konuşan grupta ise dört erkek, bir kız vardır. Bu çocuklar beř yaşlarını bitirdikleri zaman ikinci defa teste tâbi tutulmuřlardır.

2 - yař seviyesinde iki grubun ortalama ZB'leri arasında, erken konuşanların lehine olan fark ile, geç konuşanlarda 2 ve 5 - yař seviyeleri arasındaki ortalama ZB'leri farkı anlamlı çıkmıřtır. Bu sonuç verbal kabiliyetin küçük yařlarda ZB'nü etkilediđi fikrini göstermektedir. Ancak, erken konuşanların çođunluđunun kız olması, farkın cinsiyete de bađlı olabileceđini düşündürülebilir. Fakat, başarı gösterilen verbal ve verbal olmayan itemlerin nisbeti kız ve erkeklerde, erken ve geç konuşanlarda anlamlı farklılařmalar göstermemiřtir. Bu sebepten sonuç, erken konuşmanın tek başına ZB'nü etkileyici bir faktör olamayacađı, dil geliřmesi ile zekânın diđer fonksiyonları arasında bir paralelizm olabileceđi řeklinde yorumlanmıřtır.

In this study the problem was to investigate whether in young children precocity of speech had any effect on IQ, and if so, whether this effect continued in later years as well.

Nine 2 - year old children coming from the same socio-economic status were given the 1937 Stanford-Binet. Four of the subjects were early talkers and five were late talkers. There was one boy in early talkers' group, and one girl in late talkers' group. The same children were retested when they were five years old.

Mean difference in IQ points at intial testing and mean difference between 2 - and 5 - year levels in late speakers were significant. Because of these differences language might

be thought of as a factor influencing the IQ, or sex difference might be thought of as being the cause of higher IQ in girls, and hence in early speakers. But since there was no difference between the proportions of passing verbal and non-verbal items in either girls and boys, or early talkers and late talkers, the possibility of there being a parallelism between speech development and other functions of intelligence is suggested.

PROBLEM

Much has been said concerning the relationship between verbal ability and intelligence. In young children after the age of two a strong correlation has been found between speech development and IQ. This relationship is reported to have been so marked that the child's level of speech development is usually claimed to be the best single indicator of his intellectual level (Shirley, 1933; Garrison, 1952; Breckenridge and Vincent, 1955). This relationship, in fact, is claimed to exist before the age of two. In the babbling period, consonant types and the consonant-vowel frequency ratio are suggested to be better predictors of later intelligence than any of the infant intelligence scales (Catalano and Mc Carthy, 1954). Bayley's California First Year Mental Scale has been analysed, and it is reported that one item cluster composed principally of vocalization correlated significantly with girls' later intelligence. Also, speech sounds made by low grade feeble-minded children of average age four, has been reported to approximate those of normal children one year of age in such characteristics as vowel ratio and vowel-consonant ratio (Irwin, 1942).

Usually a child who talks early is considered to have a rapid intellectual development and reach a higher level of intelligence. There is scientific evidence in support of this view. Idiots can rarely learn to talk, and research in this field has shown that, there is a relation between the onset of speech and intelligence (Mead, 1913; Terman et al. 1925). Although it is also claimed that delayed speech does not necessarily mean mental retardation, and that several factors apart from intelligence -such as socio- economic level, educational level of the parents, number of children in the family, left-handedness, severe frights, and family relationships-have been found to cause delayed speech, in practice this view does not hold true. Because, when it comes to measuring intelligence we find the most satisfactory tests to be heavily loaded with verbal factors, a fact which shows the importance of speech in mental development.

In this paper the problem was to investigate whether young children's

level of speech development has any effect on their IQ, and if so, whether this effect continued in later years as well.

METHOD AND PROCEDURE

The subjects consisted of twelve two-year-old children. All of them were within the age range of 2;0 — 2;1. Half of the group were late in their speech development. They had a vocabulary of 50-60 words. Their sentence structure was very simple. They usually used two-word sentences. Adjectives, pronouns, adverbs were very rarely used. The other half were early talkers. They had a very rich vocabulary of about 200, 300 words. They formed long sentences easily, and used adjectives, adverbs, and pronouns abundantly.

All of the children had a high socio-economic background. Their fathers and mothers were university graduates. Some of the mothers practiced a profession. Other probable factors which might influence speech development were also checked. None of these children had severe or prolonged illness. All had rather a rich collection of toys and books. All were daily in contact with two or three adults, and were told practically the same amount of stories. All children were only children of the family except two, and they had elder sisters. All of the children had either one or two grandparents. The grandparents either lived with the children or lived very near to them and saw them every day. None of the children were left-handed and none had experienced severe frights. In all the children the family relationship was a healthy one.

The Turkish adaptation of the 1937 Stanford-Binet (adapted for Turkish population in 1958 by R. Şemin, Univ. of Istanbul) was given to these children. The same children were followed up and were re-tested when they were five years old (the age range being 5;0 - 5;1). In the second testing there was a loss of three subjects. So the results are based on nine children, four early talkers and five late talkers. Three of the early talkers were girls, and four of the late talkers were boys.

RESULTS

The IQs obtained by early and late talkers when they were two and when they were five, are shown in Table 1.

TABLE 1

Ss Sex	Early talkers IQs obtained at:		Ss Sex	Late talkers IQs obtained at:	
	2-year level	5-year level		2-year level	5-year level
1 G	136	137	5 B	108	128
2 G	115	118	6 B	87	105
3 G	112	120	7 B	96	127
4 B	115	120	8 B	92	100
			9 G	92	123
Mean IQs	119.7	123.75		95	116.5

At the initial testing there is a big difference in mean IQ points (24.7) between the two groups. At the five-year level this difference is much less (7.25). Also, in each group there is an increase in IQ points at the five-year level. The mean increase is greater in the late speakers' group (21.5 as compared to 4).

To determine whether these mean differences were significant, analysis of variance was used. The results are given below :

Mean difference at initial testing $F= 14.98$ $df 1/7$ F at .01 level = 12.25
 $t= \sqrt{14.98} = 3.87$ $p < 0.01$

Mean difference at 5-year level $F= 0.86$ $df 1/7$ F at .05 level = 5.59
 $t= \sqrt{0.86} = 0.92$ $p > 0.10$

Mean difference between 2-and 5-year levels in early speakers $F= 7.66$ $df 1/3$ F at .05 level = 10.13
 $t= \sqrt{7.66} = 2.76$ $p < 0.05$

Mean difference between 2-and 5-year levels in late speakers $F= 24.81$ $df 1/4$ F at .01 level = 21.20
 $t= \sqrt{24.81} = 4.98$ $p < 0.01$

DISCUSSION

The results indicate that there is a significant difference in mean IQ points (24.7) in favor of the early speakers at two-year level. However, in three years' time the late speakers make up for this retardation, and the difference between the two groups (7.25), although still in favor of the early speakers, does not gain statistical significance ($p > 0.10$).

It seems reasonable to explain the initial difference in mean IQ points in terms of language ability. The relationship between intellectual development and speech has been shown by several authors. In this study too, we see the same relationship at the two-year level. And it might very well be said that in three years' time the late speakers' progress in speech development enables them to raise their IQs to almost the same level as that of early speakers.

However, if language precocity was the only determinant of higher IQ, then one would expect the proportion of passing verbal items to be higher in the early speakers' group. Also, since in our sample the majority of the early speakers are girls, and the majority of the late speakers are boys, sex difference might very well be thought of as the factor causing early speech, and hence higher IQ. In a study (Moore, 1967) it was found that language was more important as a factor in mental development in girls than in boys. In this case too, one would expect the proportion of passing verbal items to be higher in girls than in boys.

To check this, the proportions of passing verbal and nonverbal items were calculated for early speakers, late speakers, girls and boys. However, the differences between girls and boys, as well as early speakers and late speakers were not significant ($p > 0.10$). So, we may say that, neither language precocity nor sex difference are factors which determine the higher IQs in our subjects.

From Table 1 we can also see that, there is a significant increase in mean IQ points (21.5) in the late speakers' group in three years' time. Although lability of scores during childhood years has been reported (Bayley, 1949), none is so great after a three-year interval. In her follow-up study Bradway (1944) found that, the IQs of about one-fourth of 2- and 3-year group changed less than five points, that one half of the same group changed less than ten points, and the IQs of the two-thirds changed less than fifteen points after ten years. Since IQ changes have been reported to be greater

after longtime intervals, the change of 21.5 points after a three year interval in late speakers' group should be considered a very great change.

The result that there is a significant difference in mean IQ points in favor of the early speakers at two-year level, suggests that there must be a relationship between language and intelligence. But precocity of language alone should not necessarily be thought of as being the cause of higher IQ. Because, on the other hand, the absence of a difference between verbal and non-verbal items suggests that, at least in children, verbal and non-verbal factors function together rather than apart. So, although early speakers have higher IQs, this is not merely due to success especially in the verbal items. It may be quite possible that there is a parallelism between speech development and other functions of intelligence. Because of speech retardation thinking ability, or even much simpler functions of intelligence may be retarded as well.

No doubt there must be a relationship between language and intelligence. A high correlation between intelligence test scores and verbal scores are being reported. Also, the fact that in infants a very marked relationship exists between the level of speech development and intelligence cannot be ignored. If there is mental retardation there is also delayed speech, but delayed speech alone should not necessarily mean mental retardation.

Whatever the theoretical implications are, the positive relationship between language and intelligence could be misleading in young children.

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