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## EXPERIMENTAL PSYCHOLOGY AND THE DEAF CHILD

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Experimental psychologists have been investigating the deaf and hearing impaired child for over 80 years and have advanced our knowledge considerably. At the same time, the views held by psychologists about the abilities of deaf children have changed over the 80-year period, even though the children have, for the most part, been very similar when they entered school.

In the early days, before World War I, there was a feeling of optimism about the potentialities of the deaf child. This was replaced by a post-war belief that the deaf were retarded because they were brain damaged. This in turn was replaced in the 1950's by the idea of 'organismic shift' and the deaf as 'concrete'. In the 1960's the feeling grew that the deaf were essentially normal. In the late 1970's the anxiety was expressed that oral methods might be causing brain damage by failing to stimulate the deaf child's brain. These changing views are outlined together with the positive contributions of the experimental psychologists who put forward these various views. It is not claimed that these views were universal at any one time nor that this short paper is a full history of the relationships between experimental psychology and deafness.

The data obtained by psychologists has a certain objectivity. Data must, however, be interpreted by psychologists who are subject to and at the same time part of the intellectual and general climate of the times in which they live. This paper suggests that it is necessary to understand these changes in view in order to more fully understand the experimental work.

### THE YEARS OF OPTIMISM

One of the earliest investigators, Alice Mott (Myklebust, 1964), examined the visual memory of some deaf children and concluded that

The average deaf child, though quite untaught in human conventions, is yet very

near the standard of the normal hearing child. His defect seems not to have detracted from his healthy development – nay, further, his complete isolation from human companionship does not seem to have intrinsically differentiated him from other children (N.P.)

In 1911, Max Wertheimer, the founder of Gestalt psychology, was invited by the director of a clinic in Vienna where attempts were being made to educate a group of deaf-mute children to find if they were really as unintelligent as they appeared. Wertheimer developed his 'bridge problem'. At the beginning stages, the children imitated his constructions of simple bridges. Later, the deaf could spontaneously make bridges of considerable complexity, indicating an 'intelligence' well beyond that expected by the clinic.

### RUDOLPH PINTNER AND BRAIN DAMAGE

The early optimism represented by Mott and Wertheimer was contradicted by Rudolph Pintner, who, for almost 30 years between the two Wars, exerted a considerable influence on the psychology of deafness. Myklebust (1964) states that Pintner was widely regarded as the "father of the psychology of deafness" (N.P.).

In 1921, Pintner became a professor of education at Teachers College, Columbia, where he stayed for 21 years. He died in 1942 and his great contribution was honored by Gallaudet College in the volume *In Memoriam – Rudolph Pintner*. This lists his 182 papers, books, and translations from the German. His studies ranged over non-verbal tests, cognition, emotional, social, and artistic development of the deaf.

In the first years of his research, he became convinced that the deaf were retarded because they were brain damaged. Pintner and Patterson (1918) wrote, "Instead of deafness being the

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cause of the mental inferiority we find that the disease which produced deafness caused at the same time the mental backwardness" (N.P.). Again, for the congenitally deaf they argued that "the congenital deafness may be due in some cases to pathological (non-hereditary) causes, which may at the same time affect the capacity for mental development" (N.P.).

For Pintner and Patterson, then, "it does not seem that the mere absence of hearing itself is sufficient to explain deficiencies in activities which develop for the most part independently of the auditory process" (N.P.).

Pintner's views led him to practical conclusions. He emphasized industrial training and a restricted school curriculum. Even language training should equip the child for "simple social and business intercourse" (N.P.).

I do not wish to suggest that every psychologist concerned with deafness agreed with Pintner's pessimistic viewpoint, but I can find no published contemporary criticism of his views.

The positive contribution of Pintner was that he laid the basis for a scientific study of the deaf child. His work is still quoted and consulted today. Also, his emphasis on industrial and practical training may still be worth considering as an antidote to the almost exclusively language-based education of many deaf children. Few would agree with his restriction of the curriculum.

Pintner's legacy is an ambiguous one.

### HELMER MYKLEBUST'S 'WHOLE ORGANISM' APPROACH

Myklebust never directly refuted Pintner's views. Instead, he advocated a 'whole organism' approach and extended the views of the neurologist Kurt Goldstein into the psychology of deafness. Myklebust's most positive contributions were his stress on the whole child, rather than seeing the child as simply a collection of experimental results. Also, he saw deafness itself as a profound and many-sided problem. For Myklebust, the deaf child's difficulties were due to deafness and not brain damage. His book *The Psychology of Deafness* (1964) is still a useful contribution to the literature. Also, whilst he suspected that the deaf were more 'concrete' in their behavior and language, this paradoxically led him to emphasize the role of imagination in language. Myklebust's (1964, 1965) stress on the abstract and imagination

in writing is a useful corrective to an over-emphasis on syntax in teaching.

Myklebust's view of 'organismic shift' caused by deafness was based on his work on visual perception with Brutton (1953). Myklebust interpreted the results to show that the deaf were qualitatively different in visual perception. Myklebust's most general statement of his view (Myklebust, 1953) was that

The entire organism functions in a qualitatively different manner. This shift in behavior and adjustment is compensatory in nature. When...deafness, occurs, the organism must make changes in its functioning in order to meet the environmental demands and survive. Deafness...causes the individual to see differently, to smell differently, to use tactual and kinaesthetic sensation differently" (N.P.)

He also believed that perception, personality, and behavior were different in the deaf.

It may be that the future will reveal the kinds of qualitative differences between the deaf and hearing which Myklebust thought existed, but our present knowledge does not with certainty go beyond differences of a quantitative sort.

### THE CONTRIBUTION OF ROSENSTEIN AND McCAY VERNON

Rosenstein (1961) analyzed the way in which terms such as perception, cognition and abstract had been used in earlier work. He concluded that "no clear picture emerges from the performance of deaf children in the perceptual and cognitive domain" (N.P.). He argued that Myklebust's findings may have been due to the children's lack of experience, rather than deafness as such. Rosenstein rejected the idea of organismic shift because the "empirical data suggests that the deaf are capable of performing in the cognitive domain, at least with respect of certain non-verbal tasks" (N.P.).

McCay Vernon and Makowsky (1969) analyzed the sociological position of deaf people in America and its psychological results. They showed that the deaf were members of a minority and that the negative attitudes amongst the hearing majority affected a deaf person's confidence and self image.

### HANS FURTH AND PIAGETIAN THEORY

Furth's (1966) work was both an expression of a new attitude towards the deaf minority and

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a significant influence on that attitude. It is possible that Furth's book *Thinking Without Language* is the best known work on the psychology of the deaf child. Furth's viewpoint stands in sharp contrast to that of Pintner and Myklebust. Moores (1978) writes that

Furth, among others has contributed to a move away from the tendency to view deafness and deaf individuals on the basis of deviancy, deficiency, or pathology, substituting for these the much healthier and more positive approach of searching for strengths and fostering optimal development" (N.P.)

Furth's great strength is his grasp of Piagetian theory. To criticize Furth is, to some extent, to criticize Jean Piaget.

Early in Furth's career he was impressed by how similar deaf people's everyday lives were to those of hearing people. Later his experimental work led him to the view that "the major significance for the ... findings for theories of thinking is the demonstration that logical, intelligent thinking does not need the support of a symbolic *system*, as it exists in the living language of society" (N.P.). The clear implication is that deaf children do not need to learn English in order to develop intellectually. This is a most radical position and one which has immediate practical consequences.

Furth holds the Piagetian view that "Action is the source and medium of intelligence and the reality of concepts must be sought in the action of thinking which can become embodied in a symbolic medium" (N.P.). In this view, language follows and does not lead the growth of intelligence.

It is useful to contrast his title "Thinking Without Language" with his experimental subjects. In his first experiment, they were "pupils aged 7 to 12, from public and private schools for the deaf" (N.P.). In the fifth they were aged from 12 to 16 years. Of course, Furth does not say that they have no language and indeed there is *no* information about their speech, reading and writing, nor for that matter, their signing skills. He does claim that they had no functional language competence and that "A minimum criterion of linguistic competence is an implicit comprehension of linguistic structure" (N.P.)

Now, it is the case that many deaf children do not fully master the syntax of English, but most of them do grasp some of the structures of

English and have quite large vocabularies. It is improbable that this competence played no part in their performance in any of Furth's twelve experiments. Full mastery of syntax may elude the deaf, but a relative command is within the reach of many. Again, for Furth, "The true 'language' of the deaf is the sign language, as one can readily observe" (N.P.). Yet there is *no* information about the signing skills of any subject.

The lack of information on language skills, motivation, and, by the standards of today, the lack of sophistication of the experiments suggest that we cannot rule out the role of English. As Furth himself writes, "Perhaps some better experimental methods and more powerful statistical techniques could show differences and support the general theory that linguistic deficiency is associated with inferior performance on intellectual tasks" (N.P.).

The positive side of Furth's work is, of course, that the deaf are valuable citizens in their own right. One problem is that this work is sometimes overinterpreted to argue that any statement or research project which suggests that the deaf may use different *psychological* processes is an attack on their social position.

Furth has not proven conclusively that English plays no part in thinking, nor has he investigated the role of sign language in, say, formal operations.

### MOORES AND VYGOTSKY

Vygotsky saw speech, reading, and writing as leading psychological development in the child. He also stressed the central role of the teacher in changing the child through language and scientific concepts. It is, then, not surprising that those concerned with teaching communication skills to deaf children should examine the work of Vygotsky. Moores (1978) provides an excellent introduction to Vygotsky and the more recent Soviet work on the deaf child.

There are many valuable ideas for a teacher in Vygotsky's writings (1962, 1978). Only two can be mentioned here, the role of the teacher and the development of scientific concepts in the child.

All good teachers know that teaching material should match the child's ability. Vygotsky suggests we go beyond this and realize that there are in fact *two* developmental levels. The first is what the child can do now as the result of completed development. But children

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can do other things if they have some help from an adult or schoolfriend. So there are things they can do by themselves and things they can do with a bit of help. The gap between the two Vygotsky calls the 'zone of potential development'. Within this zone are functions which are not fully developed, but that will mature tomorrow. It is teaching which creates these zones and the teacher who helps the child across these zones. Vygotsky gives the teacher a central place in his developmental theory. Now a child who never attends school does acquire knowledge of a spontaneous kind. However, school learning and the teaching of say, mathematics, biology, and history induces in the child a generalized kind of perception which makes the child conscious of his or her own mental processes. This scientific knowledge, in time, changes even the child's everyday ideas and concepts.

The perspective of Moores and Vygotsky provides an alternative to Piaget and stresses the role of symbolic systems and the importance of teaching.

### CHARROW – THE DEAF AS A LINGUISTIC MINORITY

Charrow and Fletcher (1974) argued that English, or any other spoken language, may be a second language for deaf children. They administered the Test of English as a Foreign Language (TOEFL) to two groups of deaf adolescents, one with deaf parents and one with hearing parents. They found that the performance of the students with deaf parents was more highly correlated with that of foreign hearing students than was that of the deaf with hearing parents. This led Charrow and Wilbur (1975) to argue that the deaf child is best viewed as a member of a linguistic minority. They write "they are a linguistic minority; their second language is that of the oral majority and their primary language is their sign language" (N.P.). The problem is that only some 5 to 10% of deaf children have deaf parents.

The views of Furth that English is not important and that of Charrow and Wilbur that American Sign Language is the first language of the deaf are sometimes combined into a deeply held viewpoint.

### CONRAD AND THE DEAF SCHOOLCHILD (1979)

In 1979, an important and excellent book  
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appeared, *The Deaf Schoolchild* by R. Conrad. Conrad's work was carried out between the years 1974 and 1976 in England and Wales into the reading, speech reading, speech quality, and inner speech of deaf and partially hearing 15 to 16½ year olds. His findings were consistent with the previous research in each area he investigated.

Conrad found that half of the deafer pupils had no reading comprehension on the Brimer test, as did a quarter of those with moderate losses. Only 5 children out of 205 with losses greater than 85 dB had a normal reading age. Their speech was of poor quality and they could speech read no better than a hearing control group.

No one has seriously contested Conrad's findings. He has described the obstacles to be overcome. Few would disagree that reading and speech quality are vital skills and central to deaf education. And yet, in my view, this book has not had the impact it should have had on the teaching profession.

Conrad puts forward a viewpoint to explain his experimental findings. Conrad (1979, 1980) argues that the exclusive use of speech in the Pure Oral approach results in a lack of linguistic stimulation to those parts of the brain concerned with language. This lack of linguistic stimulation may then result in atrophy of those parts of the brain.

Arnold (1982) has provided an alternative view to Conrad's atrophy view and this has in turn been answered by Conrad (1982).

### CONCLUSIONS

Psychologists from Pintner to Conrad have striven to describe the abilities of the deaf child and to overcome the social and educational conditions imposed by the biological fact of damaged audition. Pintner, Myklebust, Furth, Charrow and Wilbur, Conrad, and, indeed, all psychologists concerned with the deaf child are influenced by the ideas of the times. To relate the ideas of experimental psychologists to the prevailing intellectual and social climate is complex and beyond the scope of a short paper. A little thought will provide suggestions, at least in the early years. Pintner, for example, was involved with the development of psychological tests which were administered to those who wished to enter the United States and become citizens. Gould (1981) has described the

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assumptions which lay behind the tests at that time. It would be interesting to know how the deaf fared when they were tested on Ellis Island.

All that can be said with certainty is that the

views of experimental psychologists have changed since the earliest work and that an awareness of these changes is part of a more full understanding of the development of the psychology of the deaf child and adult.

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