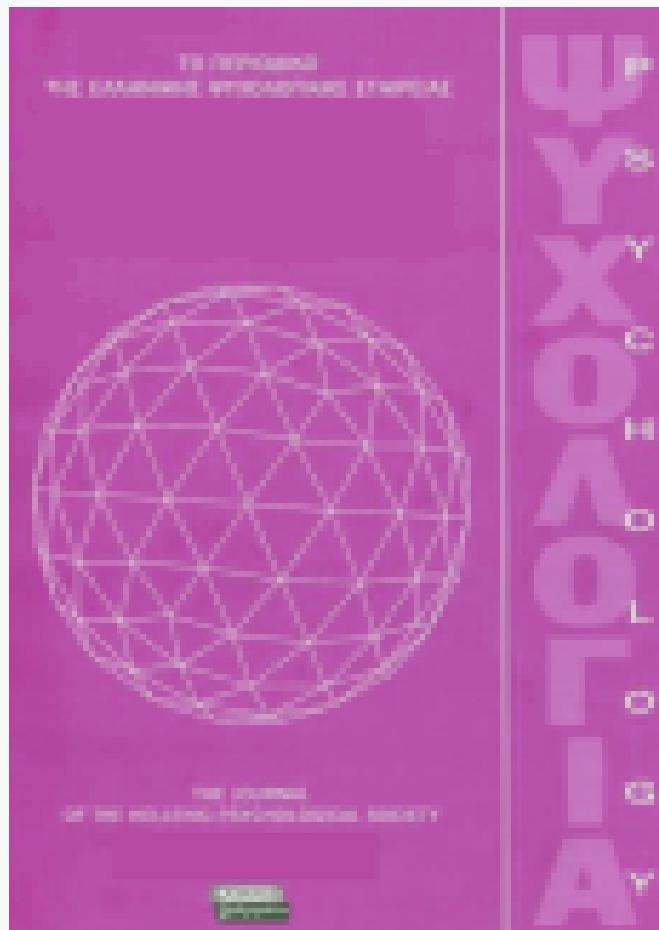


## Ψυχολογία: το περιοδικό της Ελληνικής Ψυχολογικής Εταιρείας

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**The contributions of behavioral psychology to the theory and practice of school psychology**

*Ioannis N. Paraskevopoulos, Nikolaos D. Giannitsas*

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# The contributions of behavioral psychology to the theory and practice of school psychology\*

IOANNIS N. PARASKEVOPOULOS

NIKOLAOS D. GIANNITSAS

*University of Athens*

## ABSTRACT

The paper discusses the usefulness that the knowledge produced in several other fields of psychology may have for School Psychology. That is, the paper focuses on the three main domains of school activity to which School Psychology is associated, namely, assessment, consultation and intervention. The strong and weak points of several theories and traditions in relation to these domains are discussed.

Before going on to the central core of the presentation, that is "The contributions of behavioral psychology to the theory and practice of school psychology, it will be useful first to describe briefly what school psychology is, both as a scientific field and as a profession.

School psychology is one of the oldest applied fields of psychology. It has its origins in the attempt to apply psychological principles to bring about positive changes in the learning and the adjustment of children and youth in schools (Bergan, 1989). Schools have always been thought to provide an ideal setting for beneficial application of psychological knowledge and for effective delivery of psychological services. Schools are relatively well organized and predictable envi-

ronments, where children - all children with no exception - have to spend hundreds of hours during their formative years, trying to master complex academic, personal, and social skills, interacting with significant adults and peers. In addition to large numbers of persons involved and to the sensitive developmental timing, many of the goals and processes of education are highly consistent with those of psychology. Both professions want to see children, which constitute a large segment - the most sensitive one - of the population, to overcome learning and adjustment problems and to grow and develop cognitively, emotionally, socially and physically to their fullest potential (Elliot & Witt, 1986). In sum, no other social system provides a more

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comprehensive opportunity for psychology to have an impact on children and on adults directly related to children, like teachers and parents. School psychology grew out of this need, the need to take advantage of this heady opportunity schools offer and to fulfill an apparent societal imperative.

School psychology has through the years become both a body of organized psychological knowledge and an established profession for delivery of psychological services to children and youth in schools. The phrase "*in schools*" is always stressed in the definition of school psychology, because the place of application and work, *the school setting*, has become the prime distinguishing characteristic of the profession (Bardon, 1983).

School psychology has its academic and practice roots in clinical psychology and in special education. For some time it was thought as *child clinical psychology in schools*. School psychology is a health care specialty recognized within psychology. It has been recognized by the APA as one of the three health care specialties - the other two being clinical psychology and counseling psychology (American Psychological Association, 1981). In the Greek Law 991, which was passed in 1979 concerning criteria for granting professional licensing in psychology and is in effect today in Greece, school psychology is one of the two fully recognized professional specialties - the other one being clinical psychology. This Law requires special graduate training in order for someone to be licensed as a school psychologist.\*

School psychology has expanded rapidly during the last three decades. The impetus for this expansion was the Community Mental Health Movement in the '60s, which led to the establishment of decentralized health care centers and services involving school personnel and parents, and the new developments and transformations in Special Education in the '70s, which declared that all handicapped children had the right to a free and appropriate public education, which led to the concept of the normalization and integration of the handicapped within the classroom system.

Indicative of this rapid expansion are some figures about University training programs for school psychologists, numbers of students enrolled in these programs and employment opportunities. In USA, in 1956 there were only 9 training programs in school psychology. In 1962, the number raised to 45; in 1972, to 112; and in 1984, to 211. In U.K. there are 12 graduate programs in school psychology against 16 in clinical psychology. Analogous was the increase in the number of students studying school psychology. In 1963, the number of students was approximately 1.000; in 1972, the number raised to 3.500; and in 1984, to 7.000 students (Brown & Minke, 1986). Most of these training programs are at the Master's level. Only 20% are at the doctoral level. Both levels operate either within Departments of Psychology or within Colleges of Education in large universities. Holders of a degree either in psychology or in allied fields, such as special education, are accepted. In many programs some previous

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\* These legal provisions have been published in the *Government's Journal*: ΦΕΚ 287/ Nov.20, 1979/B, ΦΕΚ 486/July 7, 1981/B and ΦΕΚ 573/Sept. 16, 1981/B.

school experience is required or highly valued for admission. In Greece, the first training program in school psychology was established three years ago in the Department of Psychology of the University of Athens. This fall we expect to have the first 13 school psychologists "made in Greece", and some 25 more are expected to finish soon. Specialty programs in school psychology have also been proposed by other Greek Universities and are in the process of implementation. Judging from the expressed interest, we expect that very soon school psychology training programs will be the modal graduate training activity in Greek Universities.

Regarding the number of practicing school psychologists, Fagan (1989), the historian of School Psychology, has estimated that worldwide there are about 140.000 practicing school psychologists; 30.000 of them working in the USA. In Greece, a small number - about 50 psychologists - have been appointed by the Ministry of Education and work in schools, exclusively within the Special Education system.

School psychology is the women's land. In USA, for example, while in clinical psychology the ratio between men and women is 2 to 1 (70% are men and 30% are women) in school psychology is 50:50. Even at the top - level university professors and other trainees - while, let us say, in clinical psychology the ratio is 3 to 1, in school psychology the trend is to have more women than men. Among the younger generation of school psychologists (under the age of 30) the percentage of women raises to 70% (National School Psychology Interservice Training Network, 1984).

Let us now see what school psychologists do; what the definition and the parameters of their work and daily duties are. As it was said, school psychology is one of the officially recognized health care specialties. The American Psychological Association (1981) has established "*Specialty Guidelines for the Delivery of Services by School Psychologists*" (see Table 1).

The key words on this list are:

- \* Psychological and psycho-educational evaluation and assessment
- \* Therapeutic and ameliorative intervention directly with the pupils
  - psycho-educational therapy
  - counseling
  - training programs to improve academic and coping skills
- \* Intervention to school personnel, parents and community agencies
  - in-service training of teachers
  - parent educational programs
- \* Program development and evaluation systems approach to affect total education

Similar guidelines have been established in USA by the National Association of School Psychologists, a very powerful professional organization with 20.000 members (National School Psychology Interservice Training Network, 1984). All these "Specialty Guidelines", as you can see, are quite inclusive, and the emphasis is on intervention.

But this was not the same all the time. In the '60s, when the profession started to grow and expand, school psychologists's role, regrettably, was restricted to psychometric testing for determining eligibility of pupils for placement in special education programs. School psychologists had become psychometric robots, administering classification tests

**Table 1**  
APA's specialty guidelines for the delivery of services by school psychologists

**School psychological services** refers to one or more of the following services to clients involved in educational settings, from preschool through higher education, for the protection and promotion of mental health and the facilitation of learning:

**A. Psychological and psychoeducational evaluation and assessment of the school functioning of children and young persons.** Procedures include screening, psychological and educational tests (particularly individual psychological tests of intellectual functioning, cognitive development, affective behavior, and neuropsychological status), interviews, observation, and behavioral evaluations, with explicit regard for the context and setting in which the professional judgments based on assessment, diagnosis, and evaluation will be used.

**B. Interventions to facilitate the functioning of individuals or groups, concern for how schooling influences and is influenced by their cognitive, conative, affective, and social development.** Such interventions may include, but are not limited to, recommending, planning, and evaluating special education services; psychoeducational therapy; counseling; affective educational programs; and training programs to improve coping skills.

**C. Interventions to facilitate the educational services and child care functions of school personnel, parents, and community agencies.** Such interventions may include, but are not limited to, in-service school-personnel education programs, parent education programs, and parent counseling. school personnel, parents, and community agencies.

**D. Consultation** and collaboration with school personnel and/or parents concerning specific school-related problems of students and the professional problems of staff. Such services may include, but are not limited to, assistance with the planning of educational programs from a psychological perspective; consultation with teachers and other school personnel to enhance their understanding of the needs of particular pupils; modification of classroom instructional programs to facilitate children's learning; promotion of a positive climate for learning and teaching; assistance to parents to enable them to contribute to their children's development and school adjustment; and other staff development activities.

**E. Program development** services to individual schools, to school administrative system, and to community agencies in such areas as needs assessment and evaluation of regular and special education programs; liaison with community, state, and federal agencies concerning the mental health and educational needs of children; coordination, administration, and planning of specialized educational programs; the generation, collection, organization and dissemination of information from psychological research and theory to educational staff and parents.

**F. Supervision of school psychological services.**

to referral children, and writing reports for placement. They were the "gatekeepers" to special education entry. Though from its inception the profession was an applied specialty, the most "applied" of all applied psychologies, and an interventionally oriented profession to bring beneficial changes in the learning and the adjustment of the children, unfortunately, school psychologists were trapped in the scheme "*Refer-Test for classification - Report for placement*". Though school psychologists are still engaged with some traditional psychometric testing, the roles, the functions and the relationships in everyday practice of school psychology have changed radically in the last 30-40 years, as it has been well documented by research studies (Bardon, 1983), to include intervention as the prime activity of the field.

It is the right moment to say, just coming back to the main topic, which is, as it was said, "The contributions of behavioral psychology to school psychology", that, without the behavior psychology, school psychology practice would not have undergone this needed transformation. Behavioral psychology, more than any other psychological approach, provided school psychology with a solid scientific knowledge base and a powerful technology for implementing its fundamental role: to link assessment with intervention, to promote the learning and the adjustment of children in educational settings. Also, behavioral tradition, with its commitment to empirical validation of the interventional outcomes, has helped school psychologists to objectively demonstrate the effectiveness of their work and, thus, to secure wide social acceptance of their roles by other

professionals and by lay people (teachers, parents, administrators, mental health service personnel, pupils etc.).

Let us spell out these contributions. The material is organized under three main headings: *Assessment, Consultation, and Intervention*. These three activities have been, as it has been well documented by research studies, the main role functions of school psychologists in their everyday practice.

## **Assessment**

Assessment has always been the prominent role of the school psychologist. A few decades ago assessment was almost the solo activity of the school psychologist. Even today, when the emphasis has moved to intervention and when the stated preferred activity by the school psychologists themselves is consultation, assessment covers about 50% of the working time of the school psychologist (Benson & Hughes, 1985).

Assessment may be defined as the gathering of information as a basis for making decisions. Behavioral psychology has decisively affected all elements of the assessment as defined above: The kind of *decisions* to be made, the kind of *information* to be gathered and, of course, the *procedures* and the *tools* to be used for gathering this information.

Let us see how these influences have been exerted. The assessment activities conducted by school psychologists can be grouped into three types: a) The *traditional psychometric testing*; b) the *psycho-educational diagnostic-prescriptive testing*; and c) the *behavioral assessment*.

### **a) Traditional psychometric testing**

The traditional psychometric testing includes administering standardized ability, achievement, personality and adaptive behavior tests for classificatory purposes; for example, for the purpose of determining whether the referral child is legally eligible for placement in special training programs. The most commonly used tests of this category are: The Wechsler scales, the Stanford-Binet test, various types of standardized achievement tests of reading, writing, spelling and mathematics, the Vineland Social Maturity Scale, the AAMD Adaptive Behavior Scale, and so forth.

Traditional tests are *norm-referenced* instruments, relying upon the comparison of the child's performance to the performance of other children. Normative testing is based upon the concept of inter-individual differences and shows the relative position of the child in the same-age group of peers.

As already noted, in the early days traditional classificatory psychometric testing was almost the only everyday duty of the school psychologists. School psychologists had become psychometric robots examining referral pupils for determining legal eligibility for entry to special class programs. School psychologists had become, as mentioned above, gatekeepers of special education entry.

Indeed, traditional psychometric testing has been useful for administrative decisions, but it is of very limited value - even of no value - for planning interventional programs to alleviate children's learning and adjustment problems. The knowledge that the IQ of a child on a norm-referenced test is 75 tells us almost nothing about the child's

special differential therapeutic and training needs. This type of testing does not provide any link between assessment and the needed intervention. Because of this limited value, a growing dissatisfaction for the traditional testing developed in the school psychologists' circles.

The dissatisfaction for the limited diagnostic value of traditional psychometric testing led to pursue new approaches to assessment; an assessment which will tell us about the child's specific needed therapeutic and/or ameliorative training provisions.

### **b) Psychoeducational diagnostic-prescriptive testing**

The first systematic effort to relate assessment to intervention began in the early '60s with an approach known as *psycho-educational diagnostic-prescriptive testing*. This new approach developed along two lines: (i) The *ability* diagnostic - prescriptive testing, and (ii) the *skill* diagnostic-prescriptive testing. In the development of these new approaches behavior psychological theory and practice had played a decisive role.

Let us examine these two approaches.

#### *(i) Ability training*

The ability diagnostic-prescriptive testing and training approach tries to identify specific abilities in the child's sensory, perceptual, intellectual and linguistic development, which have some deficiency. These defective abilities are thought to be the deeper-underlying causes of the child's learning difficulty. Several efforts were made to construct such

diagnostic instruments as well as psycho-didactic training programs to be used for remediation of various kinds of such ability deficiencies. The work of Kephart (1969) for diagnosing and remediation of perceptual-motor deficiencies and the work of Marianne Frostig (1964) on the development of visual perception are some typical examples of the psycho-educational diagnostic-prescriptive approach.

The concept of ability training stems from Alfred Binet's ideas, the founder of the European school psychology, about intelligence testing. Binet went on to construct his intelligence scale - the first to be constructed in the world - with the conviction that mental deficiencies are remediable, culminated in his concept of "*mental orthopedics*". In his book *Les idees modernes sur les enfants* (this book was published in Paris in 1909), Binet devoted an entire chapter on the "*Educability of Intelligence*". In this chapter, Binet succinctly pointed to the problem, stating: "After the evil, the remedy; after exposing mental defects of all kinds, let us pass on to their treatment". Acting on this belief, Binet organized in Paris special classes for treating deficits in various cognitive abilities, such as memory, logic, verbal ability and attention. Regrettably, the American psychometricians abandoned Binet's progressive ideas about the educability of intelligence and adhered to the static concept of the constancy of IQ.

Behavior psychology was instrumental for the development of the most influential diagnostic-prescriptive testing and training: the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, McCarthy, & Kirk, 1968. Paraskevopoulos & Kirk, 1969). This test was

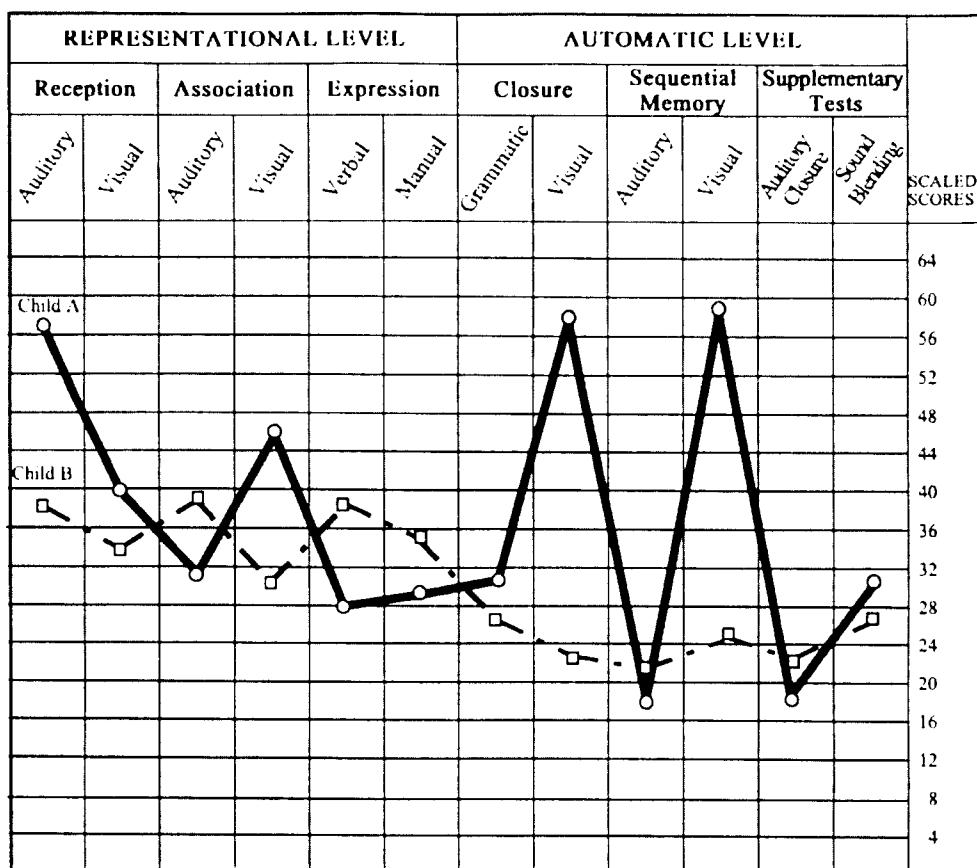
based in Osgood's two-level mediational learning theory, a generalized behavioral model designed to describe and to explain human communication (Osgood, 1957). Osgood's behavioral conceptual model is a three-dimensional model and contains: (a) *Two levels of organizations* of the child's communication experiences: the *representational* level which requires the mediating process, and the *automatic* level, in which the experiences are highly organised and integrated, through the utilization of the redundancies in our experiences; (b) *two channels of communication: the auditory-verbal and the visual-motor*; and (c) *three psycholinguistic processes*: the *perceptive* process, the *organizing* process and the *expressive* process. Combinations of these dimensions have been used to define various specific psycholinguistic abilities. The ITPA is a battery of 12 subtests which assess 12 such *single-specific* psycholinguistic abilities.

The concept of single - specific ability is prime in diagnostic-prescriptive testing. Let us take an example. Let us suppose that, in the question "What is an orange?" of the Binet scale, a typical traditional psychometric test, the child's response is not satisfactory. In such a response three different abilities are involved simultaneously: the receptive, the organizational and the expressive. The inadequate response might be due either to the perceptive process, that is, in the child's inability to decode verbal stimuli; or to the organizing process, that is, the child's inability to interrelate meaningfully experiences about the orange; or to the expressive process, that is, in child's inability to express his ideas verbally; or, it might be due to some combination of these three abilities taken in dyads; or, due to the

combination of all three of them. In the ITPA testing, systematic effort has been made that each of the twelve subtests assesses only one specific ability, excluding each time any other confounded ability. There is a separate single-specific subtest for the perceptive verbal ability, a separate subtest for the organizational verbal ability, and a separate subtest for the expressive verbal ability.

The diagnosis and the remediation of the deficiencies rely upon the concept of *intra-individual* differences; that is, the

differences within the same child among the various abilities. The traditional testing relies upon the concept of the inter-individual differences; that is the differences on the same ability among the various children. In this Figure 1 you can see the ITPA profiles of two children of the same age (CA=10 yrs, 2mos) of the same IQ (IQ=75) on the Binet test. While on the traditional test the two children appear to be alike in their intellectual ability, the ITPA profiles reveal that the intellectual and learning



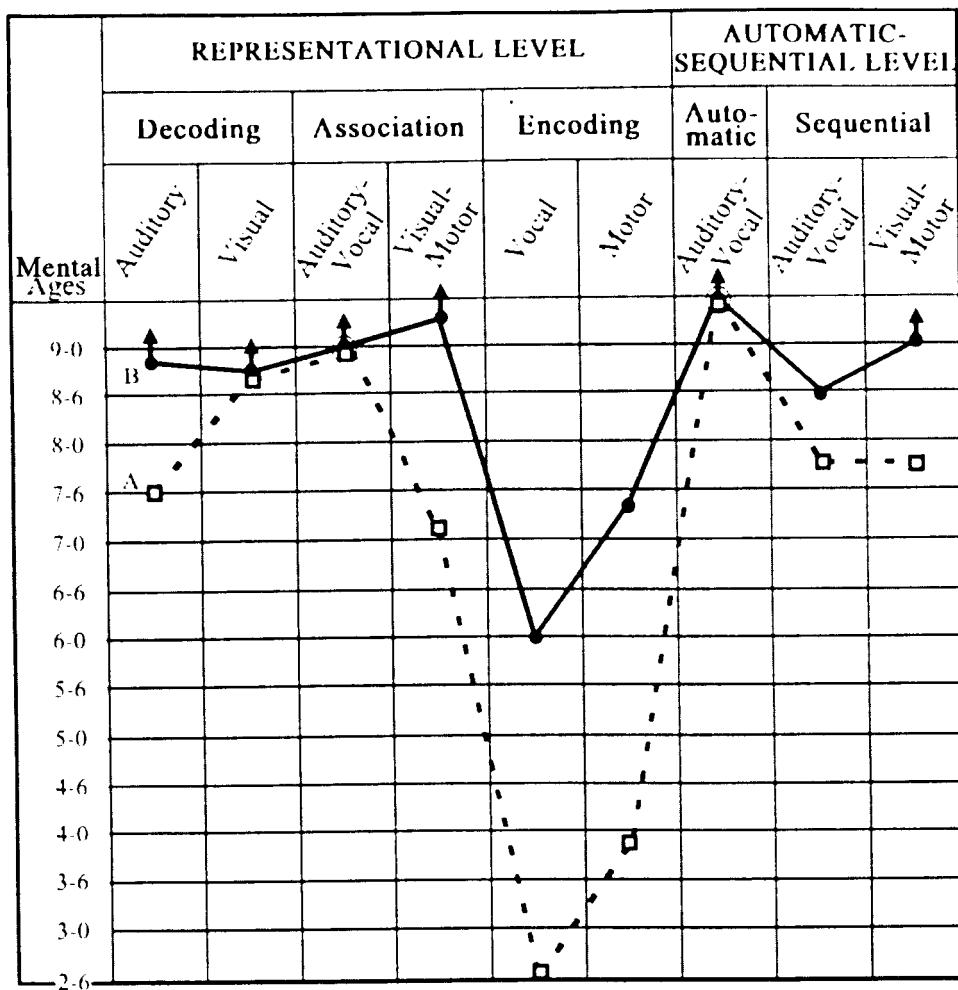
**Figure 1**  
ITPA profiles of two children of the same CA (CA=10yrs, 2mos)  
and of the same Binet IQ (IQ=75)

capacities and needs of the two children are totally different.

Several remedial programs have been developed and have been extensively used to ameliorate various types of specific learning disabilities based on ITPA profiles with satisfactory success (Kirk & Kirk,

1971). Figure 2 presents one typical profile of ITPA with expressive deficit *before* and *after* the remediation.

It should be stressed that in the ability diagnostic-prescriptive testing the critical factor is the magnitude of the intra-individual differences. Out of these two



A-Preremediation (CA, 9-11)  
B-Postremediation (CA, 10-10)

**Figure 2**

ITPA profiles of a child with expressive disability before and after the remediation

children in Fig. 1, the deficiencies of child A with the large intra-individual differences are very possible to be remediated and the child to reach normal functioning.

In addition to remedial profits, the ITPA research has helped us to better understand the nature of the human learning disabilities. The findings regarding the role of the automatic level in many scholastic deficiencies such as poor reading and writing, dyslexia, acalculia etc. have been most illuminating and instructive. In all relevant research studies it is consistency found that children who experience learning difficulties in school have low performance on the automatic level and not at the representational level (Kirk & Kirk, 1971). This finding is of great importance in defining school readiness.

It must be stressed again once more that, without the contribution of the behavioral psychology theory, the development of the ITPA, which has exerted a pronounced influence on school psychology practice, would not have been possible.

### *(ii) Skill training*

Let us now turn to the second approach of the psycho-educational diagnostic-prescriptive testing: the *skill training*.

While the ability approach relies upon some underlying *hypothetical* characteristics and traits of the child, as deeper causes of the observed deficiencies, the skill training approach focuses *directly* on the *skills* themselves. According to the skill training approach, the diagnosis should determine, out of a specific core of exhibited skills required for adequate performance of the child, those specific skills that the child has already mastered and those that the child

has not yet mastered. The latter ones will be the target behaviors for the interventional phase.

This type of assessment is a *criterion-referenced assessment* (Glaser, 1963; Hambleton, 1989) as opposed to traditional psychometric notion of *norm-referenced* assessment. The child's performance is compared with an absolute competency score and the missing part between the two - the desired and the observed - is determined, while in the norm-referenced testing the child's performance is compared with the performance of a selected group of peers.

The criterion-referenced test movement started in the early 60s outside of the behavioral tradition. But, this kind of assessment required the specification of instructional and behavioral objectives which must be observable and measurable. This requirement is the place where behavioral psychology came into the scene of criterion-referenced testing. With its commitment to operational definition of all behavior in terms of observable and measurable units, behavior psychology became the adoptive parent of the criterion-referenced test movement. Especially helpful to this end was the *task analysis* tradition.

Criterion-referenced testing has had a tremendous impact on the school psychology practice. It has been influencing not only special education programs but also the whole education.

### *c) Behavioral assessment*

The most and direct contribution of behavior psychology to assessment practice

of the school psychologist is the assessment method known as the *behavioral assessment*. The cornerstone of behavioral assessment is the inclusion of the conditions surrounding the occurrence of the behavior as a part of the assessment process; the inclusion in the assessment of both *individual* variables as well as *environmental* variables maintaining the referral behavior (Kratochwill, 1989).

The behavioral assessment paradigm grew out of the *applied behavioral analysis* tradition and methodology (Baer, Wolf, & Risley, 1968). The fundamental aim of this approach has been to link research to the solutions of problems occurring in applied settings. This methodology involves careful, systematic and repeated written accounts of the target behavior as it occurs in the natural environment, thus establishing a baseline of the behavior and determining discrepancies between present behavior and desired behavior. Interventional plans for bridging this gap between present and desired behavior are developed, applied and evaluated on the basis of an appropriate research design.

Behavior assessment was developed in the mid '70s as a function of the efforts of clinical psychologists to use behavioral strategies to remediate child and adult behavior problems. The approach was to be used in mental health settings. Later on the procedure was adjusted to be used in school settings. One major adjustment was, for example, to include the area of academic skills and scholastic achievement (Shapiro, 1987) and today is used extensively by practicing school psychologists. School psychology research is full of numerous studies illustrating the application of behavioral assessment procedures resulting

in the identification of conditions controlling behavior, the formulation of interventional plans and the implementation of treatment plans to produce beneficial behavior outcomes for various kind of target behaviors: academic, social, personal, coping skills, adjustment etc.

A very large number of diverse behavioral assessment techniques have been developed to be used in school settings involving, besides direct observation, a variety of techniques, such as self-monitoring (self-observation and self-reporting), interviewing individuals who had the opportunity to observe the target behavior (teachers, parents, peers), checklists and rating scales, analog measures (such as role-play), peer assessment techniques etc. These techniques have been well standardized for easy use in school settings. Recently, behavioral assessment has been greatly helped for easy application using computerized programs.

## Consultation

Consultation has been a major function of the school psychologist. Research studies have shown that consultation is second in terms of length of time activity of the school psychologist (it covers approximately 20% of the total work time) and is the most preferred activity by the school psychologists themselves (Kratochwill, Elliot, & Rotto, 1990). School-based consultation takes the following form. A *consultant* (the school psychologist) provides information and advice to a *consultee* (teacher or parent), who is in close contact with and concerned about the adjustment and/or learning problems of one or more children who are

the *clients*, ultimately benefited from the consultative service. School consultation is the classic form of *indirect service*, a service delivered by the school psychologist through third parties; through *mediators*.

Two procedures of consultation have been developed and used in school settings by school psychologists: (a) The *Caplanian mental health consultation*, and (b) the *behavioral consultation*.

The *mental health consultation* emphasizes the intra-psychic dynamics - it has a heavy psychoanalytic flavor - and aims at helping the consultee to achieve insight into the inner personality of the referral child and to resolve the intra-psychic conflicts. The method was developed by G. Caplan, a psychiatrist in the early '70s, and was designed to be used in clinical settings. The method has been recommended and later on has been adjusted by Meyers and his colleagues for use in school settings. The most commonly form used in school settings is a type closely resembling the Rogerian client-centered consultation (Meyers, Parsons, & Martin, 1979).

The alternative form to Caplanian mental health consultation has been the so called *behavioral consultation*. This method of school consultation stems directly from the behavioral psychology tradition (Bergan, 1977. Bergan & Kratochwill, 1987). The behavioral consultation conceptualizes the consultative procedure as a *problem solving process*. A problem in consultation is defined in terms of the discrepancy between the current observable behavior and the desired behavior. The solution to the problem is to provide changes in behavior that enable the child to achieve the desired state. This view of a child's problem is totally different from

the medical conceptualization that depicts a problem as a child's internal characteristic or trait and the solution as the resolution of internal conflicts. By contrast, the behavioral perspective conceives the child's problem as an undesirable observable behavior which must be changed towards a well-defined state.

The method is a specific strategy based on analysis of the verbal interaction between the consultant and consultee. It consists of a four-stage problem solving process: *Problem identification, problem analysis and interventional plan designing, treatment implementation and evaluation of treatment outcomes*. It is a method which commits the consultee to a plan for behavior change to a specific observable and measurable direction and state. It requires measurement of the behavior during the whole consultation process from the beginning in order to empirically validate the existence of the problem (that is, there is a real discrepancy between current behavior and the desired behavior) up to the end in order to empirically validate the *effectiveness* of the consultation.

Research studies have compared the effectiveness of the two school consultation approaches, the Caplanian mental health approach and the behavioral consultational approach. These studies have consistently produced results in favor of the behavioral consultation (Medway, 1979). Research studies have also shown that third parties like teachers and parents value behavioral consultation highly. Medway & Forman (1986) showed to school psychologists and elementary school teachers videotapes of a psychologist consulting with a teacher, with the psychologist using either behavioral or

mental health consultation techniques. Problem situations did not differ across the two sets of videotapes. Afterwards, the subjects judged the effectiveness of the consultation and the personal attributes of the consulting parties. The results showed that teachers perceive the behavioral approach as more effective method than the mental health approach. Also, behavioral approach was the preferred form of consultation by the teachers. Psychologists, on the contrary, rated the mental health approach higher. Teachers were impressed with the behavioral consultant's specificity, directiveness, the often reference to child's classroom behaviors, and the use of meaningful behavioral principles.

Indeed, behavioral consultation has been one of the major contributions of behavioral psychology to school psychology practice. It is worth mentioning that this influence is expected to increase in the future, given that consultation is the preferred activity by school psychologists themselves and that behavioral consultation is the preferred form of consultation by the third parties, the mediating consultees: teachers and parents.

## **Intervention**

Let us now turn to the last part of the presentation: the contributions of behavioral psychology to intervention. As mentioned before, school psychology has been, from its inception, an interventionally oriented profession. The most "*applied*" of all applied psychologies. Lightner Witmer, the acknowledged American father of school psychology, established his first school-based clinic in Philadelphia in 1896 with the

aim to alleviate children from learning and adjustment problems, applying restorative methods, involving teachers and parents (French, 1989). Along the same interventional line, the work of Alfred Binet was built as mentioned above (1909), the acknowledged father of European school psychology, with his concept of "mental orthopedics". Binet tried to remediate deficits in mental functioning through implementation of special ameliorative training programs. Regrettably, in the '60 when the field of school psychology began to grow, the committent to intervention lessened. Psychometric classificatory testing became the modal, the dominant, activity of the school psychologists.

Behavior psychology was the major force which helped school psychology to become what its founding fathers had envisioned; that is, development and implementation of intervention plans to help children overcome their learning and adjustment problems in schools. It is estimated that 20% to 30% of the school children present some problem-moderate or severe- requiring professional intervention. Besides the reactive-ameliorative use for problems which children already exhibit, school-based interventions can operate pro-actively, preventively, with high risk populations and for creating and maintaining a general positive climate in the school and in the family, thus promoting the learning and adjustment of all children in general.

School-based behavioral interventions can be classified in various ways. One way of classification is, for example, according to *who carries out* the intervention. In some cases the intervention is implemented by the school psychologist himself/herself. This

form is the classical type of *direct service delivery* scheme. In other cases, some form of indirect service delivery is used. For example, in some cases the intervention is implemented by the school psychologist using the teacher or the parent as co-therapist; in other cases the intervention is formulated as a part of the consultation with teachers or parents and it is implemented by the responsible teacher or parent; in other cases the intervention is implemented by the client-the child itself. It should be noted that current trend is to use indirect service delivery forms, the most popular form being the behavioral consultation. Another way of classifying behavioral interventions in the schools is according to *what kind* of behavior is targeted to change. In some cases the target behavior is emotional and social problems; in some other cases the target behavior is learning and academic achievement problems. Another way of classifying school-based behavioral interventions is according to *whose* the behavior is targeted to change. In some cases the target behavior is the child's behavior; in other cases it is the teacher's behavior; in other cases it is the parents' behavior; and in other cases it is the peers' behavior. Regardless of who carries out the intervention, what kind of behavior is targeted to change and whose behavior is targeted to change, the behavioristic paradigm has proven itself to be a powerful and exciting tool in achieving desired outcomes.

The foremost contribution of behavioral psychology to school-based interventions is that it has provided a vast fund of scientific knowledge regarding the kinds of environmental conditions and of individual-cognitive variables that influence

behavior. This fund of empirically validated knowledge has been a solid scientific base for the development and implementation of various kinds of effective school-based interventions. This body of scientific knowledge is drawn from the research work in all different behavioral approaches, from the early radical behaviorism up to the recent development of the cognitive-behavioral tradition. One such rich source of scientific knowledge has been laboratory research carried out within the Skinnerian *operant conditioning* scheme (Martens & Meller, 1989) which has revealed the controlling influence of the consequences, the reinforcement and punishment, and the role of discriminative stimuli, the antecedent events, in signaling the occurrence of behavior. Operant techniques manipulating especially the consequences (not so much the antecedents) have been used extensively in school-and home-based interventions for treating both adjustment and learning problems with great success. Another source has been the research findings carried out within the Watsonian tradition. *Classical conditioning* has provided the school psychologist with practical techniques for alleviating children's fears, phobias and anxieties. Another source has been the cognitive behavioral research findings on observational learning and on modeling carried out within the Bandura's tradition which has revealed the role of vicarious learning. *Observational learning* and *modeling* have helped to develop school-based interventions for the acquisition of even complex language and intellectual skills. It has been demonstrated that the child can acquire vicariously conservation skills believed by Piagetians to be governed by

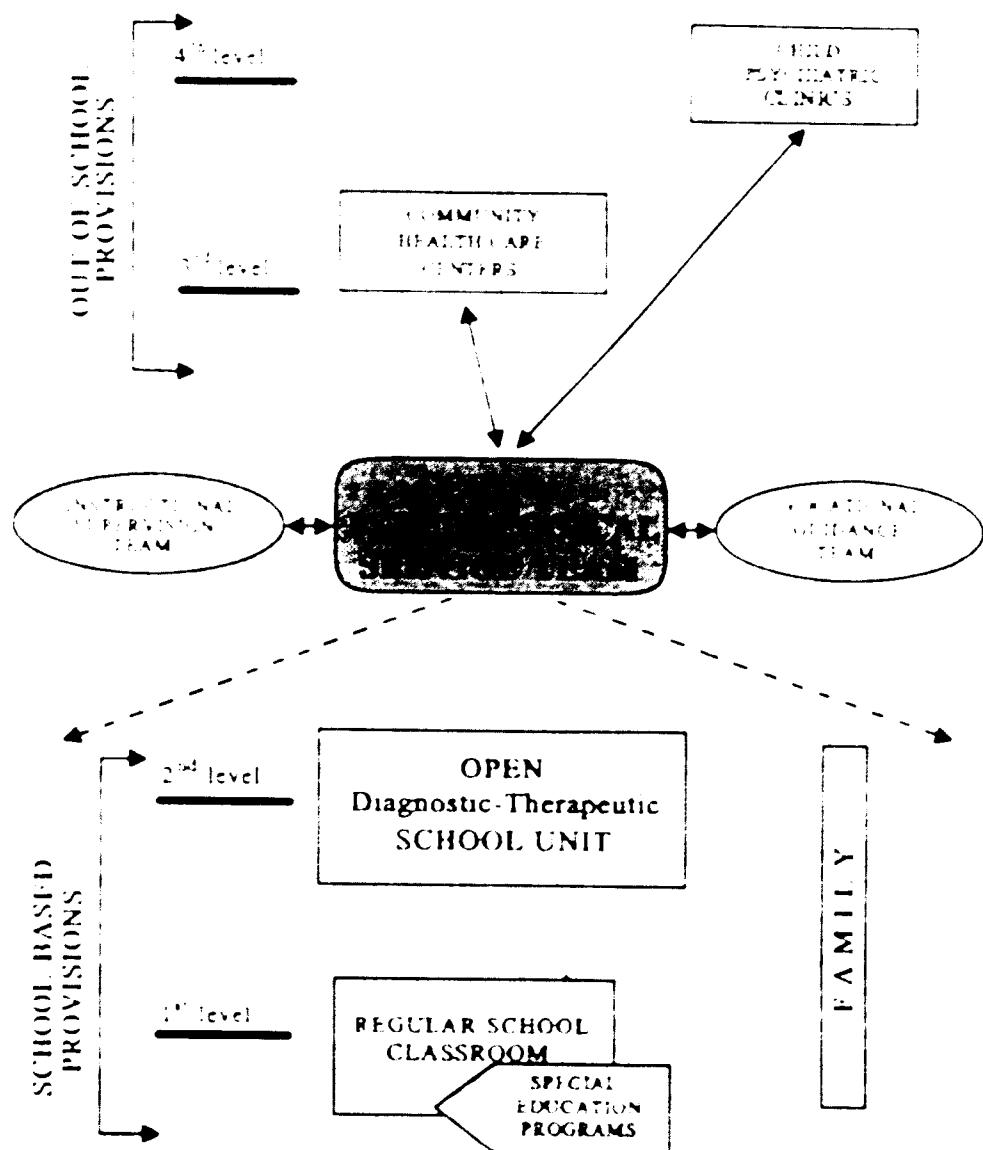
age-related developmental processes (Bergan, 1989). Other source has been the research initiated during the '70s on *self-control* by Mahoney and Kanfer with the concept of self-observation, self-reinforcement and self-evaluation as well as the cognitive behavioral research on self-instructional techniques developed by Machenbaum and on the cognitive-behavioral therapies developed by Beck and Ellis. These findings have become the basis for the development of numerous effective and widely accepted school-based interventional plans (Hughes, 1989).

Behavioral interventional programs have been used by school psychologists for various purposes: for remediation of academic deficits, for decreasing undesired behavior in school and at home (aggression, school vandalism, hyperactivity, disruptive behavior in the classroom - even in school bus-, extensive television watching, non-compliance, fighting, lying, parents' abuse, temper tantrums); for increasing desired behavior (complying with teacher's requests, working cooperatively with peers, asking and answering questions); for maintaining academic survival skills (remaining on-task until completion, executing teacher's orders and assignments, attentiveness to teacher, attentiveness to task, volunteering questions and answers, appropriate interactions with peers); for increasing general academic performance as well as specific academic skills (such as reading skills, mathematics skills, spelling skills and written language skills). Several research review articles, monographs and books have been published, siting hundreds of applied research studies documenting the effectiveness of behavioral techniques in

improving the learning and the adjustment of children in the schools and at home. These techniques have been very effective and widely used with various groups of children-not only the handicapped-but even with underachieving gifted children and with the children in general within the regular school system.

The various intervention behavioral techniques have become the backbone for developing the ready-made *interventional packages* which have now-a-days flooded the educational market. These "packages" are to include all the necessary diagnostic and didactic material and cookbooks so that the potential user - school psychologist, teacher or parent - with little or no modification to achieve desired behavioral outcomes. These packages are proposed to be used pro-actively (pre-referral evaluation and intervention) and re-actively in various settings, with various child populations and for various target problems. Most of these packages are "made in USA". Almost all main American educational publishing companies have produced such intervention packages which as mentioned are based on the behavioral methodology and technology. Translations of these packages can be found in various languages. Soon the international educational market will be flooded by such ready made packages. The development of these packages has been possible due to the advancements in the behavioral theory and technology.

Recently attempts have been made to develop *comprehensive models for delivery psychological services in the schools* based on behavioral approaches, incorporating pre-referral evaluation, behavioral assessment, behavioral consultation and behavioral interventions. (Shapiro, 1987). These



**Figure 3**

A four-level model for delivery of psychological services in schools

schemes also have been proposed to be used as models for both the training of school psychologists and for delivery services in everyday school practice. Figure 3 depicts such a model developed at the University of Athens. It has been adjusted to Greek national and local pragmatics, to the "Ελληνική πραγματικότητα". It is a four-level model which allows very many ways of applying behavioral techniques in all functions of the school psychology: behavioral assessment, behavioral consultation and behavioral intervention. It is an interesting heuristic scheme. The various functions included in the model and the ways these functions relate to school psychology are described in detail elsewhere (Paraskevopoulos, 1992).

#### Concluding comments:

From what it was said it must have been clear what is our strong belief that behavioral psychology has helped school psychology, more than any other psychological approach, to formulate and to expand its roles, functions and relationships; to enrich and clarify its professional identity. Within the behavioral tradition, school psychology found, ready for easy use, a powerful technology and a large body of scientific knowledge which provided an effective, meaningful, pragmatic and, in many cases, exciting approach to promote children's learning and adjustment in schools and at home; an approach which has been well accepted and valued by all parties involved: teachers, parents, children, school administrators. Moreover, this technology and knowledge are firmly founded on a scientific approach that requires continual empirical validation of any claimed interventional benefits. This commitment

added clear scientific rigor to the work of the school psychologists. School psychologists became more *scientist-practitioners* and less *professional-practitioners* as some might have thought of and expected. This fact has enhanced the sense of self-confidence of the school psychologist in his daily work and has improved the image of the profession and secured its elevated social acceptance. The interaction between the two fields will continue and is expected to increase in the future. And this will happen at all levels: in the training of the school psychologists, in the training of teachers, in the construction of psycho-educational remedial material - included micro-computer soft-ware. There is a wide range of problems of convergent and mutual interest. Both sides should work to this end. The benefits can be reciprocal.

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**ΠΕΡΙΛΗΨΗ**

Το άρθρο πραγματεύεται τη χρησιμότητα που έχει για τη σχολική ψυχολογία η γνώση που παράγεται σε άλλες περιοχές της ψυχολογίας. Συγκεκριμένα, το άρθρο επικεντρώνεται σε τρία κύρια πεδία της σχολικής δραστηριότητας με τα οποία η Σχολική Ψυχολογία πρωταρχικά σχετίζεται, δηλαδή η αξιολόγηση, η συμβουλευτική και η διδασκαλία. Συζητούνται επίσης τα ισχυρά σημεία και οι αδυναμίες των διαφόρων ψυχολογικών θεωριών και παραδόσεων σε σχέση με αυτά τα τρία πεδία.