USE OF OBJECTIVE TESTS IN THE UNITED STATES AND TURKISH EDUCATIONAL SYSTEMS, AND INDUSTRY IN GENERAL WITH IMPLICATIONS FOR TURKEY

Dissertation for the Degree of Ph. D. MICHIGAN STATE UNIVERSITY OSMAN KAZANCI 1974

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presented by

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has been accepted towards fulfillment of the requirements for

Ph.D. degree in Secondary Ed. & Curriculum

Major professor

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#### ABSTRACT

# 19314 USE OF OBJECTIVE TESTS IN THE UNITED STATES AND TURKISH EDUCATIONAL SYSTEMS, AND INDUSTRY IN GENERAL WITH IMPLICATIONS FOR TURKEY

By

Osman Kazanci

### The Problem

The productivity rate defined as the percentage of students who pass their classes or are promoted to the successive level of education in any given year has been very low in Turkey, around 50 percent, which Turkey cannot afford. The present measurement and evaluation system in Turkish schools, besides other factors, plays an important role in contributing to this state of affairs. Since the students' achievement and progress cannot be measured and evaluated adequately with the present system, various irregularities and irremedial and unfortunate results have been occurring in practice. With a better test and measurement system the quality and productivity rate of the Turkish educational system could be higher than it is now, as pointed out by the Turkey National Commission on Education in 1961.

#### Method of the Study

The study aimed to show the possibilities for developing a better measurement and evaluation system for Turkish schools and industrial organizations in general. For this reason, the educational systems of



the United States and Turkey were reviewed with a particular interest in the history and use of tests and measurement in the two countries. A description and critical analysis of the literature in the field of objective testings in the United States was made with a view to identifying test uses, particularly the use of objective tests in promoting learning in education, and to a lesser extent their uses in industrial organizations.

The similarities and differences and their underlying causes in the two systems of education were identified. This approach was based upon the idea that things outside the schools may matter more than things inside the schools, and help govern and interpret the things inside.

The author's cumulative experiences in Turkish educational system as a teacher, administrator and research worker, and his observations of the United States educational system were also utilized.

#### The Findings

A. <u>Similarities</u> in the use of objective tests between the United States and Turkish educational systems found were in:

 selection of students to higher educational institutions which require certain qualifications, or establishment of levels of achievement for the numbers of students to be accepted, and

2) coaching of students for school entrance examinations.

B. <u>Differences</u> in the use of objective tests between the United States and Turkish educational systems were stated as follows:

- objective tests, in the form of teacher-made, standardized, and program examination tests, were more widely and more frequently used in the United States educational system than they were in the Turkish educational system;
- objective tests were widely used for such varied purposes as gradings, promoting learning, diagnosis, guidance, placement, formative evaluation and research in the United States, while they were not so widely used for these purposes in Turkey;
- 3) objective tests in the United States educational system were being far more intensely subjected to scientific studies in order to utilize the tests in promoting learning in education, and to a lesser extent in industrial organizations, than they were in Turkish educational system and industrial organizations; and objective tests were used unofficially, although not often, for some purposes in Turkish educational systems.
- C. Reasons for the differences in the use of objective tests be-

tween the United States and Turkish educational systems were attributed

to:

- 1) differences in the cultural values of the two countries;
- the different educational systems of the two countries since the United States has a decentralized educational administration system, while Turkey has a centrally administered educational system;
- 3) the evolved models of educational systems in the two countries in that the United States has developed her own unique educational system, while Turkey, with some changes, carried on the old European (primarily French) school systems, in which oral and essay type written examination were one of the prevailing features of the system;
- 4) the differences in teacher training, since most colleges of education in the United States require many more courses in the field of tests and measurements than the teacher training institutions in Turkey which require only a few such courses; and
- 5) specialization and research in the field of tests and measurements, as a consequence of the teacher training model of United States education, and United States administrative structures



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of education, since far more attention has been paid to specialization and research in the field of tests and measurements in the United States than in Turkey.

D. <u>Reasons for similarities</u> in the use of objective tests between the United States and Turkish educational systems were attributed to a) the influence of United States education on Turkish education, and

b) practical and economical reasons.

E. <u>Implications</u> for developing a better measurement and evaluation system in Turkey were:

- changes in the present Turkish examination regulations should be made so as not to prohibit teachers from using objective tests,
- changes in the curricula of Turkish teacher training institutions should be made so that additional or new courses in the field of tests and measurements would be added as required courses in these teacher training institutions,
- in-service tests and measurements training for teachers should be added in Turkish schools in the form of seminars, workshops and short term courses, and
- comparative and survey type researches in the field of objective tests and measurements should be carried out in Turkey.

#### USE OF OBJECTIVE TESTS IN THE UNITED STATES AND TURKISH EDUCATIONAL SYSTEMS, AND INDUSTRY IN GENERAL WITH IMPLICATIONS FOR TURKEY

By

Osman Kazanci

#### A DISSERTATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Secondary Education and Curriculum

1974

#### DEDICATION

To my father M. Mustafa who has been the best teacher I have ever had, and to my wife Sayan whose love, patience, sacrifice, and encouragement have been the cornerstone of this study.



#### ACKNOWLEDGEMENTS

My very grateful thanks are due to Dr. Harry L. Case, chairman of the doctoral committee, for his continued encouragement and generous support which made this study possible. I am especially indebted to him for his support in every way.

I do wish to express my sincere appreciation to Dr. Robert L. Ebel, who served as chairman of the doctoral committee for more than two years. I deeply appreciate his understanding, advice and support from the beginning to the end.

My grateful thanks are also due to Dr. Frederic R. Wickert who served on the doctoral committee. Words cannot express the gratitude which is his due.

My special thanks are due to Dr. Carl H. Gross who served on the doctoral committee and paved the way to the success of this study.

I gratefully appreciate the assistance of Dr. Ben Bohnhorst for reading and advising in preparing the final manuscript.

In particular, I would like to extend my deep appreciation to Mr. Musret Karcioğlu who helped me in every possible way to complete this study.

Finally, I wish also to express my appreciation to the USAID for providing scholarships to earn my degrees of B. S., M. S., and Ph. D.

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#### CHAPTER I

#### THE PROBLEM

"For centuries, the Turks have been moving in the same direction. Always from east to west. There are many countries, but one civilization. National progress means participation in this civilization."

M. Kemal Atatürk

#### Introduction to the Problem

Turkey has been engaged in the development process by modeling the Western countries for more than a century. She is the first nonwestern nation to seek a new existence within the political, cultural, and technological mold of the West. Under the leadership of Atatürk, the founder of modern Turkey, and thereafter, to be civilized and to develop have always meant to be westernized politically, culturally, and technologically. Education, in this context, has been accepted an used as one of the most effective means of Westernization. In 1927, only 10.7 percent of the Turkish people were literate; in 1965, 48 per cent of the people knew how to read and write. By 1970 it had increas to 55 percent. In 1923, the nation had 4,894 primary schools, and 10,238 teachers teaching 342,000 students; in 1971, 132,577 teachers i 38,227 primary schools were teaching more than 5 million primary school children. The number of secondary schools had risen from 160 in 1923 (data on teachers not available) to 3,283 with 47,476 teachers in 1971

and 1.5 million secondary school students, as compared to 12,500 students in 1923.  $^{\rm l}$ 

In fifty years the nation thus had achieved a more than eightfold increase in primary schools, fifteen-fold in primary school teachers, and more than fourteen-fold in primary school students. At the secondary education level, increase in the number of schools is more than twenty-fold; in the number of students it is one hundred and twentyfold.

In spite of these increases, schooling rate (proportion of students at an age group attending school to the total age group) has still been low in comparison with the <u>Second Five Year Development Plan</u> targets.

Table 1 shows that in the 1971-1972 academic year (with some optimism) more than 60 percent of the 11-14 middle school age group, almost 90 percent of the 15-17 lise (senior high school) age group and at least 94 percent of the 18-22 higher education age group did not continue their education.

On the other hand, a sizeable percentage of these students (as high as 23.5 percent at the primary level and 33 percent at the lycée-hereafter lise-level) failed in their classes. Thus productivity rate defined as the percentage of students who passed their classes or were promoted to the successive level of education in any given year, has changed between 76.5 percent and 80.6 percent of the primary level,

All statistics given here are taken from the Devlet Ististik Enstitüsü (State Statistics Institute), and Devlet Planma Tes-Kilati (State Planning Organization) publications.

Proportion of Students and Schooling of the Total Number of School Age Population at every Educational Level (except higher education) 1968-1972. Figures in thousands.\* Table 1.

						-
_	Proportion of (%) puiloon2	8.0	9.0	10.0	10.5	
ndary Schoo (Lise)	stn9but?	176.0	205.0	236.0	256.0	
Secor	∋gA [ood⊃2 noits[uqo9	2,138	2,255	2,338	2,423	
[0]	↑o noitroqor9 (%) pnifooh22	26.0	31.0	30.0	33.0	
ondary Scho ddle School	fstoT stn9but2	643.0	780.0	787.0	874.0	
Sec (Mi	egA [ooh⊃2 Popits[uqo¶	2,447	2,554	2,606	2,658	
- 10	Proportion of (%) puiloodo2	86.0	87.0	87.0	87.0	
mary Schoc	TstoT stnsbut2	4,737	4,893	4,992	5,028	
Pri	∋pA [ood⊃2 noits[uqo9	5,521	5,652	5,716	5,783	
	Academic year	1968-1969	1969-1970	1970-1971	1971-1972	

\*Adapted from the <u>Second Five Year Development Plan</u>, State Planning Organization (SPO), Ankara: 1969.

68.9 percent and 70.0 percent at the middle school level, and 67.0 percen and 69.5 percent at the lise level during the period of 1968-1972 (see Table 2).

		Academic Years				
School Level		1968-1969	1969-1970	1970-1971	1971-1972	
Primary	Passed	76.5	78.1	79.8	80.6	
Schoo1	Failed	23.5	21.9	20.2	19.4	
Middle School	Passed	68.9	69.6	70.0	69.8	
	Failed	31.1	30.4	30.0	30.2	
Lise	Passed	69.5	69.4	67.0	68.9	
	Failed	30.5	30.6	33.0	31.1	

Table 2. Productivity Rate at the Middle School and Lise Level (1968-1972). Figures in percentages\*

\*Adapted from a) 1972-1973 Ilköğretim Yilliği, Milli Eğitim Bakanliği Ilköğretim Genel Müdürlüğü p. 10, and b) 1972-1973 Ortaöğretim, Milli Eğitim Bakanliği, Ortaöğretim Genel Müdürlüğü, p. 191. Ankara, Turkey.

In addition to the social and psychological consequences, the elementary school failures cost the nation  $(1,000,000 \times 780.00 \text{ T.L.} = 780,000,000.00 \text{ T.L.})$ ; secondary school failures cost (95,000 x 540.00 T.L. = 50,300,000.00 T.L. every year.<sup>1</sup> If the money spent for auxiliary services for education was added to these figures the wastage for every

<sup>&</sup>lt;sup>1</sup>a) <u>1973 Mali Yili Program-Alt Program ve Faaliyetlere Göre</u> <u>Milli Egitim Bakanligi Bütcesi Harcama Kalemleri</u>, Planlama-Arastirma ve Koordinasyon Dairesi Baskanligi, Ankara, 1973. b) 67 <u>Ilde Okul, Ögretmen</u> <u>Ögrenci Sayilari, 1972-1973</u>, Planlama--Arastirma ve Koordinasyon Dairesi Baskanligi, Ankara, 1973.

academic year would well exceed one billion Turkish Liros, that is a 20 percent of the budget alloted to the education.

Several attempts have been made at different times to increase the productivity rate in secondary schools only through changes in the rules and regulations of promotion and examination. These simply consisted of lowering the average for passing, or calculating the passing grade on the basis of weighted points for each subject matter, or increasing the number of written and oral examinations, or permitting those students who failed in only one subject with the condition that they must take a completion examination and pass it during the successive classes.<sup>1</sup> Despite these efforts, the productivity rate remained as low as 60 percent. Of course it is doubtful whether the quality increases when the examination regulations are changed. It is a common complaint among teachers, parents, and even among the intellectuals of the society who also passed through the same system that the schools are lowering standards.

The fact is that the schools above primary education level are selective institutions.<sup>2</sup> Although anybody who is a graduate of a primary school can register for middle school and anybody who is a graduate of middle school can register for lycee, many students fail and repeat grades or are dismissed according to the regulations or drop out of school through the process of selective examinations. There are various

<sup>&</sup>lt;sup>I</sup>Cumhuriyetin 50. Yilinda Milli Eğitimimiz, Milli Eğitim Basimevi, Istanbul, 1973, pp. 86-90, 96-97.

<sup>&</sup>lt;sup>2</sup>Andreas M. Kazamias, <u>Education and the Quest for Modernity in</u> <u>Turkey</u> (London: George Allen and Unwin Ltd., 1966), pp. 134-139.

reasons (socio-economic, psychological, intellectual) for failure and for being dismissed or dropping out of school. But whatever the reasons are, whether a student passes the course(s) or not is determined by the present examination system.

The present examination system in Turkish schools requires oral and essay type examinations in addition to quizzes and heavy homework. The frequency of these examinations during the school year is dependent upon some conditions such as class size and teaching load of the teacher. Graduation examinations are closely supervised by the Ministry of Education. Questions for lise graduation are prepared by a central committee in the Ministry of Education. While all examinations in classrooms and at graduation are oral and essay types, selection of students for state boarding schools and higher education is made by means of objective measurement techniques.

Although the regulations require the use of oral and essay type examinations, since the late 1950's some teachers occasionally use objective type tests. The motives in using objective tests vary from one teacher to another: some use them for learning practice, some for the objectivity, and some to prepare students for the state boarding schools or higher education entrance examinations.

#### Statement of the Problem

The foregoing brief observations show that the schooling rate as well as the productivity rate in the Turkish educational system is as low as the country can tolerate. The present measurement and evaluation system, besides other factors, plays an important role in preparing

to this end. With a sound and objective measurement and evaluation system the quality and productivity rate of Turkish educational system could be higher than it is now.

Because of overcrowded classes, heavy teaching loads of teachers (at least 24 hours per teacher per week in different classes and in different subjects), irregularities of administration with regard to measurement and evaluation, and non-objectivity inherent in the type of examinations employed, in addition to other variables, it is practically impossible to have impartial, adequate and sound evaluations of students' achievement.

In 1961, the Turkey National Commission on Education pointed out that measurement and evaluation was one of the crucial problems of the Turkish educational system: "The measurement and evaluation of student achievement, based on the old-fashioned examination regulation, especially at the secondary general and secondary technical-vocational levels is deficient in objective principles of measurement and evaluation. The oral and essay type examinations used at the first and second grades of middle schools and lycées (senior high schools) measure only factual knowledge which is acquired by rote; these types of examinations cannot measure adequately the level of educational attainment of students with regard to knowledge, reasoning and comprehension, and applicability of these to real life situations. In addition, middle school, and lycée graduation examinations are far from demonstrating whether the graduates of these schools have attained the educational accomplishment that they were supposed to.

"Since the students' achievement and progress cannot be evaluated adequately, various irregularities, and irremedial and unfortunate results are occurring in the practice of this measurement and evaluation system."<sup>1</sup>

The situation with regard to measurement and evaluation in Turkish industry is not much different from that in Turkish education. Since the executives, administrators, managers and supervisors in industrial and governmental organizations come through the same educational system, and most likely they are not acquainted with objective measurement and evaluation techniques, the selection, training, placement, and promotion of personnel are made by means of non-objective measurement and evaluation techniques such as reference letters, interviews, and oral and written (essay) examinations. Because of these practices, unqualified persons may have greater chances of being selected for a job; from training efforts in valid conclusions may be drawn; not as appropriate a person may be placed in a position and not as appropriate a person may be promoted.

Thus Turkey has the problem of developing a measurement and evaluation system that is a) objective, scientific and impartial; and b) facilitative for learning in formal learning situations.

<sup>1</sup>Türkiye Egitim Milli Komisyonu, M. E. B., Milli Egitim Basimevi, Istanbul, 1961, p. 103. Turkey National Commission on Education was established to survey the educational problems in Turkey and make recommendations for solutions on the basis of examples from developed countries such as the United States, Great Britain, West Germany, France, Italy and Japan.

#### Purpose of the Study

The purpose of this study is to compare the use of educational objective tests in the United States and the Turkish educational systems, with particular reference to the use of objective testing to promote learning in educational, and industrial organizations in general, in order to show the possibilities of a sound and better measurement and evaluation system which is objective, impartial and facilitative for learning in the Turkish educational system.

The specific questions to which answers were sought are:

- For what purposes are objective achievement tests used in the United States and Turkish educational systems, and industrial organizations in general?
- 2) How are objective achievement tests used to promote learning in the two educational systems?
- 3) What are the similarities and differences in the use of objective achievement tests in the two countries? What are the reasons for similarities and differences in the use of objective achievement tests?
- 4) What are the implications for developing an objective measurement and evaluation system to measure and evaluate, and promote learning in educational and industrial organizations in Turkey?

#### Importance of the Study

The present examination system in the Turkish educational system serves only the purpose of providing the basis of grading of students' achievement, and creates serious problems. Some of these problems are frequently cited as follows:

It is unfair to the students. The literature on essay type
examinations indicates that: a) essay type examinations have relatively

low reliability because of the limited sampling of learning and subjectivity of scoring; b) since they may be constructed quickly and carelessly, questions may be ambiguously stated, and most likely are of unequal difficulty--students can bluff; c) they take too much time for the students to write, and too much time for the teachers to read; and d) students' grades may be affected by halo, legibility of handwriting, spelling and grammar errors, and effectiveness of written expression.<sup>1</sup>

2) It is unfairly used by some teachers whenever they are not well prepared for the subject, or whenever they want to keep the class quiet, or whenever they want to discipline some students. The author of this study has experienced and indirectly witnessed these practices both as teacher and student, and listened to many complaints by students, teachers and parents.

3) The present examination system is unfair both to the students and teachers: classes are crowded, teacher load is heavy, a teacher teaches, most of the time, more than one class and more than one subject. Therefore it is practically impossible to read all papers carefully, to grade impartially and relatively objectively, and quickly. Students cannot get a second or third chance to demonstrate their abilities and level of achievement. It is quite possible that many good students cannot get as good a grade as they deserve. It is also possible that many unqualified students may happen to pass or even be graded highly. Many of the students feel the injustice of the system. Toward the end

Robert L. Ebel, <u>Measuring Educational Achievement</u> (Englewood Cliffs, New Jersey: Prentice-Hall, 1965), pp. 84-102; see also R. L. Thorndike and E. Hagen, <u>Measurement and Evaluation in Psychology</u> and Education (New York: John Wiley and Sons, 1955), pp. 35-42.

of spring semester each year illegal actions start to occur: teachers are threatened, some may be beaten by unidentified persons; bribes are offered to teachers; pressures from local influential persons arise; and rumors are frequently heard in the town, or in the school neighborhood, that some students were failed on purpose in order to have enough subjects for high priced private courses to pass completion examinations. Some students drop out of school or run away from home.

There is a need for development of better measurement and evaluation systems. This study is an attempt in that direction. The Turkey National Commission on Education urged the study and development of new objective measurement and evaluation techniques as they were observed in the United States, Japan, France, Great Britain, West Germany and Italy:<sup>1</sup>

- The examination regulations of secondary general and secondary vocational-technical schools should be changed; and it should be provided that new examination regulations use objective examination techniques in the measurement of students' achievement, program, and their promotion from one grade to the next.
- The new objective measurement and evaluation techniques provided by new examination regulations must be taught to those teachers who are teaching now in Turkish schools by means of various courses and seminars.
- 3) During the academic year, the achievement and progress of students must be observed, measured and evaluated; and measurement and evaluation techniques must be re-examined, and new ones should be sought, if they are not functioning well.
- 4) These new objective measurement and evaluation techniques must be imported into the curriculum of teacher-training institutions at all levels; and these new techniques must be emphasized and practiced in various ways in these institutions.
- 5) Guidance and counseling services must be provided.

<sup>&</sup>lt;sup>1</sup><u>Turkiye Egitim Milli Komisyonu Raporu, op. cit</u>., pp. 103-104.

#### Limitations of the Study

The study confines itself to the use of objective achievement tests with particular reference to the use of objective testing largely in education and partly in industrial organization. The use of achievement tests are discussed under three rather broad categories, 1) teacher made tests, 2) standardized tests, and 3) program examination tests. The study also limits itself to the available literature on the Turkish educational system and the experience of the author.

#### Method of the Study

This is a descriptive and critical analysis of the literature in the field of objective testing in the United States with a view first to identifying their uses, and particularly the use of objective tests in promoting learning in education, and to a lesser extent in industrial organizations.

The second step in the analysis is to identify the similarities and differences, and their underlying causes in the two systems of education. This approach is based upon the idea that the things outside the school matter more than the things inside the schools, and govern and interpret the things inside.

This study also utilized the experience of the author. The author taught at all levels of the Turkish educational system, in addition to the administrative position he held in the Test and Research Bureau of MOE for more than four years.

#### Order of Presentation of the Study

The remainder of the study includes four chapters. Chapters II and III are about the educational systems of the United States and Turkey in general, and measurement and evaluation in particular in these two systems. Chapter IV deals with the use of tests to promote learning. Chapter V gives the comparison, implications, and summary and conclusions.

Chapter II describes a) the structure of school systems in the Turkish educational system as it exists today, b) administration and organization of education, and c) grading systems in the Turkish educational system are described and to a lesser extent discussed.

Section 2 of Chapter II describes and discusses a) the history of measurement and evaluation in the Turkish educational system and b) the present situation of measurement and evaluation in the Turkish educational system. The present situation of measurement and evaluation is discussed under three broad types of objective tests: teachermade, standardized and program examination tests. Some available limited information is also given about the use of objective tests in industry in Turkey.

Chapter III follows the same pattern as Chapter II but more information is given about the use of objective achievement tests in American industry than in Turkish industry.

Chapter IV describes and analyzes the use of educational objective tests to promote learning in classroom situations. The literature has been reviewed under subheadings such as "studies on the open-book

examination," literature on the use of "re-test examination technique," and studies on "coaching studies."

In Chapter V the use of educational objective achievement tests in the United States and Turkish educational systems is compared with regard to similarities and differences. Then underlying reasons for similarities and differences are discussed.

Chapter V also includes implications for the Turkish educational system with respect to developing improved objective measurement and evaluation systems for grading and promoting learning in education, and also in industry, and summary and conclusions.

### CHAPTER II

## TURKISH EDUCATIONAL SYSTEM AND MEASUREMENT AND EVALUATION

The purpose of this chapter is to describe the general background and characteristics of the Turkish educational system in order to show the reader a) how students' achievement is measured and evaluated, b) what the deficiencies and difficulties are in the system in terms assessing students' achievement, c) what is being done in developing a better technique, and how it is being done.

This chapter is composed of two sections. In the first section the school system, involving its organization and administration, and presently practiced measurement techniques are described. The second section deals mostly with the history of present examination technique, and objective measurement and evaluation technique in the Turkish educational system.

### SECTION I

## THE SCHOOL SYSTEM IN TURKEY

The present school system in Turkey follows the 5-3-3-4 pattern (see Figure 1). Primary education is universal, free at public schools, compulsory until the age of 14, and for five years in duration.



# Figure 1. The structure of education in Turkey.

Secondary education is divided into two levels. The lower level, or middle school, is for three years and free at public schools. Secondary education at the upper level--lise and lise equivalent vocational and technical schools--is for three years (4 years in primary teacher training schools) and free at public schools. Higher education is from three to six years, mostly four years at universities, and it is free. No entrance examination is required for entrance to any schools up to the higher education level. The majority of schools are coeducational, but there are some schools for only boys or girls.

The schools (except for universities and academies), are centrally administered and controlled by the Ministry of Education (MOE). The school curriculum for each level and type of education up to university level is the same throughout the country, although some changes in the order of presentation can be made by teachers depending upon the location of schools in different regions of the country.

Although schools are centrally administered and controlled by the MOE, it seems very difficult to assess the progress in education by means of presently practiced measurement and evaluation techniques.

#### Primary Education

A child who reaches the age of six enters primary school and may hope to graduate at age twelve. He may, however, stay in primary school until age fourteen. Though the five years of primary education are compulsory and free in public schools, there are also some private primary schools, especially in big cities, run by private individuals or

companies. The amount of tuition and fees in these private schools is fixed by the MOE.

Primary schools in most of the villages are one- or two-room schools which are taught by one or two teachers. Primary schools in cities, towns, and big villages usually have at least five or more teachers. In primary schools a teacher teaches all subjects at a grade level, and usually he starts from Grade I and teaches the same students until Grade V. The student-teacher ratio is 1/40 or above in many primary schools.

Primary school teachers are graduates of primary teacher training schools, or lycée graduates who have passed the examination in some courses taught only at teacher training schools and have some practical teaching experience under supervision. Most of the primary school teachers, however, come from teacher training schools. Students attending teacher training schools do so for four years above middle schools or for seven years above primary education. All four and seven-year primary teacher training schools are boarding schools and by law 75% of the students for seven-year schools are selected from among village primary school graduates. Although a few of the teacher training schools are for only boys or girls, most of the teacher training schools are coeducational. While four-year teacher training schools are located in cities or big towns, all seven-year primary teacher training schools are located in rural areas. Today there are 89 primary teacher training schools and 27 of these are seven-year schools.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Turkiyede Okul, Oğretmen, Oğrenci, Yeni Kayit, Mezun Sayilari <u>1963-1973</u>, M.E.B. Planlama-Arastirma ve Koordinasyon Dairesi, Eylul 1973, Ankara, p. 5.
Primary education serves four basic general objectives. These four general objectives are the cornerstones of primary schools in Turkey and they serve also the general objectives of Turkish national education.

As stated in the regulations, it is the responsibility of the primary school to see that

- Every student, as an individual, has become aware of his ability and capability to deal effectively with his environment, has become a good citizen, and has developed a good personality and sound ethical and moral values;
- (2) Every primary school child fully appreciates the necessity of good human relations and cooperation with others and that these are inevitable aspects of social life;
- (3) Every primary school child comprehends that Turkey is a nationalist, republican, democratic, secular and social (welfare) state based upon universal human rights; that the Turkish Nation is an indivisible entity of land and people, and that it is an honorable and constructive member of the society of nations;
- (4) Every child in the school comprehends that man-power is the richest resource in the development of the country and, therefore it is necessary that these resources be developed as the best means of investment in the development of the country.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup><u>Ilkokul programi</u>. Milli Egitim Basimevi, Istanbul: 1968, pp. 2-8.

Measuring and evaluating of general objectives as well as specific objectives of primary education has a greater chance in primary schools than secondary schools, because: a) a class or grade system is followed in primary schools, rather than a course system, in that a teacher in a primary school teaches all subjects and continues, usually, with the same students until the last year, and b) primary school teachers are more and better informed about objective measurement and evaluation techniques than are secondary school teachers.

# Secondary Education

Secondary education in Turkey has two tracks: General secondary and vocational and technical secondary. The choice of one or the other of these tracks is left to the primary school graduates or their parents.

The general secondary education program is comprised of two cycles. The first cycle is called <u>ortaokul (middle school)</u> and it is for three years. Any student who is a graduate of a primary school with a diploma can enter ortaokul. There is an ortaokul graduation examination at the end of the third grade, and graduation is certified by an ortaokul diploma. In 1970-1971 there were 1,818 ortaokuls in Turkey, of which 112 were privately owned.<sup>1</sup> All of them were day schools except for 29 evening-ortaokuls. Only two ortaokuls existed for exceptional children (for deaf and blind) in Turkey. Classes usually are crowded; for example

<sup>&</sup>lt;sup>1</sup><u>Türkiyede Okul, Öğretmen, Öğrenci, Yeni Kayit, Mezun Sayilari,</u> <u>op. cit., p. 2.</u>

the teacher-student ratio in 1969-1970 was 1/57.<sup>1</sup>

Ortaokul or ortaokul level teachers are almost exclusively graduates of "Educational Institutes" which are for three years. Karagozogl found that more than 74 percent of the teachers in secondary schools we graduates of three-year "Educational Institutes." (By regulation, teachers at the second level-lise of secondary education are supposed to be university graduates. But since there are not enough university graduates to teach at this level, Educational Institute graduates fill the gap.)

The second cycle of general secondary education is lycee (senior high school) and it is for three years. Every student with an ortaokul diploma can enter. Certain private and specialized lycees, however, require their applicants to take competitive examinations.

General education is much more highly esteemed than other forms of lise-level education in Turkey. In 1969-70, 60 percent of the students in all upper levels of secondary education were at general lises. Because the general lise in the Turkish educational system is the main institution which prepares students for universities, at the end of the last year every third grade is required to take the State Lise Graduati Examinations (Devlet Lise Bitirme Imtihani). Those who successfully graduate from the lise receive the "lise diploma" and can apply for uni versity entrance examinations.

<sup>&</sup>lt;sup>1</sup>G. Karagozoglu, <u>The Role of the Ministry Supervisors in the</u> <u>Educational System</u>, Unpublished Ph.D. thesis, College of Education, Michigan State University, 1972, p. 47.

<sup>&</sup>lt;sup>2</sup>Karagozoglu, <u>op. cit</u>., p. 220. <sup>3</sup>Ibid., p. 49.

Ortaokuls and lises are the most neglected institutions in the Turkish educational system, especially in the eastern part of the country, in terms of curriculum, equipment, and teachers. It is said that because of educational measurement techniques, and grades given on the basis of these non-objective techniques and observations, many unfortunate things happen every year; teachers are threatened; teachers lose their prestige; students lose the opportunity to continue their education; parents, as well as students, develop negative attitudes toward school and education, etc.

# Vocational-Technical Education

Vocational-Technical schools have also two cycles. Vocational education in the first cycle is offered in agriculture, boys' and girls' technical, commercial, health, and teacher-training schools.<sup>1</sup> In 1970-1971 there were 284 such schools in Turkey.<sup>2</sup> The studies in these schools intend to provide the students with a marketable skill or to enable them to continue their education at the second cycle. Although the curriculum is similar to that followed by the general ortaokuls, there are some additional required courses or practical training. It is usually very difficult, but not impossible, for those who complete these schools to continue their education in a lise. Most of them continue their education at the second cycle of these schools.

<sup>2</sup><u>Türkiyede Okul, Ö</u>gretmen, Ögrenci, Yeni Kayit, Mezun Sayilari, <u>op. cit</u>., p. 3.

IThe Educational System of Turkey, USOE, Washington: 1971, pp.
7-8.

The second cycle of vocational-technical schools admits students who have completed a middle (orta) vocational-technical or general school. In 1972-1973 there were 869 vocational-technical schools at the upper secondary level, 271 of these schools were technical schools for boys and girls. In these schools 12,422 teachers were teaching 246,755 students.<sup>1</sup>

Most of the vocational schools are boarding institutions. For example, in 1970-1971, 238,877 students applied for admission to primary teacher-training schools and took entrance examinations. Of these only 17,419 were admitted.<sup>2</sup> Students are admitted to boarding schools on the basis of a battery of achievement tests. These tests are objective; they are prepared and administered by the PAKD test specialists. A few of the students may be familiar with this kind of tests. The four-year primary teacher training school students, however, are taught some techniques of objective measurement and evaluation later in school while other school students follow almost the way, in terms of measurement and evaluation, as secondary school students.

# Higher Education

Higher education in Turkey is for three years or more. Some programs are for four years, some for six years. "Educational Institutes" are exclusively three-year institutions. There were 16 of these in

<sup>1&</sup>lt;u>Ibid</u>., p. 9.

<sup>&</sup>lt;sup>2</sup>Karagozoglu, op. cit., p. 51.

1973,<sup>1</sup> preparing 7,423 prospective secondary school teachers. Educational Institutes are boarding schools and admit students from various regions on the basis of competence examinations held by the MOE. These institutions are the main resource of the secondary school teaching staffs. They admit lise and primary teacher-training school graduates, though the lise graduates usually prefer attending universities. Lise graduates may prefer these institutions after they have failed to be admitted to the universities.

Another type of higher educational institution for teachers is the Higher Technical Teacher-Training School. In this category there are three institutions: one for girls, two for boys. Teachers for secondarylevel technical schools are trained in these schools for four years. Students who have completed a secondary technical school are accepted into the program of these schools on the basis of competitive examinations. There are other vocational higher educational institutions, also for four years, in fields such as commerce, health, applied arts, fine arts, music and Islamic studies.

Universities have a four year program, except the schools of medicine, which are six years. In 1972-1973 there were nine universities in Turkey: three in Ankara, three in Istanbul, and one each in Izmir, Trabzon, and Erzurum. The Turkish government, however, is planning to open new universities in several other cities like Konya, Adana and Diyarbakir. How many students should be admitted is decided by the universities themselves, although the MOE can make some suggestions.

<sup>&</sup>lt;sup>1</sup><u>Türkiyede Okul, Öğretmen, Öğrenci, Yeni Kayit, Mezun Sayilari</u>, <u>op. cit., p. 10.</u>

All universities in Turkey are autonomous with the exception of Atotürk University in Eczurum and the Technical University of the Black Sea in Trabzon, which were established recently by special laws.

Higher educational institutions, especially universities, are the only institutions that are free in employing objective or subjective measurement techniques in their educational activities. Selection of students to all higher educational institutions is made by objective tests. But practicing of objective measurement and evaluation techniques is almost ignored in most of the classrooms.

# Administration

In Turkey, education at all levels is organized and administered centrally under the Ministry of Education, which exercises supervision and control over all schools. There are a few exceptions to this rule. The autonomous universities and schools under the sponsorship of ministries other than the MOE are administered and controlled by their respective related bodies. The curricula for these latter schools, however, are also approved by the MOE. Otherwise, the MOE is the only decision-making and controlling organization in the operation of all schools. The curricula they follow, the textbooks and teaching materials they use, assignments and dismissal of teachers, are all determined by the MOE.

The minister is a member of the cabinet; he is a politician; he may or may not be a professional educator. He is assisted by the Under Secretary for General Education and the Under Secretary for Technical and

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Vocational Education. All of the staffs in these offices are experienced and qualified professional educators, and they are appointed by the Minister of Education. Under the two Under Secretaries there are fourteen General Directorates which have also their subordinates.

Besides the two Under Secretaries which assist the Minister of Education, there are three educational bodies that advise the Minister. The first advisory body is the National Board of Education (NBE). The NBE is the chief advisory body in the MOE; it prepares the school curriculum on the basis of the other advisory bodies suggestions; examines and approves all textbooks; ratifies proposed regulations and legislation; and provides some professional advice to the Minister of Education on educational matters. The members of the NBE are among the highest ranking professional educators. There is no written requirement about how many members there should be on the NBE. They are appointed by the Minister and approved by the President of the Republic through the Prime Minister.

The second advisory body to the Minister of Education is the Commission of General Directorates (CGD), which is comprised of General Directors of the MOE and department heads. The CGD advises mostly on administrative procedures of the schools and disciplinary decisions at the upper level.

The third advisory body to the Minister of Education is the National Council of Education (NCE) which meets every four years upon the invitation of the Ministry of Education. On important educational issues, however, the NCE may be invited to meet by the Minister more frequently;

sometimes its meetings may be prolonged. The NCE discusses and makes recommendations on educational or pedagogical issues of importance. The members of the NCE consist of representatives from the Ministry, universities, school administrators at every level, teachers, and some specialists in different fields selected by the Minister.

Another important organization in the MOE is the Planning, Research and Coordination Office (its Turkish initials or PAKD). The PAKD is directly responsible to the Minister of Education. It conducts educational research, develops plans for Turkish education, and provides coordination between the Minister and other organizations in the MOE, and between the MOE and the State Planning Organization (SPO). One of its major functions is to construct and administer all state boarding school entrance examinations through its Testing Department.

At the provincial level (there are 67 provinces), the administrative officer is the Director of National Education (DNE), who is appointed by the MOE. The DNE is an experienced and qualified teacher with a diploma from at least an Educational Institute. Although the DNE is appointed by the MOE, he is attached to the Office of the Provincial Governor (Vali), and he acts as both an advisor and an assistant executive to the governor. All schools in the province, except higher educational institutions, are subject to the control of the DNE, but he has little authority to make decisions. His functions are mainly application and interpretation of the MOE's orders and regulations. Under the NDE there are various offices which are directly responsible to him.

The central government is responsible for all public educational expenses from the building of schools and purchase of necessary equipment

to the paying of teacher's and others salaries. At the primary leve however, primary schools receive some local support, chiefly for the construction and maintenance of schools. Private schools, on the ot hand, are financed through fees, income from property and investment and gifts and donations.

# Evaluating of Learning Outcomes in Turkish Schools

The present procedure for evaluating learning outcomes in Turk schools is the outgrowth of the system's examination system which daback to the nineteenth century. As has been discussed in the first chapter of this study, such an examination system has been creating unpleasant conditions. The Turkish society has been paying its cost many years and there is not yet any study on such an evaluation tech nique. What has been done has been just to change the scale of grad or decide (by the MOE) that a grade of 4.0, which is a failing grade a "1 to 10" scale, will be a passing grade for a certain time, certa year. The author of this study believes that the cost of the present evaluation techniques of learning outcomes is unbearably heavy, and complicated, too.

To clarify the situation, a brief summary of grading system in Turkish educational system is presented below.

The grading system in Turkish schools varies from one level to another. At the primary level it is based on a "1 to 5" scale with and 2 lowest and failing, 3 pass or average, 4 good, and 5 excellent At the secondary schools it is based on a "1 to 10" scale, with 9 and

excellent, 7 and 8 good, 5 and 6 average and passing, and 1 to 4 fail At the higher educational level it is either based on a "1 to 10" or "0 to 100" scale. In the latter case, 60 is the passing mark. Some private schools at the secondary level, and some universities use lef grades like A, B, C and F.<sup>1</sup> With the exception of universities and foreign private schools, the kind of grading system which will be use in schools is decided by the MOE. The MOE may lower, as in the past, the passing mark in favor of students, or change the grading system f "1 to 10", to "0 to 100". The reason for such changes is mainly publ pressure.

The school year in the Turkish educational system is divided in two semesters. At the end of each semester the students at the prima and secondary levels are given grades for each of the courses they has taken. The frequency of examinations is completely dependent a) upo the size of the class, b) the teaching load of the teacher (he must teach from 24 to 30 hours in a week) and c) the number of different s jects a teacher is teaching. On the other hand, every student, by regulations, should have a least three written and one or two oral examinations during each term.<sup>2</sup>

Oral examinations at the primary and secondary levels usually a used as make-up examinations for those students who were not good at written examinations. For example, if a student received a grade of

<sup>&</sup>lt;sup>1</sup><u>The Educational System of Turkey, op. cit.</u>

<sup>&</sup>lt;sup>2</sup><u>Milli Egitim Bakanligina Bagli Orta Dereceli Okullarin Sinif</u> <u>Gecme ve Imtihan Yönetmeligi</u>, Milli Egitim Basinevi. Ankara, 1973, pp. 5-6.

on the written examination he most likely will not have any oral examination. If, however, he received a grade of 1, 2, or 3, or 4 from the written examination, he most probably will be called for an oral examination. Who will take an oral examination among those who receive lower grades (1 to 4 or to 5) is usually determined by the teacher either by his opening a page randomly from the "grade book" which is kept by the teacher. The student who is called by the teacher either stands at the blackboard or at his seat while he tries to answer the question(s). He may be asked simple or difficult question(s). The difficulty level as well as the number of questions asked vary from one student to another. This practice causes many uneasy feelings among the students and parents. While one student may be given two chances for a make-up examination, another may not even get one chance, so his semester grade is determined on the basis of his low grade from the written examination. While one student is asked to answer two or three difficult questions, another one may be asked a simple and easy question--the former fails, the latter passes. It is obvious that there is serious threats to objectivity in such a practice. It would be unfair to blame the teachers. Thorndike and Hagen pointed out that:

A grading system in an educational institution is a deeply ingrained part of the educational culture pattern. It is usually accepted automatically and with no more critical thought than our habits of holding a knife and fork. The new teacher is not systematically instructed in grading procedures but grows into them as a child grows into the regional pronunciation of 'water'. It seems unfortunate that our educational evaluations should be treated in such a casual fashion.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Thorndike and Hagen, <u>op. cit</u>., p. 487.

In addition to the over-crowded classes and heavy teaching load,<sup>1</sup> teachers are not trained adequately in the techniques of measurement and evaluation. If they want to try some new techniques or use objective tests, they are restrained from doing so by the regulations.

Right after the second semester all classroom teachers at the secondary level meet under the chairmanship of the school director. The present state of each of the first and second grade students (i.e., VI and VII grades at the middle school level, IX and X grades at the lise) are discussed by the classroom teachers. If a student received 5.0 or more in all courses, he passes the class. Subject matter teachers, however, have the right to decide against any student whose first semester grade was high, but second semester grade is very low, even though his grade average is 5.0 or more (i.e., 10 + 3 = 13, 13/2 = 6.5 - to7.0). If the particular student is known as a good student in other subjects, the other teachers may try to persuade the particular teacher to pass the student. But this procedure may become a matter of bargaining: if a teacher may let a student pass the course, in return he may ask a favor from his colleagues to pass another student whom he knows. Sometimes well-to-do parents' influence, political influence or other types of influences may come into play, too. Classroom teachers have also the right to excuse a student's one, two or three failed courses by regulations, depending upon the student's achievement in other courses and such other factors as health problems, poor manners, etc. But in that case the teacher of the courses to be excused can use his veto

<sup>1</sup>Kazamias, <u>op. cit</u>., pp. 157-158.



power. If his answer is "no", there is nothing to do, except urge him to change his mind. By the rules, a "Turkish" course with an average grade less than 5.0 cannot be excused.<sup>1</sup>

A student whose over-all grade averages is 5 or more is passed "directly". A student having one, two, or three failed courses but who was excused by CTD (Classroom Teachers Decision) in his favor, is "passed by CTD". On the other hand, if a student fails in up to three courses, he is allowed to take a written completion examination in August or September just before the new academic year starts. If he happens to fail again he must repeat all courses failed. After repeating the class, if he fails again in four or more courses after CMT (Classroom Teachers Meeting), he is dismissed directly and he is not given the opportunity to take completion examinations. If he fails in up to three courses he may take the completion examination, and he is dismissed in case of failure in more than one. If he fails in only one course he may take completion examinations at the end of the successive grade level. A student who fails in more than three courses after the CTM is allowed to repeat the grade only once.

The same evaluation system of students' learning outcomes is used for the third graders who are going to graduate but in a little different way. The third graders of middle school and of lise and its equivalent, vocational and technical schools, are also given two semesters grades the same as first and second graders. But their situation is not

<sup>&</sup>lt;sup>1</sup><u>Milli Egitim Bakanligina Bagli Orta Dereceli Okullarin Sinif</u> <u>Gecme ve Intihan Yönetmeligi, op. cit., pp. 16-25.</u>

discussed at CTM as to whether they passed or failed. Every third grader who receives first and second semester grades is entitled to take graduation examinations, regardless of his semester grades. By meeting the following two criteria he may take examinations from only three courses (Turkish, Mathematics, and Social Science or Science): 1) those students whose grade averages are all 5.0 or more (in case of having some courses with grade average of 4, the second semester grade must be 7.0 or more from those courses) and 2) those students who may have one, two or three courses with grade average 4.0 but whose total grade average is 6.0 or more. The students whose grade averages do not fit the above two criteria and have several courses with grade averages less than 5 must take examinations from all those courses in addition to the three courses mentioned above.

In order to graduate, those students who take examinations in only three courses must earn at least 5.0 from each of these courses. But the remaining students can graduate only if they receive a <u>total</u> average grade of 5.0 (second semester grade <u>plus</u> graduation examination grade, divided by two). If this average is less than 5, they fail in the course(s). For example: first semester grade = 2, second semester grade 4, grade average 2 + 4 = 6, 6/2 = 3; graduation examination grade for that course = 5; final grade (3 + 5)/2 = 4; so he fails.

Those students who were not successful in Summer Graduation Examinations take examinations for failed courses in the Fall Graduation Examinations. Regardless of the prior grade averages, 5 on the examination is an acceptable grade to pass the course. If they pass the courses

Figure 2. A summary diagram of evaluating of learning outcomes in Turkish Schools (1973-1974).

Non-repeater Students (first and second graders)  $A \longrightarrow GPA > 5.0 \longrightarrow pass directly$  $GPA \ge 5.0$  $B \longrightarrow but < 5.0 \text{ in } \longrightarrow may \text{ pass by CTD}$ up to 3 courses  $C \longrightarrow GPA < 5.0$  in 4 or more courses  $\longrightarrow$  fail directly  $D \longrightarrow \begin{array}{c} \text{GPA } \overline{>} 5.0 \text{ but} \\ < 5.0 \text{ in Turkish} \longrightarrow \text{fail directly} \longrightarrow \text{Completion} \longrightarrow \text{pass or} \end{array}$ Examination repeat  $GPA \ge 5.0$  but  $E \longrightarrow < 5.0$  in less than  $\longrightarrow$  may fail by 4 courses CTD in some  $\longrightarrow$  Completion  $\longrightarrow$  pass or repeat Examination courses Repeater Students (first and second graders)  $A \longrightarrow GPA \ge 5.0 \longrightarrow Pass$ GPA < 5.0 $B \longrightarrow in 4 \text{ or more} \longrightarrow dismissed directly}$ courses GPA < 5.0in up to 3  $\longrightarrow$  Fall Completion Examination courses 1. Failure in more than one course  $\longrightarrow$  dismissed directly 2. Failure in one course  $\rightarrow$  pass but responsible from the failed course 3. Pass  $\longrightarrow$  continue next grade

continued

Figure 2--continued

Non-repeater Students (Grade Average-GA- $\overline{>}$  5.0, third graders) Summer Graduation Examination (SGE) If some course GA  $\leq$  4.0 SGE in Grades i A  $\longrightarrow$  second semester grades in  $\longrightarrow$  only 3  $\longrightarrow$  all 3 Grades in Gradua- $\rightarrow$  tion and these courses must be > 7.0 courses diploma courses  $\overline{>}$  5.0 Total GA  $\ge$  6.0 but GA in SGE in Grades in Gradua- $B \longrightarrow up$  to 3 courses  $\overline{\langle} 4.0 \longrightarrow only 3 \longrightarrow all 3 \longrightarrow tion and$ courses courses diploma 5.0 Do not meet A and B's SGE in 2nd semester grade +  $C \longrightarrow conditions$ . GA in 4 or  $\longrightarrow$  all SGE grade = < 5.0 more courses < 5.0courses 2 fail taken Fall Graduation Examination 1. GA in failed courses  $\overline{>}$  5.0  $\longrightarrow$  Graduation and diploma 2. Grades < 5.0 in up to 3 courses  $\longrightarrow$  Not allowed to  $\longrightarrow$  Wait until next SGE 3. Grades < 5.0 in more than 3 courses  $\longrightarrow$  Repeat the entire Repeater Students (third graders)

 $\texttt{D} \longrightarrow \overset{\texttt{SGE like non-repeaters}}{\texttt{A, B, or C}} \xrightarrow{\texttt{Grades < 5.0 in}}_{\substack{\texttt{more than 3}}} \overset{\texttt{Wait out of the}}{\underset{\texttt{courses}}{\texttt{school until}}} \xrightarrow{\texttt{Wait out of the}}_{\substack{\texttt{SGE.}}$ 

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which were subject to graduation examinations, they are graduated, and they get diplomas. Without this diploma no one can make the transition from middle school to lise, from lise to higher schools.

If a non-repeater student of the third grade fails the Fall Graduation Examinations in one, two or three courses, he is not allowed to attend the school until the following Summer Graduation Examinations. If he fails in more than three courses in the Fall Graduation Examinations, he must repeat the entire third grade. If a repeater student, on the other hand, fails in one or more courses he has to wait outside of the school until the next Summer Graduation Examinations (he may take examinations no more than three times).<sup>1</sup>

### SECTION II

### MEASUREMENT AND EVALUATION IN TURKEY

### History of the Measurement and Evaluation in Turkey

The origins of educational measurement and evaluation in Turkey can be tracked back more than 500 years. Upon the conquest of Istanbul by the Turks in 1453, Mehmet the Conqueror ordered the opening of new schools in Istanbul. A particular school which was called Enderun Mektebi (Palace School) selected its students among non-Muslim children on the basis of certain criteria, such as good behavior, good appearance and physical condition, intelligence, character and facial beauty.

<sup>1</sup><u>Ibid</u>.

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Although that school selected mostly from non-Muslim children, later it became so important in the Ottoman hierarchy that children of very important persons were also accepted.<sup>1</sup> Many of the highest ruling administrators and military leaders of the Ottoman Empire were educated in that school. From the beginning until the eighteenth century the selection criteria were kept rigorously; Ottoman Turks were among the first nations who "shunned birth", wealth and other aristocratic accoutrements, deliberately making education an important criterion for selection, social advancement and occupational placement.<sup>2</sup>

The importance of this school, for the purpose of this study, is in the methods used to recruit and select cadre of prospective leaders of the Empire. Selection was done at different stages before they entered the school, and while they were in school by highly trained officials. Tutoring as a technique to promote their learning was used for almost every student. In fact, tutoring among Turks has been known for more than ten centuries; the Khans, Beys, Sultans and Emperors all had different tutors starting during the very early years. A guided type learning (a kind of programmed learning, as it were) had to be applied to every prospective official, to the children of well-to-do families, and also to the students of Enderun Mektebi. Students in this school were both students and pages in the service of the Sultan. As students they had to pass seven grades by receiving instruction from

<sup>&</sup>lt;sup>1</sup>Faik Resit Unat, <u>Turkiye Egitim Sisteminin Gelismesine Tarihi Bir</u> <u>Bakis</u>, Milli Egitim Basimevi, Ankara, 1964, pp. 10-11.

<sup>&</sup>lt;sup>2</sup>Kazamias, <u>op. cit.</u>, p. 25.

special teachers (tutors) in the necessary fields, like the arts of the courtier and of the administrator.<sup>1</sup>

Another educational institution which was marked for its advanced teaching and evaluating techniques to promote learning is the Medrese (College). These schools come after the Koranic primary school. As with the Enderun Mektebi, recruitment into the medrese, and promotion within it were based on merit rather than on family background. They provided a more advanced religious instruction than the Koranic schools. In addition to religious subjects, the course of study included other subjects like grammer, syntax, logic, metaphysics, rhetoric, geometry, arithmetic, and even medicine. The instruction was graded on the basis of written and oral evaluation, but also was individualized and each student could advance in accordance with his capability. In that sense, "individuality" and merit of mastery learning have been long understood and practiced by the Ottoman Turks.<sup>2</sup> But unfortunately, the meritocratic principles of selection, advancement, and occupational placement continued only until the eighteenth century.

At the beginning of the eighteenth century there were important changes in the patterns of recruitment and selection into major governmental institutions and schools, as well as changes in the power of the State. Education and achievement had lost their original importance as basic criteria of selection and advancement. Other factors such as

<sup>&</sup>lt;sup>1</sup>Unat, <u>op. cit</u>., pp. 10-14.

<sup>&</sup>lt;sup>2</sup>A. E. Lyber, <u>The Government of the Ottoman Empire in the Time of</u> <u>Suleiman the Magnificent</u> (Cambridge. Mass.: Harvard University Press, 1913), p. 203.



wealth, bribery, and connections now entered the picture. Individuali instruction was given up, or used for only a few elite children; positions and promotions were allocated on the basis of extra educational criteria. These changes in recruitment, selection and promotion patte contributed as major factors to the decline of the Ottoman institution and then of the Empire. Whereas, at the height of Ottoman glory, one of the necessary conditions for admission, placement, and promotion within the ranks of the rulers was an exacting and selective system of education. There was of course no equality of opportunity of educatio as it is understood today.

After the second attempt to conquer Vienna in 1683, the Ottoman Turks made their first contacts with European countries in the beginni of an awakening to recognize their whole system. But the importance o the education was not adequately appreciated until the nineteenth century. In 1857, for the first time in the history of the Ottoman Empir a Ministry of Education was established. Different rules and regulati which were accepted at earlier times were modified and put together. French educational system was examined and several adaptations were ma

In 1869 a very important event with regard to the Turkish educational system, and to measurement and evaluation of educational attain ment, emerged from these previous attempts at modernizing. A comprehe sive regulation, which is still the cornerstone of today's Turkish educational system and of measurement and evaluation, was issued in 186 With this regulation (Regulation of General Public Education--Maarif-i Unumiye Nizamnamesi) three school systems were adopted.<sup>1</sup> The Sibyan Ok

<sup>1</sup>Unat, <u>op. cit</u>., pp. 96-113.

(primary school) was for four years and compulsory, the Rustiye Okulu (middle school) was for four years and should be opened in towns from 500 to 1,000 households in size. Idadiye Okulu (senior high) should be operated in towns with over 1,000 households and the length of education in these schools was for three years. These two schools at the secondary level were free public schools providing general education. Sultaniye Okullari (academic high schools) however, were not free, and could be opened only in large cities and towns. These schools were mostly boarding institutions. The length of education could be either six years (including idadiye) or three years. The graduates of these schools, thus, had a 14-year education with an academic and some vocational-professional background.

At the higher education level Darulmuallimin (Higher Teacher Training), Darulfunun (University) and Higher Technical schools were to be opened. The duration of education in these institutions varied between two and four years.

The Regulation of 1869 brought forward some important concepts and procedures concerning measurement and evaluation of educational attainment. Among the 198 paragraphs of the regulation, twenty-five were devoted to examinations, qualification for certification, and qualification for graduation diploma or qualification for apprenticeship. The regulation requires that grade examinations (promotion from one grade to the next upper grade), and school leaving examinations must be given in the presence of representatives of the community and education commissions of the local governments. Examinations for the Sultaniye (lycée) school graduates were to be on three levels: (1) Examination in



literature, law and science must be passed in order to be accepted as an unpaid beginner in an official post (mulazemet imitihani); (2) examinations in the above three fields to pass to the paid lower level of an official post (mezuniyet), and; (3) examinations to be certified on the mastery of these fields.

These examinations were written or given orally and a student had a right to take these examinations four times. Every school year a three-month period was devoted for examinations, generally between June and September. If a student could not pass the examinations in June, he could be given another examination three months later in September. If he could not pass the examination, he could repeat the same examination the following June and September. In case of failing twice in the grade promotion examinations, he had to repeat the same grade once more.

At the higher educational level, the final examinations at each grade level were to be given before a three membered "examination commission". Three colors (white, red and black) were used to grade a student's written and oral examination results. White represented excellence, red average success and black failing. If a student received three "white" grades from the three members of the commission, he was graded "excellent", and had all the priorities and privileges in applying and getting an official post, he was considered an "honor" student; one white plus two red marks used to give him an average passing grade; three reds or two whites plus one black mark provided the student with a passing grade but no credits were given. The names of the students who passed the examinations used to be posted at different public places.



The last paragraph of the "examination section" is an interesting one. This paragraph requires that twenty days before the school year ends students at the upper level of secondary education were first to be screened on the basis of their achievement for a reward examination. Those who were selected for the reward examinations were tested by the school examination commission. Those examinees who were highly successful in these examinations were to be awarded either two silver or two bronze medals; these rewards were to be given directly by either the Minister of Education if in Instanbul or by the local Governor before the parents of the students, invited guests and government officials.

Although many parts of this regulation have been changed since then, the examination system with some minor changes remained until today. Today's examination system, as discussed earlier in this study, is based upon this 1869 regulation, which was modeled after the French educational system.<sup>1</sup> With minor changes this procedure is followed as closely as possible and is controlled by the Ministry of Education. Karagozoglu<sup>2</sup> stated that it is the responsibility of secondary school supervisors that completion examinations and graduation examinations are conducted according to the regulations. For example, a supervisor or a group of supervisors should supervise whether the teachers' meeting of the school is held at the end of the school year properly or not; how examination questions are prepared and how they will be graded; how oral examinations are conducted, and so on.

<sup>2</sup>Karagozoglu, <u>op. cit.</u>, pp. 93-95.

<sup>&</sup>lt;sup>1</sup>Nafi Atuf, <u>Turkiye Maarif Tarihi</u> (Bir Deneme), Muallim Ahmet Halit Kitaphanesi; Milliyet Matbaasi, Istanbul: 1930.



The scientific movement in Turkish education in terms of tests and measurement began with the translation of the Binet test in 1915,<sup>1</sup> although it did not have a significant impact on the examination system. The uselessness of such a psychological measure, being merely a translation, was soon recognized and in the 1930's a pragmatic and scientific interest in psychological and educational purposes began to gather momentum.<sup>2</sup>

Until the 1950's all attempts of psychological and educational measurement were led by university professors who had some education in countries abroad, such as France, Germany and England. The diffusion of such a movement was seen only in psychological clinics attached to the universities in Istanbul and Ankara, although some eleven books on testing, of which eight were translations from English, French and German, were published.<sup>3</sup>

The beginning of the second half of the twentieth century is a very important turning point in the history of measurement and evaluation in the Turkish educational system because the two most influential organizations, the Turkish Armed Forces and Ministry of Education, started to introduce the use of objective tests all over the country. Since Turkey has become a member of the NATO, the Turkish Armed Forces

<sup>1</sup>Hasan Tan, "Decelopment of Psychology and Mental Testing," in <u>Mental Tests and Cultural Adaptation</u>. L. J. Cronbach and P. J. D. <u>Grenth (eds.), Mouton Publishers, The Hague, Netherlands, 1972, pp. 3-12.</u>



have adopted and used almost all modern military testing techniques; and at the same time naturally the selection, placement and training of personnel were completely changed. It is this active involvement that started modern objective testing in Turkey. Many Turkish officials were trained in the United States and many were helped by military advisory committees, mostly from America. Although the author of this study was not able to locate any literature on the objective tests used by the Armed Forces, he has observed some testing activities in the Armed Forces and upon his induction to military service was exposed for the first time during his education, to an objective classification tests prepared (adapted) by the Armed Forces in 1953.<sup>1</sup>

During the same years another organization in the MOE was becoming actively involved in objective measurement and evaluation. The new organization, the Test and Research Bureau (TRS) was opened in a small room of the Gazi Educational Institute by the initiative of Americaneducated Turkish educators. Although some of the faculty of Isbantul University were selecting their students on the basis of objective examinations between 1951 and 1953,<sup>2</sup> for the first time in the history of the Turkish educational system, objective tests began to be used all over the country. All essay type entrance examinations for Educational Institutes and some higher educational institutions were abandoned

<sup>1</sup>Hasan Tan, <u>op. cit.</u>, pp. 3-12.

<sup>2</sup>Sadrettin Celal Antel, "Universite tercih yoklamasi ve neticelri," <u>Pedagogi Bülteni</u>, Istanbul Universitesi Edebiyat Fakultesi, 1954, pp. 26-60.


and were replaced by objective tests.<sup>1</sup> In 1957-1958 the Ankara University Faculty of Medicine, in 1959-1960 the Middle-East Technical University,<sup>2</sup> in 1961-1962 the Faculty of Political Sciences, Faculty of Language and History and Geography, and the Academy of Social Services all started to use objective tests. These tests were either prepared, conducted and evaluated by the TRB, or by a joint committee composed of related faculty representatives and TRB personnel.<sup>3</sup> All faculties of Ankara University started to use objective tests prepared and administered by a Central Examination Commission in the 1962-1963 academic year. Istanbul University and other higher educational institutions, except Educational Institutes and Middle-East Technical University, started to use objective tests the same way in the 1964-1965 academic year. Entrance examinations for the Educational Institutes continued to be prepared and administered by the TRB, while the Middle-East Technical University prepared its own tests.

Since its establishment in 1953, the TRB has prepared a number of achievement tests at the elementary and secondary school levels. It was also involved in developing some group aptitude tests based on American tests as models (Otis Quick Scoring, for example). The writer, as one of the researchers in the Bureau for five years, has not been able to locate any validity studies and standardization activities on the tests

<sup>&</sup>lt;sup>1</sup>Ethem Ozguven, "Universite giris sinavlavinin ogrenci secimindeki rolu," <u>Hacettepe Sosyal ve Beseri BilimlerDergisi</u>, Cilt 3, Sayi 2, Ekim 1971, Hacettepe Universitesi Basimevi, Ankara.

<sup>&</sup>lt;sup>2</sup>Tan, <u>op. cit</u>., pp. 3-12.

<sup>&</sup>lt;sup>3</sup>Ozguven, <u>op. cit</u>.

that have been developed, although some item analyses have been done. Yet the TRB has been preparing the selection batteries and directing entrance examinations for various schools at all levels. The TRB has also helped to train a number of people from various organizations in test development and application and interpretation of tests and test results.

The TRB has a large collection of tests, mostly American. For experimental purposes a considerable number of them have been used on various populations. Among these are the Otis Quick Scoring Mental Abilities, Kuder Preference Record-Vocational, MacQuarrie Mechanical Aptitude, and Differential Aptitude Tests.

Although the TRB has been the leader in the testing movement (since 1970 it has merged into the Planning, Research and Coordination Bureau), there are also some other centers interested in testing and test development. For instance, the Pedagogy Institute of Istanbul University directed a standardization study of the Stanford-Binet on an experimental basis. Gazi Teachers' College developed the Gazi-Beier Test. Middle-East Technical University has an experimental adaptation of the 1960 revision of the Stanford-Binet and Wechsler Adult Intelligence Scale. Hacettepe and Istanbul Universities are working on the Wechsler Intelligence Scale for Children. Some original aptitude tests are prepared for university entrance examinations by the psychologists and educators of Middle-East Technical University. Some public organizations are also developing psychotechnical laboratories for personnel selection purposes.<sup>1</sup>

<sup>1</sup>Tan, <u>op. cit</u>., pp. 3-12.





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#### Present Situation of Objective Testing

The use of objective tests in the Turkish educational system is discussed under three different forms. These are: a) classroom or teacher-made tests, b) standardized tests, and c) program examination tests. Each of these three uses of objective tests is discussed in light of available literature and on the basis of this study's author's experience.

#### Teacher-made Tests

An objective teacher-made or a classroom test is defined as the objective test which is prepared, administered and scored by the teacher of a class for specific purposes such as diagnosis, formative evaluation, learning exercises, and midterm or final examinations. Such a test can be a ten-item, or twenty-item, or a one hundred-item test depending upon the purpose of the teacher and situation. Such an objective test may be prepared and used by every teacher at every level of education. The importance of such testing at different levels of education, however, is interpreted quite differently for various reasons as explained below.

Primary school teachers use classroom tests more often than secondary or higher education teachers. This is partly because while they were at primary teacher-training schools they were taught and gained experience in objective testing by their educational psychology teachers who were graduated from pedagogy (recently "Education") the set of

departments of Educational Institutes (only three of the Educational **Institutes have pedagogy--or Education--departments**). Also, they receive support and help from primary school supervisors, who also graduated from the same departments. Another reason stems from the fact that primary school supplementary magazines, which are used by all teachers in every classroom, supply the teachers with ready-made objective tests and encourage the classroom teachers to prepare their own tests. Many primary teachers located at inadequate schools with inadequate duplicating or mimeographing facilities merely use these ready-made objective tests. A final reason why primary school teachers use objective tests either prepared by themselves or supplied by weekly or bi-weekly primary school magazines is that primary school teachers are more concerned with their students' educational attainment. There are several reasons for this: (1) They spend the whole academic year with the same class, and then move forward with them for the following years, for as many as five years. (2) The relationship between the teacher and his students is rather informal in comparison with other school teachers. (3) The relationship between the teacher and parents is generally smoother than the relationship between secondary school teachers and students' parents. At the higher educational level such a relationship normally does not exist at all. (4) Primary school teachers get support and help from primary school supervisors more often, especially in cities and towns, than the secondary school teachers do. While a primary school teacher is supervised officially at least twice a year, a secondary school teacher may not be supervised once in two

years. (5) The training of primary and secondary school teachers with regard to objective testing is different. Primary school teachers are taught some objective measurement techniques while they are at the teacher training schools by faculty who have had at least three courses and some experiences in objective test and measurement. On the other hand, secondary school teachers do not have to have any course in objective test and measurement except than in pedagogy departments. The nature of the departments as well as the educational background of the teachers in these departments differ from each other. The teachers in the departments of the Educational Institutes other than pedagogy departments come from faculties which may not use or emphasize objective test and measurement. Yet, at the Educational Institutes as well as at the universities, there is no coordination among the departments or faculties in terms of courses and other educational activities.<sup>1</sup>

At the primary schools, classroom tests are used for various purposes. These purposes can be classified as (1) formative evaluation; (2) motivating the students; (3) providing learning exercises; and (4) grading. For the reasons discussed above, the rate of progress of the students is considered a very important matter and it is taken seriously. For that reason a primary school teacher frequently measures and evaluates the progress of every individual student in her class. She may spend extra time with a student or with a group of students. She may bring extra materials for her students, sometimes she spends

<sup>&</sup>lt;sup>1</sup><u>Universitelerimizin Yonetim Sorunlari</u>, Turk Devrim Ocaklari Genel Merkezinin Semineri, 25-26, Kasim 1967, Guzel Istanbul Matbaasi, Istanbul: 1967.



money from her own pocket to provide the needy students with reference books or other materials. A primary school teacher is a professionally devoted teacher by training. Some of the primary school graduates may take objective type examinations for state secondary boarding schools. Therefore the teachers of the primary schools provide their students with learning exercises through teacher-made, magazine-supplied objective tests, or sample tests from the MOE. Motivating and also providing proper learning exercises go on in most classrooms of the primary schools, especially at the upper grade levels. In a few primary schools some teachers use objective tests informally for grading purposes, although the examination regulations do not permit it. Objective tests are used in different ways to promote learning.

Secondary school teachers rarely use objective tests for any purposes for reasons explained before. The objective tests are only used during the last weeks in the final grades of the secondary schools. This is done to prepare students for the state boarding schools. This activity takes place outside the school at private tutoring courses organized by private individuals. Besides these special objectives test tutoring courses, some highly priced test exercise books are also bought and used by the students both to get acquainted with objective types of questions and to review and study some topics covered by the books.

The period between the end of lycee graduation examinations and the university entrance examinations is an active and very important one in the lives of the lycee graduates. Most students move temporarily to big cities like Ankara, Istanbul and Izmir to register at one of the

preparatory university test courses. Many of these courses are run by university professors or secondary school teachers. The owner and instructors of these courses are highly commercialized, and money-back guarantees are openly given. These are facts that need not be certified in any way because the newspapers are full of such advertisements and promises.

At the higher educational level only a few departments or faculties use objective tests. These universities are the relatively new ones, like Middle-East Technical University, Hacettepe University, and some Educational Institutes. For example, at Middle-East Technical University and Hacettepe University education or social science departments in general use teacher-made objective tests. Pedagogy (new "Education") departments of Ankara and Istanbul Educational Institutes also extensively use objective tests. These Educational Institutes are the main channels for diffusing objective testing in the Turkish educational system.

## Standardized Tests

Although objective tests were introduced to the Turkish educational system in the 1950's, as far as the available literature on objective testing and the experience of the author of this study are concerned, there has not been any standardization except a few predictive studies on the Turkish university entrance examinations. The first predictive study was undertaken by  $Tan^{1}$  in 1966. The purpose of the study was

<sup>&</sup>lt;sup>1</sup>Hasan Tan, <u>Giris Sinavlarimiz</u> <u>Iyi Ogrenci Secebiliyor mu</u>? Orta Dogu Teknik Universitesi, Fen ve Edebiyat Fakultesi Yayin No: 10, Ankara: 1966.



stated as:

In this study it has been our purpose to find out to what extent we have been successful in selecting the candidates with potentials for university education through our entrance examination. In order to find an answer to this question, 177 students who were admitted to the university through the entrance examination of 1961-1962 have been dealt with in this study. (p. 7)

Kendir in 1968,<sup>1</sup> and Toker, Uckunkaya and Gülcü<sup>2</sup> in 1969 did similar predictive studies at Ankara and Hacettepe Universities, respectively. The latest study of this kind was done by Ozguven<sup>3</sup> in 1971 at Hacettepe University.

The TRB (PAKD's Test Department since 1970) attempted some standardization in its earlier years but no study was completed. At present, items for achievement test batteries are selected on the basis of their difficulty and discrimination level. Aptitude test batteries are largely adapted foreign tests, mostly American, such as the Thurstone Primary Mental Abilities, ACE Psychological Examination, MacQuarrie Mechanical Aptitude, and DAT. On the other hand, the department developed its own aptitude tests (see Appendix A).

In addition to the TRB, some other centers have been interested in testing and test development. For instance, the Pedagogy Institute

<sup>3</sup>Ozguven, <u>op. cit</u>.

<sup>&</sup>lt;sup>1</sup>S. E. Kendir, <u>Universite Giris Sinavlari Uzerinde Istatistiksel</u> <u>Bir Deneme</u>, Universiteler Arasi Istatistikciler Konferansi, Eylul 1967, Devlet Istatistik Enstitusu Matbaasi, Ankara: 1968.

<sup>&</sup>lt;sup>2</sup>F. Toker, B. Uçkunkaya, ve Gülcü, <u>Hacettept Universitesine</u> Ogrenci Secme Islemi Üzerine On Arastirma, Hacettepe Basimevi, 1969.



of Istanbul University directed a standardization study of the Stanford-Binet in 1956. The only other studies in standardization are: the Gazi Educational Institute's Gazi-Beier Test (a projective test) in 1955, an adaptation of the Stanford-Binet 1960 Edition in 1964, an adaptation of the Wechsler Adult Intelligence Scale in 1960, and an interest test (Tan Newspaper Headings Test)<sup>1</sup> in 1970.

## Program Examination Tests

Program examination means examinations which are preplanned, constructed and administered by a central organization or by a special committee. In the Turkish educational system program examinations are held by two different organizations, the Inter-Universities Entrance Examination Commission and the Test Department of the Planning Research and Coordination Bureau in the MOE.

As its name implies the Inter-Universities Entrance Examinations Commission is responsible for preparing, administering, scoring and reporting the university entrance examinations. All universities except Middle-East Technical University admit their students according to the entrance examination results reported by the Commission. Since the spaces in universities are very limited, the number of students admitted to the universities is less than one-tenth of the applicants. The entrance examinations are given at the same time in July in designated cities in the country. The tests are objective and include every

<sup>1</sup>Tan (1971), <u>op. cit</u>.

form of objective questions (multiple choice, true-false, matching types). Tests are prepared by qualified and experienced lycee teachers under the control and direction of the Commission. They cover almost every subject matter taught at lycee level. Some of the items are re-used every year while new ones are added without pre-trial. In the 1969-1970 academic year, a general aptitude test was dropped because of a low correlation (0.02 in 1968, close to zero in 1969) between general achievement at the university and aptitude scores on the entrance examinations.<sup>1</sup>

The Inter-Universities Entrance Examination Commission was established in 1963. Since that date all university entrance examinations use objective tests according to the Inter-Universities Entrance Examination Regulation. The regulation requires that higher schools and universities select their representatives for the commission for two years. Educational Institutes and Middle-East Technical University are not represented on the commission because the former uses tests prepared by the MOE and the latter prepares and uses its own tests by its entrance examination commission.<sup>2</sup>

Every year in April the Commission sends enough application forms to the NDE and lycee. These application forms are filled out by the

<sup>&</sup>lt;sup>1</sup>S. Kendir, ve Tuncer, "Ankara Universitesi Hukuk Fakultesi ogrencilerinin universite Giris sinavlarinda aldiklari puanlarin ve birinci siniftaki basarilarinin karsilastirilmasi." <u>Ankara Universitesi</u> Hukuk Fakultesi Dergisi 26:365-376, 1969.

<sup>&</sup>lt;sup>2</sup>C. Mihcioglu, <u>Universeteye Giris ve Liselerimiz</u>, Ankara Universitesi Basimevi, 1969, XII+277.

students so desiring and are sent with T.L. 100 to the Commission. Later, the Commission sends each student an identification card showing that this student is eligible to take the University Entrance Examinations in whichever city he indicated. In July, at the same hour and day. lycee last grade students or those with a lycee equivalent diploma take the entrance examinations under securely supervised conditions. Examinations usually are taken both in the morning and in the afternoon. The marked answer cards are sent to the Commission. In September or October each student receives a note from the Commission about his test results. A list is also sent to each of the lycees showing how many students took the examination and each student's test results in standard scores. Late in October or November each faculty announces on what standard score basis it will accept students. Each faculty uses a weighted total score for its own purposes. A student's total score is composed of science, social science, and foreign language test scores. In order to be able to select the best students each faculty gives a different weight for each kind of score. For example, mathematic, physics and chemistry oriented faculties use a formula like:

Weighted Science Score = 2SZ + <u>3SF</u> + SS + 0.25 SD A social science oriented faculty formula might be:

Weighted Social Science Score =  $2SZ + SF + \frac{3SS}{2} + 0.25$  SD (SZ being standard aptitude, SF standard science, SS standard social science, and SD standard foreign language scores).<sup>1</sup>

<sup>1</sup>Ozguven, <u>op. cit</u>.

The entrance examinations to state boarding schools at the secondary general and secondary vocational schools and to the Educational Institutes are held by the MOE through the Test Department in the Planning-Research and Coordination Bureau every year before the academic year ends. For that reason, every year a regulation concerning the date and procedures to be followed for the entrance examinations is sent to every school in the country. The date and all procedures are fixed by the Test Department. No examinations are given either before or after that date. For instance in 1971,<sup>1</sup> it was required that entrance examinations to the state boarding schools at the lower secondary level should be taken on April 26, 1971, and entrance to the state boarding schools at the upper secondary level should be on April 27, 1971 in every city. Under the supervision of the Director of Education in the city a temporary examination commission is set up. This commission is composed of a school director at the secondary level or his representative, a primary education supervisor, and the director of primary education. This commission, if it is necessary, may have some additional examination observers in order to have secure examinations. The procedures to be followed before, during and after the examination is sent to every city by the safest means and it is the responsibility of the city examination commission that they are sent back to the PAKD the same way.

All answer sheets are scored by electronic computers and test results are sent to every school. If a school's quota is 50 students,

<sup>1</sup>M.E.B., PAKD 530/3823 sayi ve 28.11.1970 tarihli genelgesi, Ankara.

it invites the best 150 students who applied to that school. These 150 students are given either another test, or just an interview, or both; but this time the test is an essay test and prepared by the related school's examination commission under the supervision of the school director. Upon this second test result, 100 students are eliminated and only 50 are accepted to that school. Although there is no interference by anybody during the first step, personal influences come into being during the second step of selection. It is highly probable that many of the children of well-to-do families are among the 150 students, and through different channels of influence will again be among the last 50 students selected at the last step. Therefore objectivity and fairness are practiced only to a limited degree all the way through the process.

# Measurement and Evaluation in Turkish Industry

In the use of objective measurement and evaluation techniques Turkish industry does not differ from the educational system. A few industrial organizations, mostly state or municipally owned, have just started to appreciate the use of objective measurement and evaluation techniques in personnel selection and training. Some of the industrial organizations in Istanbul are trying to get help in the form of advice from trained personnel at the universities. A center in Ankara, the National Productivity Center, is trying to persuade some big businesses to use new techniques. Among these new techniques objective measurement

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and evaluation are highly recommended.

As far as the author's knowledge and experiences are concerned, this trend, although slow and limited, is attributed to the pressures which originate from those educated aministrators who have power. Another reason is that the efforts of business consultants and young personnel in organizations who were educated at particular universities of Turkey or abroad are becoming effective. Still there is a long way to go. Industrial organizations have not fully appreciated the use of objective measurement and evaluation techniques because of (a) a lack of courses in industrial-organizational psychology, (b) unawareness of the usefulness of objectivity in personnel selection, placement, training, and transfer, and (c) disinterest in industry in general on the part of psychologists. An equally important reason may be said, is that there are a few trained industrial-organizational psychologists.

#### Summary

The Turkish educational system is administered and controlled centrally. All public schools are free and primary education is compulsory until the age of 14. Besides public schools there are some private schools at every level except higher education. The school enrollment rate is around 90 percent of the age group at the primary level, 47.3 percent at the lower secondary level, 20 percent at the upper secondary level, and 6 percent at the higher educational level.

<sup>&</sup>lt;sup>1</sup>Tan (1972), <u>op. cit</u>.

With the exceptions of state boarding schools and higher education, a student is accepted by schools on the basis of a diploma showing that he completed the school at the preceding level. Selection of students to the state boarding schools and higher educational institutions is made on the basis of entrance examinations in addition to holding a diploma. Entrance examinations which are objective type tests are prepared and administered centrally, except for second step examinations at the secondary level and Educational Institutes. The second step examinations are either essay type written tests and/or interviews.

The Turkish educational system follows a 5-3-3-4 or more (5 or 6) pattern. The educational attainment of students in these schools is measured and evaluated on the basis of oral and essay examinations. Only limited use of objective tests is made, under certain conditions, in formal learning situations. Use of objective tests for purposes such as grading, diagnosing, and counseling is either implicitly prohibited or not well-known, although some teachers and privately owned tutoring colleges in the largest cities of Turkey use objective tests to make the students acquainted with objective tests. The other informal use of objective tests by classroom teachers is mainly to promote learning by motivating the students, providing good learning exercises, and directing the students learning in the desired directions. The entrance of objective testing to the Turkish educational system dates back to the 1950's. But today the basic structure of over-all examination system resembles the old French system that was officially introduced to the Turkish schools in 1869.





Use of objective tests in Turkish industry is also new and it is practiced in a limited way in only state and some municipally owned organizations. Use of objective tests in industry will certainly rest on the development and use of objective tests in the Turkish Educational system, in general.

#### CHAPTER III

## THE UNITED STATES EDUCATIONAL SYSTEM AND MEASUREMENT AND EVALUATION

This chapter describes (a) the general background and characteristics of the United States educational system and (b) the policies and practices of measurement and evaluation in education and also in industry. In the first section the school system, including its organization and administration are described in broad terms to provide a basis for comparison with the Turkish educational system. The second section deals with the history of measurement and evaluation in the United States educational system, and its present situation in the United States.

## SECTION I

### THE SCHOOL SYSTEM IN THE UNITED STATES OF AMERICA

The present school system in the United States basically follows three patterns below college level. The first pattern is the 8-4 plan in which after nursery school and kindergarten the pupils spend 8 years in the elementary school and 4 years in the high school. The second pattern is generally called the 6-3-3-plan, in which after kindergarten, students spend 6 years in the elementary school, 3 years in junior high

school, and 3 years in senior high school. In the third pattern called 6-6, pupils spend 6 years in the elementary school and 6 years in high school. All three plans lead to high school graduation at 17 or 18 years of age.<sup>1</sup> Graduates of high school may enter a junior college, a technical institute, or a 4 year college or professional school. Some colleges are for more than four years (see Figure 3).

Every state maintains a system of free public education through the twelfth grade. School attendance is compulsory until a certain age (which varies from 16-18). Besides public education, private educational institutions at all levels of education constitute a significant and vital part of American education.

# Elementary Education

Elementary education generally consists of education for all children ages six through eleven in grades one through six. In some states or school systems, it may include children of 4 or 5 in nursery schools or kindergartens and children of twelve or thirteen in grades seven and eight.

Since there is no national course of study in the United States, each State suggests a broad curriculum for its schools. The curriculum for elementary schools, then, is usually planned locally. Teachers, supervisors, curriculum directors, principals and parents

<sup>&</sup>lt;sup>1</sup>Education in the United States of America, U. S. Dept. of Health, Education, and Welfare. Office of Education, Washington, D. C. 1960.



Figure 3. The structure of education in the United States. (Adapted from Education in the United States of America. Washington, D.C.: U. S. Dept. of Health, Education and Welfare. Office of Education. 1960.)

work in committees to prepare the detailed plan. The detailed plan is built upon the results of experimentation and research in both curriculum and child development. Although this local responsibility for the curriculum results in some variation among programs, there is a surprising degree of similarity among the curricula of different schools. This similarity can be attributed to the influences of national professional and citizen's groups of all kinds; such as, the National Citizens' Council for Better Schools, the American Council for Basic Education, the National Education Association, the CEEB, The Advanced Placement Program and the National Merit Award. Other nationwide but less tangible factors affecting the unique self-determination of any school and school board include radio, television and advertising, nationwide communications, pressure exerted by textbook publishers, sales representatives, and the "restless personal mobility of ambitious Americans."<sup>1</sup>

The size of elementary schools varies from region to region and from local community to local community. Some schools enroll as many as 1,000, and in some rural areas as few as 5 students. Most schools are divided into grades with a teacher assigned to a single grade for a school year. The teacher, however, usually does not continue with the same children until students finish the elementary school, whereas, teachers do move ahead with their students in Turkish elementary schools.

American elementary schools provide a variety of materials and experiences: excursions, films, pictures, posters, and library books.

<sup>&</sup>lt;sup>1</sup>Edmund J. King, <u>Society, Schools and Progress in the USA</u>, Oxford: Pergammon Press, 1965, pp. 32-36.

But the textbook which is given to each child--at least one for each subject he studies--continues to be a primary instrument of instruction.

Elementary school pupils usually progress through school on the basis of annual promotions.<sup>1</sup> Schools attempt to individualize progress from the beginning throughout the elementary years, therefore achievement is not uniform. Guidance services are provided; many school systems provide psychologists and guidance personnel to help teachers with difficult cases of behavior or learning.

Most elementary school teachers are college graduates (indeed some states now require Master's degrees for certification), and are trained in areas like teaching methods and educational psychology. They are given many opportunities for in-service training: workshops and study conferences, professional credit for educational travel, and use of professional libraries are among the major services provided to elementary school teachers. Classes usually have about 25 to 30 students per class, and the relationship between teacher and student is an informal one.

Besides regular services and programs in elementary schools, some other programs and services are also available. These programs and services include school health programs, school lunch programs, library services, visiting teacher services, extended school services and parent education.

<sup>1</sup>Education in the United States of America, op. cit., p. 22.

#### Secondary Education

Secondary education consists of education for boys and girls 14 through 17 years of age. Nearly all of the elementary school graduates enter secondary schools,<sup>1</sup> most secondary schools being public schools. A high school may be a four year school offering an academic, technical or vocational curriculum or a comprehensive school; or a three-year junior high school between the six-year elementary school and threeyear senior high school; or it may be a three-year senior high school offering a program leading to graduation and a diploma.<sup>2</sup> The four-year high school, however, is the typical secondary school in the United States.

High schools in the United States are co-educational, and many of them are completely comprehensive. These comprehensive schools normally allow a wide range of elective subjects in the upper grades. But all high school students are required to study English, social studies, mathematics, science, and health and physical education. Although these basic subjects are required by state laws, the state allows considerable latitude to the local school district in deciding what the study content will be within a subject. The agencies mentioned above in connection with elementary education also play an important role in the quality of secondary education.

<sup>&</sup>lt;sup>1</sup>Edmund J. King, <u>Other Schools and Ours</u>. New York: Holt, Rinehart and Winston, Inc., 1967, p. 198.

<sup>&</sup>lt;sup>2</sup>World Survey of Education, UNESCO, Paris: 1971, p. 138; see also King, <u>op. cit</u>., pp. 198-202.



High school teachers are certified or licensed before they begin to teach. Each state has its own certification requirements. A four year college education, or in some cases a Master's degree is required. The teachers have courses in educational psychology, principles of education, and methods of teaching. Approximately 15 percent of the courses are commonly in the field of education.<sup>1</sup>

An important feature of the American high schools is the recognition of individual differences among students.

A high school education for every youth, an important educational aim in the United States for the past several decades, has increased the ever-present problem of providing for individual differences among pupils in ability to learn. School systems use varying methods in providing for these individual differences.<sup>2</sup>

Provisions for such an aim are ability grouping, multiple-track programs, and special classes for exceptionally talented (academically) pupils. Education of other exceptional children (i.e., ones with various types of handicaps) is also undertaken at the secondary level of education.

Vocational education is an integral part of the total education program in the American high schools. It provides training for students in daytime secondary schools and for out-of-school youth and adults. The vocational education is both the responsibility of the federal government and the states. The Congress assists the states in the promotion and further development of vocational education. This help is in the

<sup>1</sup>Education in the United States of America, op. cit., p. 33.
<sup>2</sup>Ibid., pp. 38-39.



form of funds, used principally for the salaries and travel of vocational teachers, teacher trainers, supervisors, and directors. "The law requires that for every dollar of federal vocational education funds expended, at least one dollar of state or local funds must be expended for the same purpose. It is the responsibility of a state board for vocational education to promote, develop and improve and supervise vocational educational programs within its state."<sup>1</sup> Programs of vocational education include agricultural education, distributive education and home economics education, as well as training in industrial, commercial, and trade skills.

# Higher Education

There are more than 2600 higher educational institutions in the United States.<sup>2</sup> "Higher education includes those educational programs which require for admission the completion of approximately 12 years of previous schooling or its equivalent."<sup>3</sup> The institutions of higher education are various. There are "junior colleges," offering a two-year program. Usually they are organized as an independent institution. They frequently offer courses leading to an associate certificate and to credits which may be transferred toward a bachelor's degree in a

<sup>1</sup><u>Ibid.</u>, p. 57.
<sup>2</sup>King, <u>op. cit.</u>, p. 202.
<sup>3</sup>Education in the United States of America, op. cit., p. 77.

four-year college. They usually offer both a general education curriculum and a wide variety of short vocational training courses. A similar institution, or a different name for the same institution, is the "community college" which is also a two year institution, normally without residential facilities. Community colleges are usually organized as part of the local public school system, but sometimes as independent institutions. Their programs are adapted to help meet needs of the local community; they are more community centered in control, administration and curricula than the junior colleges.<sup>1</sup>

Universities offer four years of undergraduate education plus programs of advanced post-graduate work leading to graduate degrees at all levels. They usually include a college of liberal arts and sciences, two or more professional schools (architecture, business, education, engineering, law, etc.), and a graduate school. The graduates of the universities are awarded a Bachelor's degree. The graduate schools offer Masters and Doctors' degrees. Some of the universities (about half of the state universities) are called land-grant colleges or universities, because they were initially financed by grants of federal lands to the states for the creation of "agricultural and mechanical" colleges.

Two other types of higher educational institutions are the institutes of technology and technical institutes. The former center their attention on technical subjects, such as science and engineering, but

<sup>1</sup>World Survey of Education, op. cit., p. 1308.





some of them offer programs that become almost indistinguishable from those of a university (for example, Massachusetts Institute of Technology). The technical institutes are organized as a division or department in a two- or four-year institution of higher education or as an independent institution of higher education. They offer a twoor three-year terminal program designed to lead to employment in an engineering or related occupation rather than to a first degree, but sometimes they lead students to academic credit toward the first degree.<sup>1</sup>

Higher educational institutions are essentially academically autonomous. There is almost no control or authority over the instructional programs exerted from outside the institutions. However, regional and professional voluntary accrediting agencies have been given the responsibility for dealing with the problem of standards among institutions. These accrediting agencies certify that institutions meet announced standards of quality. The regional associations are concerned with the evaluation of general institutional programs, while professional associations are concerned with single professional fields.

Admission to a higher educational institution is relatively open, as compared with most other countries. Every secondary school graduate, in theory, may be admitted to a college or university. However, requirements for admission vary greatly from one institution to another. Some institutions require that, in addition to completion of the

<sup>1</sup><u>Ibid</u>., p. 1310.


required subject matter in high school, a student must be in the upper half or upper third of his (her) graduating class. Some institutions require a student to pass entrance examinations, such as those given by the CEEB (College Entrance Examination Board). Some institutions require both passing the CEEB tests and passing an examination given by an independent testing organization, or examinations designed and conducted by the institutions themselves.

The majority of undergraduate students are enrolled in nonprofessional programs. Thus the tendency is for the students to extend the length of their study to a greater period than is taken in most countries.<sup>1</sup> Generally, students have a choice of studying in more than 150 different fields of concentration in 25 broadly defined subject matter areas. Subsequent specialization, usually in one or another type of graduate school, has become an important feature of American higher education since World War II.

The cost of attending undergraduate college may be as much as \$4,000 a school year. Education in a state university for state residents costs less than education in a private university. It is much higher for out-of-state students. A considerable number of students have scholarships in one form or another. Many students have part-time jobs. Most are supported at least partly by their parents.

<sup>1</sup>Education in the United States of America, op. cit., p. 96.



## Administration of Education

Administration and organization of education in the United States is highly decentralized: "among modern and fully developed nations, the United States is the supreme example of a decentralized system." In all public educational matters, the state is the basic unit and the legislature is the source of ultimate power. Unlike many other nations there is no "Ministry of Education" in the federal government. The Office of Education in the United States Department of Health, Education and Welfare is the primary agency of the federal government functioning in the field of education, but the responsibilities of the federal government are limited to encouragement, financial support and leadership. All other matters in education are the responsibilities of the states.<sup>2</sup> The Tenth Amendment is the basis for the reservation of the public education function to the states. It says, "The powers not delegated to the United States by the Constitution nor prohibited by it to the states, are reserved to the states respectively or to the people." Actually the word education does not occur in the United States Constitution. The philosophy behind the concept of state responsibility has been explained by the Council of State Governments $^3$  in the following terms:

<sup>1</sup>King, op. cit., p. 160.

<sup>2</sup>World Survey of Education, op. cit., pp. 1313-1319; see also, Education in the United States of America, op. cit., pp. 1-18.

<sup>3</sup>The Council of State Governments, <u>The Forty-Eight State School</u> Systems. Chicago, Illinois: 1949, pp. 4-5.



State responsibility for education is firmly imbedded in the constitutions of several states and buttressed by tradition and court decisions. This responsibility of the governments of the several states for the education of their citizens is much more than a theory or a tradition or a legal convention ... it is a living principle guiding the recommendations of governors and legislatures in each of the forty-eight states. There is evidence that state governments recognize their obligations to make improved educational programs and facilities accessible to all.

Accompanying this acceptance of state responsibility is the conviction that a large share of local control is both desirable and essential.

Educational policies and practices differ among the 50 states (since 1959) but state systems especially for elementary and secondary education, have many elements in common, as was explained earlier.

Most states direct their administration of schooling through a state board of education. These boards vary in size and manner of appointment. In three of the fifty states, boards are elected directly by the people; in thirty they are appointed wholly or in part by the State Governor; and in others, boards or commissions are indirectly elected.<sup>1</sup> The functions of these state educational agencies may be classified under three major categories: leadership, regulatory, and operational. Leadership functions are activities in planning, research, revising and consulting, coordinating and public relations, without exercising legal authority. Regulatory functions are a direct consequence of state authority and responsibility for education, while operational functions involve the direct management and control of schools and colleges or educational programs.

<sup>1</sup>King, <u>op. cit</u>. (1970), p. 46.



The public schools are operated and controlled by local governments. The local school district is a creation of the State legislature, which represents the will of the people of the entire state. But the number of school districts varies greatly from state to state. In 1960, Nevada had only 17 districts while another state (Nebraska) had 3,800 districts. The number of local school districts has been reduced in most areas by the process of consolidation. For example, in 1932 there were 127,422 local administrative units; in 1950, 83,642; in 1960, 40,605; and in 1969, 27,000.<sup>1</sup>

According to 1960 statistics,<sup>2</sup> 34 states had intermediate administrative units or agencies which function between the local school districts and the state department of education. These agencies are not units for school control. Their primary function is to provide services to schools which the local districts are unable to provide effectively and economically.

Each local school district selects a superintendent of schools to administer the local school system. In individual school systems, the school principal usually is given much freedom to organize and operate what he and his teachers consider to be a good school. The principal is in charge of administration of the school. He performs such duties as preparing schedules of classes, assigning teachers, maintaining good public relations and preparing the school budget.

<sup>2</sup>Education in the United States of America, op. cit., p. 12.

<sup>&</sup>lt;sup>1</sup>Ibid., pp. 14 and 48-49.



Financial support for education comes from three sources: the federal government, state governments, and local school administrative units within each of the states. Federal support for education has traditionally taken the form of support to the state and local systems where the Congress has identified a national interest, such as vocational education, education of the handicapped or underprivileged, education for special groups, such as war veterans, etc. Each state has its own plan for apportioning public school funds and these funds are derived from taxes on personal and corporate incomes, sales taxes, motor fuel taxes, motor vehicle fees and operator licenses, tobacco taxes, and alcoholic beverage taxes. Local school funds for public education are largely derived from a property tax.<sup>1</sup> Almost 79 percent of the public school construction cost is provided by the local school administrative units.<sup>2</sup>

# Grading System in American Schools

The achievement level of students is designated in different ways. Most school systems use letter marks like A, B, C, and D; but some use a pass-fail grading system and some use percent marking systems. Whatever the marks and marking systems are, they are determined partly by objective measurement and evaluation principles, as far as the author's observation is concerned. Teacher-made and

<sup>&</sup>lt;sup>1</sup>Ibid., pp. 12-15.

<sup>&</sup>lt;sup>2</sup>Ibid., p. 16.



standardized achievement tests, as explained in Section II of this chapter, have long been used to assign marks. Marks or grades are not used only to indicate the achievement level of students. Ebel pointed out some uses of marks as follows:

The uses made of marks are numerous and crucial. They are used to report a student's educational status to him, to his parents, to his future teachers, and to his prospective employers. They provide a basis for important decisions concerning his educational plan and his occupational career.<sup>1</sup>

Tests are not the sole measures used to assign grades to students; teachers' observations also play a role especially at the elementary level. Since there is usually little "failing" in a class, especially at the elementary level, grades are used for other purposes as indicated above.

At the high school level, a student's achievement is usually evaluated by daily class work, test results, and project or committee work. The most commonly used tests are teacher-made tests. In addition, standardized achievement tests are used periodically. "Normally promotion is by subject. To receive credit for a subject at the end of the school year, the pupil in most schools needs a D or above on a letter scale of F, D, C, B, and A. "A" represents the highest achievement in the class and "F" represents unsatisfactory performance. In some schools, pupils are also evaluated in terms of such factors as work habits, citizenship, leadership, initiative, responsibility, and cooperativeness."<sup>2</sup>

<sup>2</sup>Education in the United States of America, op. cit., p. 39.

Robert L. Ebel, <u>Essentials of Educational Measurement</u> (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1972), p. 313.



At the university level, generally a letter scale is used, and grading is based upon objective, as well as essay type examinations. If a student fails for one reason or another, he may repeat that course.

#### SECTION II

#### MEASUREMENT AND EVALUATION IN THE UNITED STATES

### History of Educational Measurement and Evaluation in the United States

The history of educational measurement in American education starts with three outstanding educators. These three educators are Horace Mann, J. M. Rice, and E. L. Thorndike.

Horace Mann, a leader in public education, teacher training, educational measurement and evaluation, is still perhaps one of the most influential figures in American educational history. He is the creator of the first written examination in the United States, the Boston examinations of 1845, the results of which made a profound impression on him. In his discussions, he concluded that the superiority of written examinations over the oral method was so clearly demonstrated that no school committee would ever again "venture to relapse into the former in adequate and uncertain practices."<sup>1</sup> Although in the literature of

<sup>&</sup>lt;sup>1</sup>Horace Mann, "Report of the annual examining committees of the Boston grammer and writing schools," <u>Common School Journal</u> 7:326-336, 1845.



educational measurement and evaluation there has been much written comment on the merits of this first written examination under the leadership of Horace Mann, the superiority of written examinations over the oral method is summarized in four points by Ebel as follows:

- 1. More evidence could be obtained of the achievements of each pupil.
- 2. A written record of those achievements would be produced.
- 3. Each pupil would be asked the same questions. Thus all would be treated alike.
- 4. There would be less possibility of favoritism for, or bias against particular pupils or teachers.<sup>1</sup>

Fifty years after Horace Mann's work, the first attempt by J. M. Rice in the United States of America<sup>2</sup> at standardized objective tests took place, twenty years later than Fisher's first standard tests in England. Rice devised a standardized test in spelling. In 1903 he prepared similar tests in arithmetic and in composition. Although Rice was a pioneer at educational standard tests, the modern testing procedures started with the publishing of the Stone Arithmetic Tests in 1908, and of the Thorndike Handwriting Scale in 1910.<sup>3</sup>

It was E. L. Thorndike who introduced the first textbook in educational measurement in 1903.<sup>4</sup> Thorndike advanced the proposition that

<sup>4</sup>E. L. Thorndike, <u>An Introduction to the Theory of Mental Social</u> Measurements (New York: The Science Press, 1903).

<sup>&</sup>lt;sup>1</sup>Ebel, op. cit., pp. 7-28.

<sup>&</sup>lt;sup>2</sup><u>Ibid</u>., p. 10.

<sup>&</sup>lt;sup>3</sup>Ibid., p. 11.



"whatever exists at all, exists in some amount"<sup>1</sup> ... and anything that exists could be measured. His studies and writings made him "the father of modern educational measurement."<sup>2</sup>

The diffusion of objective tests in education was not easy in the United States. Starting in the 1920's a strong opposition arose against objective tests on the grounds that they were "fragmentary and super-ficial," and might be good for only measuring factual knowledge. These types of arguments on objective testing continued until the 1930's although many writers and experimental studies showed that an objective test prepared by an expert was as good as an essay examination, and even better in many cases.<sup>3</sup>

The use of group intelligence tests--Army Alpha and Army Beta-during the first World War by the United States armed forces paved the way for the application of some of the new knowledge of educational and psychological testing in objective classroom tests. Classroom teachers were encouraged to use objective tests in their classrooms as a new examination technique. National or statewide testing programs replaced the essay type examinations. For instance, in 1926, the College Entrance Examination Board, and in 1927 the Educational Records Bureau were using objective tests in the selection of students for admission to

<sup>&</sup>lt;sup>1</sup>E. L. Thorndike, <u>The Seventeenth Yearbook of the National Society</u> <u>for the Study of Education, Part II</u> (Bloomington, Illinois: Public School Publishing Co., 1918), p. 16.

<sup>&</sup>lt;sup>2</sup>Ebel, <u>op. cit</u>., p. 11. <sup>3</sup><u>Ibid</u>., pp. 138-145.



colleges, and were developing or purchasing, distributing and scoring tests, and providing relevant norms for the member schools.<sup>1</sup> Today there are a variety of organizations and different testing programs for various purposes in the United States, as will be discussed later in this study.

In spite of the doubts about the merits of objective tests, another important development was witnessed in the 1920's. Instead of developing a single objective test like an arithmetic or spelling test, test batteries consisting of several common branches of instruction, particularly language, arithmetic, social studies and science were developed; for example, the first standardized survey test, the Stanford Achievement Test,<sup>2</sup> was designed for use at the elementary level. Following this test a number of other survey tests came into being.

In 1922, achievement tests also began to be used in the selection of applicants for industrial and government jobs. In this connection, the examination system in the United States civil service was developed.<sup>3</sup> Although competitive examinations were established in some government departments in the 1870's, they were not permanently installed as a regular procedure until the 1880's. After the recognition of the merits

<sup>1</sup><u>Ibid.</u>, pp. 14-20.

<sup>2</sup>Victor M. Noll and Dale P. Sconnel, <u>Introduction to Educational</u> <u>Measurement</u> (New York: Houghton Mifflin Co., 1972), pp. 20-44.

<sup>&</sup>lt;sup>3</sup>S. Kavruck, "Thirty-three years of test research: A short history of test development in the U. S. Civil Service Commission," Am<u>erican Psychologist</u> 11 (1956), pp. 329-333.



of objective tests, achievement tests started to be used as predictors of future learning or success in government departments.

Parallel to the development and nationwide use of objective tests, testing techniques have been developed. Among these factor analysis, reliability and validity studies were the most important developments. The 1930's witnessed another important development in the field of measurement. Although the use of separate answer sheets and stencil keys developed during the 1920's, IBM developed a practical electric test scoring machine in 1935.<sup>1</sup>

The 1930's in the United States are an important period with regard to educational measurement. As more and more objective tests were used, unfavorable reactions to objective tests, teacher-made or standardized, were seen, but objective tests continued to be published in great quantities. The Cooperative Test Service, in 1930, devoted itself to such publications with the support of the American Council on Education.<sup>2</sup> Besides the Cooperative Test Service, the Progressive Education Association became strongly identified with the evaluation movement.<sup>3</sup> With this new development, more attention was focused on measurement of effective outcomes of instruction such as attitudes, interests, and the ability to use the scientific method, although the

<sup>2</sup>Ben D. Wood, "The Program of the Cooperative Test Service," in <u>Tests and Measurements in Higher Education</u>, Wm. S. Gray (ed.) (Chicago: University of Chicago Press, 1936).

<sup>3</sup>Noll and Sconnel, op. cit., pp. 20-44.

<sup>&</sup>lt;sup>1</sup>Ebel, op. cit., p. 18.



importance of measuring knowledge and skills continued. The use of objective tests forced the educator to formulate instructional objectives more clearly than before. In other words, properly prepared objective tests started to motivate the instructor to define and state his objectives clearly. It is again during this period that in addition to norm referenced tests (nationwide standardized objective tests), the necessity of developing criterion referenced tests was strongly felt, because the norm referenced tests were inadequate and ineffective in measuring those areas emphasized by the individual teachers or schools or school systems.

In the 1940's some changes were suggested in the method of using tests to evaluate students' yearly achievement at the end of the school year. Terminal examinations<sup>1</sup> were objected to on several grounds, although the University of Chicago and the New York State Regent Examinations were based on the assumption that learning is of no value unless it persists at least to the end of the course, and that final level of ability is the crucial appraisal. Thorndike and Hagen summarized the several objections to the terminal (end of the course) examinations as follows:

 It is impossible to appraise certain types of competence within the limits of a scheduled examination. Ability to find and organize materials in relation to a problem, ability to demonstrate certain skills--whether of using a microscope or of baking a cake--and ability to participate effectively in a group discussion or group project are examples of outcomes not adapted to appraisal in a scheduled examination.

<sup>&</sup>lt;sup>1</sup>Thorndike and Hagen, op. cit., pp. 477-478.



- 2. The sample of behavior that can be obtained in an examination of a practical length is limited, and the reliability of the appraisal will be correspondingly restricted. Including evidence available from other sources may permit a more reliable appraisal. This will be true if the additional evidence is of as high quality as that provided by the examination. However, both quantity and quality of evidence must be borne in mind if reliability of appraisal is to be a maximum.
- 3. A sample so limited in time may do injustice to certain individuals. Certain examinees may be ill, tired, under pressure from outside circumstances or below par for other reasons at the time of the examination. Their performance at a particular day and hour may fail to represent their usual level of performance.
- 4. Performance under examination pressure may fail to represent individual's competence under more relaxed and normal life conditions. An examination is inevitably a somewhat stressful situation. The stress is heightened in the case of a single major examination, the outcome of which has important effects upon the individual's future.
- 5. The crucial terminal examination may have an unwholesome effect upon teaching and learning activities during the year. At best, the correspondence between what it is possible to test in an examination and the objectives of instruction is imperfect.<sup>1</sup>

On the basis of these objections the method supported would include quizzes and examinations during a given course, participation of students in group activities, laboratory and workshop activities, and projects prepared by students. Examinations given during the course especially could serve as diagnostic guides for restudy and motivating students to study more appropriately.

The end of the second World War brought important developments and changes in the use of objective tests in the United States.

<sup>1</sup><u>Ibid</u>., p. 476.



The use of objective tests in education, business and industry, the civil service and the armed forces has been growing since then. In 1947, some major testing services like the American Council on Education, Carnegie Foundation for the Advancement of Teaching, and the College Entrance Examination Board turned over their testing programs and services to the Educational Testing Service. Other organizations continue to use their services.<sup>1</sup>

Testing technology has kept up with the computer industry, thanks to E. F. Lindquist. "Assisted by a small group of electronic and mechanical technicians, Lindquist set to work to devise a high capacity, electronic, computerized test scoring machine" in 1953.<sup>2</sup>

Although the leadership in the development and use of educational objective tests has always been with private organizations and educators, leadership of the Federal Government has had substantial influence on testing in schools. Two education acts require, although indirectly, widescale testing. In 1958, Congress passed the National Defense Education Act, and in 1965 the Elementary and Secondary Education Act. The former provides federal funds for the establishment of programs of testing, counseling, and guidance in secondary schools; the latter provides funds for a variety of innovative and experimental programs. The Act of 1965 also requires the use of objective testing of educational achievement at least annually to evaluate the effectiveness of programs

<sup>1</sup>Ebel, <u>op. cit</u>., pp. 21-22.

<sup>2</sup><u>Ibid.</u>, pp. 22-23.



for educationally deprived children.<sup>1</sup> Since the 1950's there has been an increase in large-scale testing programs. Some of these testing programs at the state or national level are described in the following section of this chapter.

## Present Situation of Measurement and Evaluation

There is abundant literature on the use of objective tests in the United States. For the purpose of this study it is neither possible nor necessary to review all of the literature. Therefore, as was pointed out at the first international conference (in Berlin, 1967) on educational measurement, three distinct types of testing which account for the majority of examinations in United States schools are discussed.<sup>2</sup>

#### Teacher-made Tests

First are classroom or teacher-made tests, prepared, administered, scored and interpreted by classroom teachers and professors. They are closely tied to a specific sequence of instruction. Every student takes a number of such tests during a semester. The classroom teachers use the test results to evaluate the performance of students and to improve the instructional process.

<sup>&</sup>lt;sup>1</sup>Noll and Sconnel, <u>op. cit</u>., p. 37.

<sup>&</sup>lt;sup>2</sup>Henry Chauncey, "Testing programmes for selection and special purposes," in K. Ingenkamp (ed.), <u>Developments in Educational Testing</u> Vol.1 (London: University of London Press, Ltd., 1969), pp. 27-51.



The major function of a teacher-made test is to measure a student's achievement. All classroom teachers need a basis for giving a grade, and achievement testing serves as one way to determine that grade. On the other hand a test for instructional purposes is designed to give the student some understanding of his strengths and weaknesses and at the same time emphasize and reinforce those important points which he is to learn and remember. This kind of test is often graded by either students or teacher and then discussed in the classroom. This discussion provides maximum learning to result from the test experience. It helps the students to clear up misunderstandings and recall the facts which they had forgotten while writing the test or relearn some parts of the instruction that they had not learned.

Learning principles sometimes make it necessary that in many subject-matter areas the student must master certain basic competencies before proceeding to the next level of learning. Therefore the teacher uses mastery tests in order to determine whether the students have achieved sufficient competence for difficult learning tasks. Mastery tests for that purpose reinforce students' learning and assure them that their learning approach and study habits are adequate. This kind of test is regarded as part of the learning process.<sup>1</sup>

Teacher-made tests have a direct and powerful influence on how the students study and what they learn. "The experience of almost all

<sup>&</sup>lt;sup>1</sup>B. S. Bloom, "Mastery Learning," in Block, J. H. (ed.) <u>Mastery</u> <u>Learning, Theory and Practice</u> (New York: Holt, Rinehart and Winston, Inc., 1971).



students and teachers supports the view that students do tend to study harder when they expect an examination than when they do not and that they emphasize in studying those things on which they expect to be tested. If the students know in advance they will be tested, if they know what the test will require, and if the test does a good job of measuring the achievement of essential course objectives, then its motivating and guiding influence will be most wholesome."<sup>1</sup>

It has been suggested by Ebel that the appropriate use of good classroom tests can promote learning in at least four ways:

- (1) By stimulating teachers to clarify their objectives. Constructing a test causes a teacher to think carefully about the objectives of a course. Thinking carefully about the goals of a course should lead the instructor to define those goals operationally in terms of the kind of tasks a student is expected to be able to handle to demonstrate achievement of the goal.
- (2) By motivating students to apply themselves to learning tasks. What a student studies, how he studies, and how hard he studies is largely determined by what he expects to be tested on, by what kind of a test he expects, and by how soon he expects to be tested, respectively. But effectiveness of a classroom test depends on the quality and on the way in which it is used. If the examination requires detailed recall of limited areas of study, it will encourage and reward the last minute concentration on the topics covered in the class. If the examinations, (however) set up appropriate and reasonable goals for attainment, and if the student's performance on these examinations makes a real difference in his future opportunities, then the examinations do tend to stimulate effective learning.
- (3) By directing the efforts of students and teachers toward the attainment of essential achievements. For this purpose, a previous achievement test can be used as a pre-test. This is done primarily for indicating to students the kind of achievement expected of them. This kind of pre-testing may also be

<sup>&</sup>lt;sup>1</sup>Ebel, <u>op. cit.</u>, pp. 41-44.



used to identify individual differences among the students in their backgrounds in the field of study, and thus direct the efforts of the teachers and students toward desired achievement levels.

(4) By providing effective learning exercises. If the test results are discussed by students in small groups or in the classroom, or if each student is given enough time to recheck and correct his answer right after the examination has been marked by either the teacher or by students themselves, or by using teaching machines, the test will provide good learning exercises.

Teacher-made tests are also used for diagnosis and formative evaluation purposes. After a period of instruction, if a classroom teacher decides to determine points of faulty or inadequate learning in a detailed and analytical manner with an aim to correct, he may construct and use tests for diagnostic purposes. Diagnostic tests make the teacher aware of the important elements, necessary sequences, and difficulties of the process; they save the teacher's time and energy in diagnosis and leave more for individual remedial work; they help the student recognize his learning needs by systematically emphasizing his errors; they are also valuable from the point of view of the psychology of learning, in that they provide the student with knowledge of results; and they direct the students activities toward more meaningful study.<sup>2</sup>

<sup>&</sup>lt;sup>1</sup>R. L. Ebel, "Using examinations to promote learning," in Cooper (ed.) <u>The Two Ends of the Log</u> (Minneapolis, Minn.: University of Minnesota Press, 1958).

<sup>&</sup>lt;sup>2</sup>Ebel, <u>op. cit.</u>, p. 553; see also, W. W. Cook, "The functions of measurement in the facilitation of learning," in Lindquist (ed.) <u>Educational Measurement</u> (Washington, D. C.: ACE, 1951), pp. 35-38; also, R. Glaser and A. J. Nitko, "Measurement in learning and instruction," in Thorndike (ed.) <u>Educational Measurement</u> (Washington, D. C.: ACE, 1971), pp. 631-45; and Thorndike and Hagen, op. cit., pp. 26-28.


In classroom teaching it may be very effective to pace student learning. The use of formative evaluations after each separable unit or task in the learning process can do much to motivate the student to the necessary effort at the appropriate time. Formative evaluation is also used to provide feedback to the instructor after the completion of each unit in the sequence of instruction, and feedback to the students on their learning of particular parts of the learning sequence. It attempts to find out why teaching units or sections are or are not effective. The formative evaluation, like the diagnostic tests, has a powerful influence on learning; it helps to promote learning.<sup>1</sup>

Objective tests prepared by teachers may be used for other purposes in addition to those discussed above. Among these purposes the major ones can be cited as placement and promotion, homogenous grouping identification and study of exceptional children, interpreting schools to the community, improvement of school staff, educational research and curriculum evaluation.<sup>2</sup>

# Standardized Achievement Tests

Standardized achievement tests are those in which the test procedure and content have been fixed in such a way that subjects taught

<sup>&</sup>lt;sup>1</sup>Peter W. Airasian, "The role of evaluation in mastery learning," in Block (ed.) <u>Mastery Learning</u> (New York: Holt, Rinehart and Winston, Inc., 1971), pp. 77-78; see also, B. S. Bloom, "Some theoretical issues relating to educational evaluation," in Tyler, R. W. (ed.) <u>Educational</u> <u>Evaluation: New Roles, New Means</u>, NSSE, Sixty-eight Yearbook, 1969, pp. 47-50.

<sup>&</sup>lt;sup>2</sup>Noll and Sconnel, op. cit., pp. 509-556; see also, P. H. DuBois and G. D. Mayo (eds.) <u>Research Strategies for Evaluating Training</u>, AREA Monograph Series on Curriculum Evaluation (Chicago: Rand McNally Co., 1970).



at different places may be compared. They are developed by publishers and are then sold to schools, colleges and other organizations like government, business and industry. These organizations decide what available tests they want, when they will administer them, and how the results will be used.

Since World War II there has been a very rapid increase in the use of standardized achievement tests. The Sixth Mental Measurement Yearbook listed over 1,200 tests and article reviews of 522 tests covering primarily the period 1959 to 1964; the Seventh Mental Measurement Yearbook lists 1,157 tests, 798 test reviews by 439 reviewers, and 12,372 references for specific tests.

Standardized tests are used widely to obtain information concerning (a) individual differences among students with respect to particular traits, and (b) differences in strength among traits within the same individual. Data from standardized tests have proved to be very helpful in situations such as 1) facilitation of learning, 2) improving instruction, 3) guidance and counseling, 4) educational and industrial placement, and 5) research.<sup>1</sup>

In facilitation of learning many teachers and school systems use standardized achievement tests in various subject matter areas, especially at the elementary level. Such test results enable a teacher

<sup>&</sup>lt;sup>1</sup>W. A. Mehrens and I. J. Lehman, <u>Standardized Tests in Education</u> (New York: Holt, Rinehart and Winston, Inc., 1969), pp. 7-12; see also, L. J. Cronbach, <u>Essentials of Psychological Testing</u> (New York: Harper and Brothers Publishers, 1970), pp. 268-451; and, Ebel, <u>op. cit</u>. (1972), pp. 475-477.



to determine at the beginning of the year whether the class is above or below the national average and in which subject matter areas special work needs to be done or particular emphasis placed. Testing at the end of the year permits the teacher to determine how much growth has taken place, or what gains have been achieved in particular areas. Sometimes a standardized test is followed by a special diagnostic test to determine specific weakness within a particular subject matter area.

To improve instructions, standardized achievement tests are used to provide information as to where teaching has been effective. A careful examination of the often employed test results in a subject matter area permits re-teaching in different ways. But "a teacher should not ask a standardized test to provide evidence on how well she has taught all the things she has tried to teach, but only on the things that all teachers ought to have taught. For those achievements which are truly and rightly unique to a particular school or teacher, locally constructed tests are the best answer."<sup>1</sup>

Standardized achievement tests for instructional purposes are administered at the beginning of the academic year. With such tests generally three purposes are served. The first major purpose is placement and promotion. The most useful test for such purposes is a general achievement battery. These batteries usually have various norms such as grade norms, age norms, and norms for the battery as a whole. With

<sup>&</sup>lt;sup>1</sup>R. L. Ebel, "Standardized achievement tests: Uses and limitations," in Chase and Ludlow (eds.) <u>Reading in Educational and Psycho</u>logical Measurements (Boston: Houghton Mifflin Co., 1966).



these three types of norms schools can determine fairly accurately a student's grade level. Because of the many school systems in the United States, a standardized achievement battery may be used very satisfactorily to determine a transferred student's level of achievement.

Standardized achievement tests, like teacher made tests, are used for diagnostic purposes. It has been reported by Noll and Durost that up to 50 percent of the high school teachers in the study were using standardized achievement tests.<sup>1</sup> As discussed under "program examination" below, Michigan elementary and secondary school teachers use standardized achievement tests frequently for diagnosis and remedial purposes. Although many achievement tests may be used for diagnosis, standardized achievement tests prepared for diagnostic purposes are preferred. Since diagnostic testing reveals only weak points in a given course or unit, a classroom teacher may make diagnosis by studying results of standardized achievement tests which is more economical than tests designed for diagnostic purposes. Thus standardized achievement tests function directly or indirectly; directly, they are used to improve instruction by individualizing it; indirectly, they play an important role in improving teaching and learning.

Standardized achievement tests are used quite widely in American schools for guidance and counseling purposes, too. Since the passage

<sup>&</sup>lt;sup>1</sup>V. H. Noll and W. N. Durost, <u>Measurement Practices and Preferences</u> <u>of High School Teachers</u>, Test Service Notebook No. 8 (New York: Harcourt Brace Jovanovich, Inc., n.d.).



of the National Defense Education Act of 1958, which provides financial support for testing programs of guidance and counseling, tests are being used more extensively than ever before. Achievement test scores for guidance and counseling purposes often bring a student to face realities and help him decide that perhaps he does not want to be involved in his career choice, in view of the very difficult requirements that he cannot meet. Achievement tests are only one part of a counseling and guidance program in a school; besides achievement tests, measures of intelligence, aptitudes, interests and personality are also involved.

Standardized achievement tests are used by researchers in conjunction with comparative studies of different methods of teaching, comparative studies of schools in a region, state or nation, comparative studies of newly established programs, studying the relationship of the offerings of the school to the needs of the community, and followup studies on the degree of success attained in realizing the educational goals of the school.

The different uses of standardized achievement tests discussed so far indicate that ultimately, either directly or indirectly, they facilitate learning, or indicate the obstacles which impair learning, or show what has been done before. Good objective tests, whether teacher-made or standardized, can be used effectively to promote students' learning; they are the x-ray devices of teachers by which teachers can pin-point deficiencies and direction of these deficiencies in learning at different times in different areas with the major



purpose of promoting learning. Standardized achievement tests are also used for marking, homogeneous grouping in schools, curriculum evaluation, screening exceptional children, motivation, and improvement of school staff (but the latter less frequently than the other purposes discussed so far).

#### Program Examination Tests

Program examination tests refer to organized nationwide, or school or school system-wide testing programs. These programs include standardized objective tests of aptitude and achievement. One type of testing program is provided, administered, scored and results are reported by external agencies outside the local school authorities. These kinds of testing programs are called "external testing programs." Other types of testing program are locally initiated and directed; these types of testing programs are called "local testing programs" or "school testing programs."

External testing programs are used for various purposes such as a) for transition to high school, b) transition to college, c) testing at the graduate level and for the professions, d) testing for United States government employment programs, and e) testing for certification and licensing.<sup>1</sup>

Testing programs for transition to high school provide measures of verbal and quantitative ability and assist in selection of students

<sup>&</sup>lt;sup>1</sup>Chauncey in Ingenkamp, <u>op. cit</u>., pp. 27-51.



for admission to private schools. Tests are prepared, administered, and scored by external agencies such as the Secondary School Admission Test Board, Educational Records Bureau and Educational Testing Service (ETS).

For transition to college, objective tests are used for guidance and screening purposes. The ETS administers tests to measure the scholastic ability of high school juniors and seniors, providing valid and reliable data for use in identifying able students and in encouraging them to attend college. The ETS scores the tests, reports scores to the schools, and also provides interpretive materials for counselors and students. The National Merit Scholarship Qualifying Test and Tests of General Educational Development are also used for guidance and screening purposes; the former is used for screening and awarding qualified high school students scholarships, the latter for measuring the educational achievement of persons who have not completed high school education, but whose educational maturity may be at the level of high school graduation. The external agencies are the Science Research Associations and the General Educational Development Testing Service of the American Council on Education (ACE), respectively.

The second purpose is for admission. The College Entrance Examination Board (CEEB) provides scholastic aptitude tests, achievement and supplementary achievement tests through the ETS.<sup>1</sup> Scholastic

<sup>&</sup>lt;sup>1</sup>John M. Duggan, "A critical appraisal of one national testing program," in Ingenkamp, op. cit., pp. 205-214.

aptitude and achievement tests are administered five times a year to those students who are seeking admission to college by ETS at centers in the United States and throughout the world; answer sheets are scored and reported to colleges designated by the candidates and to the candidates' secondary school, which may release scores to the students at its discretion. Admission tests for schools of special training, like the Architectural School Aptitude Test and the Test of English as a Foreign Language, are also administered by the ETS.

If some high school students who wish to demonstrate their readiness for courses more advanced than those usually studied in the Freshman year (first year in a college), they are given Advanced Placement Examinations; College-level examinations can be given to evaluate the achievement of individuals seeking credit at the college level for studies pursued outside the college situation (i.e., through independent study and correspondence school).

Testing at the graduate level and for the professions include testing programs like the Graduate Record Examination, Admission Tests For Graduate Study in Business, the Law School Admission Test, and the Medical College Admission Test. Tests for the first three programs are conducted by the ETS. Graduate Record Examination tests are composed of an aptitude test and advanced tests (Achievement) in twentyone areas. Admission Tests for Graduate Study in Business and the Law School Admission Tests are largely aptitude tests, while the Medical College Admission Test is largely an achievement test. In these programs, except the Medical College Admission Test Program, scores are also reported to the candidates.



The United States Government uses externally prepared, administered, and scored standardized aptitude and achievement tests. For example, for Peace Corps selection, a general aptitude test, the Modern Language Aptitude Test, and an achievement test are given to the candidates. To provide basic information for the selection of applicants to the Regular Naval Reserve Officers Training Corps, the Navy College Aptitude Test has been designed. These tests are administered and scored by the ETS.

Examples of testing programs for certification are the Actuarial Examination, which is prepared, scored and results are analyzed by the ETS, and the American Board of Obstetrics and Gynecology Examination which is scored and test results analyzed by the ETS.

Two major national testing programs should also be mentioned here. These are the National Assessment and Project Talent Programs. A number of testing agencies under the auspices of the Carnegie Corporation are engaged in a program designed to evaluate educational attainments in the United States in nine fields: reading, writing, literature, music, art, citizenship, science, social studies, and mathematics. The purpose of the National Assessment is to gather data that will help to answer questions as to the effectiveness of education in the United States. Project Talent, on the other hand, is an attempt to identify the capabilities of American youth by providing substantial nationwide data on the aptitudes, achievements, backgrounds, and career plans of secondary school students.<sup>1</sup>

<sup>1</sup>Ebel, op. cit. (1972), pp. 24-27.

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<sup>1</sup>Ebel, <u>op. cit</u>. (1972), pp. 24-27.

Local schools and school systems frequently use teacher-made<sup>1</sup> and standardized tests. Teacher-made achievement tests serve the purposes of providing "information needed for instruction and guidance, evaluating local achievement against external standards, and stimulating and directing continuing efforts to improve curriculum and instruction in the local school."<sup>2</sup> Standardized tests, on the other hand, are used for almost the same purposes as teacher-made tests. Their uses can be grouped into three major categories: for classroom use, for guidance, and for administration purposes. A testing program for classroom situations is used to group students for instruction within a class (readiness tests in the first grade, achievement tests at later grades are appropriate), to guide the planning of activities for specific individual students (both scholastic aptitude and achievement tests are used), and to identify students who need special diagnostic study and remedial instruction (achievement and aptitude tests are used). Both standardized and teacher-made achievement tests are most widely used for guidance purposes. Their guidance functions are preparing evidence to guide discussions with parents about their children, building realistic self-pictures on the part of the students, helping the students to set educational and vocational goals, and improving counselor, teacher and parent understanding of problem cases.

<sup>1</sup><u>Ibid</u>., pp. 534-536. <sup>2</sup>Thorndike and Hagen, op. cit., pp. 422-429.

A survey conducted in 464 school districts in Michigan, enrolling

students in grades K-12 yielded the following findings:

- In elementary grades, the predominant uses of test results were diagnosis of learning difficulties, counseling parents, evaluation of curriculum, ability grouping, counseling students, and evaluating teaching effectiveness, with a frequency in order of mention. In secondary grades they were counseling students, diagnosis of learning difficulties, counseling parents, evaluation of curriculum, and ability groupings, in that order.
- The most common methods of interpreting results of testing were conferences with individual students and individual parents, and summaries for administrators and teachers.
- 3) In the elementary grades, tests were administered once each year, in the fall or spring, by the classroom teacher in the classroom to all students. In the secondary grades, tests were generally administered once a year by the guidance counselor to nearly all students.
- 4) At both elementary and secondary levels, national norms were used in more than ninety percent of the districts. Local norms were also used by approximately twenty-five percent.
- 5) For in-service education of teachers and other personnel to use test results, building faculty meetings, departmental meetings, grade and divisional faculty meetings were the methods used.
- 6) Most commonly given tests were a) reading readiness (kindergarten or first grade, once a year), b) group intelligence tests (twice in elementary grades, once in secondary schools), c) achievement test battery (twice in elementary grades, once or twice in secondary grades), d) scholastic aptitude test (once in secondary grades), and e) interest inventory (once in secondary grades).<sup>1</sup>

Local or school testing programs are locally initiated and directed. It is always undertaken with the cooperation and responsibility

<sup>&</sup>lt;sup>1</sup>Wm. L. Schmalgemeir and R. P. Watson, <u>Michigan Schools: The</u> <u>Organization and Management of Their Testing Programs--1970</u> (Ann Arbor, Michigan: Michigan Bureau of School Services, The University of Michigan, 1970).

of more than one person. It may involve only classroom teachers and their supervisors or principals, or the work may be planned and carried out with the cooperation of the entire staff of a school or school system. However, the task of selecting tests may be delegated to a committee.

External testing programs are often under the direction of a private educational agency, such as the CEEB, the American College Testing Program, or the Law School Admission Test Council. These organizations are often composed of member schools and colleges; these agencies frequently contract with an independent testing agency for test development and test administration activities. The ETS, for example, performs specific services in the construction and administration of College Board examinations.

The steps in a testing program are usually as follows:

 The sponsor establishes the program. An educational agency decides to sponsor a testing program for a particular purpose; a committee is formed to survey methods of organizing and conducting the testing program; a contract is made with an appropriate testing agency for specific purposes.

 The testing agency develops the program; it is pretested; testing centers are established for the actual test administration.

 The candidates register for the examinations, and registration forms are returned to the testing agency with established test fees.

4) The testing agency processes the registration forms, a ticket of admission to a test center is prepared for each candidate and is mailed to the candidate. The test materials are also sent to each center.

5) The supervisor administers the tests, and all test materials, including answer sheets and test booklets, are returned to the responsible testing agency.

6) The testing agency processes and reports the results.

7) Schools and colleges use the results. Then a follow-up study is conducted to determine the effectiveness of the tests in a given situation.

# The Use of Objective Tests in Industry

The use of objective tests in American industry can be said to have started with American psychologists concentrating most heavily on problems of personnel selection and placement during World War I. In 1921, the Psychological Corporation was founded, among other purposes, to develop and distribute psychological tests to industrial and other organizations. During World War II, the extensive requirements of the military for improved personnel assessment and training procedures added further impetus to the use of objective tests in industry and other organizations.<sup>1</sup>

Objective tests are mostly used in personnel selection, placement, training and evaluation, and promotion. These tests are mostly psychological rather than educational achievement tests.

<sup>&</sup>lt;sup>1</sup>Laurence Siegel, <u>Industrial Psychology</u> (Homewood, Ill.: Richard D. Irwin, Inc., 1969), pp. 12-15.

As Haire<sup>1</sup> pointed out, use of psychological tests in personnel selection rests upon two basic assumptions: First, any given human ability follows the lines of a normal distribution. With a known probability there are a few people who are very low or very high on a particular ability, and the rest of them are distributed around the middle. Second, it is possible to construct psychological selection tests that are associated with the ability in question. Then it is possible to select men with the desired talents for a given job or position by assuming that a high or a low score on the test will be associated with the presence of a high level of ability in question. If one can know and state explicitly what kind of ability is needed for a given job, and develop a test to measure such an ability he can (a) identify the people who are in the high part of the distribution for that ability, and (b) select that segment of the population. One can markedly improve his labor pool through such a procedure.

Implicitly or explicitly, individual differences exist, and it is important that these individual differences are recognized and measured. Then personnel testing has one specific objective: to contribute to the increasingly effective use of manpower within an organization by choosing from a number of available applicants a smaller number to be hired for a given job.<sup>2</sup>

The first step in personnel testing is to specify the dimensions to be predicted, since every personnel decision is an implied prediction

<sup>&</sup>lt;sup>1</sup>Mason Haire, "Use of tests in employee selection," <u>Harvard</u> <u>Business Review</u> (January, 1950), pp. 42-51.

<sup>&</sup>lt;sup>2</sup>Robert M. Guion, <u>Personnel Testing</u> (New York: McGraw-Hill Book Company, 1965), pp. 3-10.



of on-the-job behavior. Most widely used instruments in prediction are: (1) tests of general intelligence. Wechsler Adult Intelligence Scale, Otis Self-Administering Tests of Mental Ability, The Wonderlic Personnel Test, Adaptability Test, Miller Analogies Test, and Thurstone Test of Mental Alertness are examples of this group. (2) The second group of tests are aptitude tests. These tests intend to measure more specific constructs than "general" intelligence, although, with a few exceptions, they measure intellectual abilities. The Minnesota Clerical Test, Psychological Corporation General Clerical Test, and The Short Employment Tests are examples of tests to measure clerical aptitude. Differential Aptitude tests, Flanagan Aptitude Classification Tests, and General Aptitude Test Battery are the most widely used multiaptitude tests. There are many other standardized objective tests published and sold by more than 300 agencies in the United States. Achievement tests are largely developed for training purposes in industry by personnel specialists and industrial psychologists.

Many organizations employ part-time psychologists, and some employ full-time psychologists, to assist them in selection, placement, training and other organizational problems. As is the case for standardized educational tests, tests for industrial purposes are selected according to special purposes by qualified personnel. As is discussed in the next chapter, test results are also used to promote learning in training situations as well as selection, placement, guidance, and promotion.

# Summary

The system of education in the United States is decentralized. Every state mantains a system of free public education through the twelfth grade. Public schools are operated and controlled by local governments. School attendance is compulsory until a certain age (which varies from 16-18 from state to state). Besides public education, private educational institutions constitute a significant and vital part of American education.

Elementary education generally consists of education for all children ages six through eleven in grades one through six. The curriculum usually planned locally. Schools attempt to individualize progress from the beginning through the elementary years. Guidance services are provided.

Secondary education consists of education 14 through 17 years of age, and nearly all of the elementary school graduates enter secondary schools. A high school may offer an academic, technical or vocational curriculum or be organized as a comprehensive high school. Vocational education is an integral part of the total education program in the American high schools. It is both the responsibility of the federal government and the states.

Higher education includes those educational programs which require for admission the completion of approximately 12 years of previous schooling. The institutions of higher education are various; such as, Junior colleges, community colleges, universities, institutes of technology, and technical institutes. They are essentially academically



autonomous, and admission is open, as compared with most other countries.

Achievement of American students is measured frequently by objective tests which are highly developed and published by the test industry. Special Acts provide federal funds for the establishment of programs of testing, counseling, and guidance, especially in secondary schools. These Acts also provide funds for a variety of innovative and experimental programs. Objective standardized tests are in effect integral parts of the American education.



### CHAPTER IV

# THE USE OF OBJECTIVE TESTS TO PROMOTE LEARNING IN THE UNITED STATES

In chapters II and III the history and use of objective tests in the United States and Turkish educational systems were discussed. In this chapter, how objective tests may be used in promoting learning is described and discussed in light of the literature on the use of objective tests. The studies reported here fall into three broad categories: a) studies of feedback and class discussion of test results, b) studies on open-book or take-home examinations, and c) studies on coaching and retesting.

# Studies of Feedback and Class Discussion

Since an important goal of any classroom instruction is to produce individuals with a maximum amount of correct and usable information and a minimum amount of incorrect and conflicting information, a major problem appears to be the fixation of correct, and the elimination of erroneous ideas. One means to these ends involves letting the student know what mistakes he has made in an examination; that is, giving him feedback.

One of the functions (perhaps one of the most important functions) that evaluation serves is to enable students to determine how well they



achieving. Studies cited in the following pages demonstrate that when students are aware of their learning progress, their performance will be superior to what it would have been without such knowledge.

McKeachie summarized studies related to feedback from examinations as follows:

While we usually think of testing procedures in terms of their validity as measures of student achievement, their function as instruments for promoting learning may be even more important. After dismal recitals of non-significant differences between differing teaching methods, it is refreshing to find positive procedures.<sup>1</sup>

Curtis and Wood<sup>2</sup> in their experimental study in the University High School, University of Michigan, during four consecutive school years (1924-1928), compared four practices in correcting examination papers. Their purpose was to determine which of the methods served best with respect to student learning and student retention of the subject matter.

Under Method 1 students checked the incorrect responses on their own papers as the teacher gave the correct responses. Free discussion was allowed. Under Method 2 the teacher collected test papers and checked the incorrect items as wrong but made no corrections. The papers were later returned to the students and discussed item by item. Under

<sup>&</sup>lt;sup>1</sup>W. J. McKeachie, "Research on teaching at the college and university level," in Gage (ed.) <u>Handbook of Research on Teaching</u>, 1963, AERA, p. 1154.

<sup>&</sup>lt;sup>2</sup>F. D. Curtis and G. G. Wood, "A study of the relative teaching value of four common practices in correcting examination papers," <u>School Review</u>, 37: 615-623, 1929.



Method 3 the teacher collected the papers and wrote in all the corrections. The papers were returned to the students and discussed item by item. Under Method 4 the teacher collected the papers and wrote in all the corrections, as under Method 3, but when the papers were returned to the students discussion was limited to such questions as arose in response to the teacher's direction: "I have carefully corrected all the errors on your papers. Note your errors, and ask any questions you wish to in connection with them." There was no limit on the discussion and students were encouraged to ask questions about their errors.

The study was conducted in ten science classes, of which two were in the seventh grade, three in the eighth grade, two in the ninth grade, two in the tenth grade and one in the eleventh grade, altogether enrolling 286 students.

Four parallel objective tests for each class were prepared and used as the midterm examination. The test booklets were clipped together so that one-fourth of the students began with sheet 1 and finished with sheet 4; another one-fourth began with sheet 2 and finished with sheet 1, and so forth. Each of these four sheets was treated according to the four methods described above.

During the first meeting period after the examination, the four sheets were distributed to the students. After each set of sheets was treated it was collected. Each student received his own sheet 1 on which he checked the errors as the correct responses were read and discussed. Sheets 2, 3, and 4 were returned to their owners for discussion. Sheets 2 and 3 were discussed item by item, but only those items of



sheet 4 were discussed about which the students asked questions. The same test sheets were re-administered, as a test of immediate recall, during the next class period without previous warning. Six weeks later they were re-administered a third time again without previous warning, as a test of delayed retention.

In the test of immediate recall, Method 1 was slightly superior to Methods 2, 3 and 4. The results of the delayed retention study also showed that Method 1 was superior to Method 2, somewhat superior to Method 3 and consistently superior to Method 4 in promoting learning and retention. There seemed to be little choice between Methods 2 and 3. Both Method 2 and Method 3 were found to be superior to Method 4. Under Method 1, students were able to correct their own examination papers with a high degree of accuracy.

In a similar but much more recent study to investigate the questions, "Do teacher comments cause a significant improvement in student performance," and "If comments have an effect, which comments have more than the others, and what are the conditions, in students and classes, conducive to such an effect?"<sup>1</sup> It was shown that brief written comments upon returned objective examinations caused a significant improvement in subsequent objective examination performance of students. Seventy-four randomly selected secondary school teachers in 12 randomly selected schools in the city of San Diego, along with 2,139 students from their daily classes in 6 grades (grades 7-12) who were unaware of the nature

<sup>&</sup>lt;sup>1</sup>Ellis B. Page, "Teacher comments and student performance: a seventy-four classroom experiment in school motivation," <u>Journal of Educational Psychology</u>, 49: 173-181, 1958.


of the experiment, performed the experiment. The teachers administered to all students whatever objective test would occur in the usual course of instruction. After scoring and grading (A, B, C, D, F) the test papers in their customary way, and matching the students by performance, they randomly assigned the papers to one of the three treatment groups (No Comment, Free Comment, and Specified Comment groups). The "No Comment" group received no marks beyond those for grading. The "Free Comment" group received whatever comments the teacher felt were appropriate for the particular students and tests concerned. Teachers were instructed: "Write anything that occurs to you in the circumstances. There is not any 'right' or 'wrong' comment for this study. A comment is 'right' for the study if it conforms with your own feelings and practices." The "Specified Comment" group received certain uniform comments designated beforehand by the experimenter for all similar letter grades, regardless of teacher or student differences as follows:

A: Excellent! Keep it up.
B: Good work. Keep at it.
C: Perhaps try to do still better?
D: Let's bring this up.
F: Let's raise this grade!

Then teachers returned tests to students rapidly and automatically, trying not even to notice who the students were.

The next normally scheduled objective test in the class became post-test (criterion). The results of the study can be summarized as follows:

la) "Free Comment" students achieved higher scores than "Specified Comment" students.

1b) "Specified Comment" students did better than "No Comment" students. All differences were significant except that between Free Comments and Specified Comments.

2) When teachers were asked to predict the effect the comments would have on student performance, most of them had said that the better students would be more responsive than the poorer ones. The results showed, however, that good and poor students alike responded favorably to the comments. This is an interesting finding to show that poor students as well as good students can benefit from such an examination technique.

3) When the class-groups from six different grades (7-12) were compared, no conclusive differences in the effect of the comments appeared between the grades (almost no evidence of interaction).

The researcher commented that:

When the average secondary teacher takes the time and trouble to write comments (believed to be "encouraging") on student papers, these apparently have measureable and potent effect upon student effort, or attention, or attitude, or whatever it is which causes learning to improve.

One of the major elements in learning which objective tests provide is the knowledge of results, and one would expect that the more information contained in the feedback, the greater its value. In a similar experiment, but in a different setting, in the Air Force,<sup>1</sup> performances benefited from return of multiple-choice tests together with information about why the alternative choice was wrong and why the

<sup>&</sup>lt;sup>1</sup>G. R. Stone, "The training function of examinations: retest performance as a function of critique information." <u>USAF Personnel and</u> <u>Training Research Center, 1955, No. AFPTRC-TN-55-8.</u>



correct alternative was right.

The purpose of that experiment was to study the influence of the amount and kind of information received by examinees in individual critique sessions (such influence was measured by immediate and delayed retests on the same examinees). On the basis of a regularly scheduled objective examination, six successive classes of about 40 cadets in training for ratings as B-26 aircraft observers were divided into five subgroups for purposes of individual examination critique. Five readers handled about eight students individually by discussing examination results with them in a relatively formal manner. The readers were instructed not to attempt answers to any student's questions except by re-reading that portion of the material which pertained to the question.

For the five subgroups the conditions were as follows:

Condition (1): Students were informed of their total score only.

Condition (2): For the items each student missed, the question and the alternative which he had chosen were read to him. No information with respect to the other alternatives was given.

Condition (3): The same as condition (2) except that in addition to reading the incorrect alternative prepared material was also read which explained to the student why this choice was incorrect. This explanation did not include information concerning the correct answer.

Condition (4): For each item missed the student was read the question, and the correct answer was read and explained. No mention or no reference to the incorrect alternatives was made.

Condition (5): For each item missed the student was read the question, his response and why it was wrong; and the correct response

and why it was correct.

Each of these five subgroups was, thereafter, divided into two matched groups for purposes of retest, one-half within 24 hours and the other half thirty days later.

The results in summary were:

1) On the immediate (24 hours) retest, the Conditions (3), (4) and (5) all produced significant improvement in performance as compared to the Condition (1), control group. Condition (2) also showed improvement but it was not significant.

2) The improvement demonstrated by Conditions (4) and (5) was significantly greater than that demonstrated by Conditions (2) and (3). Neither difference within each pair, however, was significant.

3) On the 30-day retest, only Condition (5) demonstrated improved performance over the original test.

4) For the group retested at one day and again retested at thirty days, Conditions (4) and (5) both remained significantly better than the original test.

On the basis of these results it was concluded that (a) there are varieties of comments which produce significant benefits in students' responses as much as 30 days following the examination, and this is a very strong sanction for properly conducted comment sessions; (b) there are varieties of comments which do not produce benefits in students performance at 30 days which are significantly greater than performance resulting from mere knowledge of test scores; and (c) as students are very prone to ask why their chosen answers are wrong rather than why



the correct answers are correct, some care is necessary to avoid lapsing into negative explanation.

In all learning situations the learners are expected to learn whatever is taught them. If the learners are to learn skills, they have to practice the skills; but practice alone does not make perfect. Practice works only if the learner sees the results of his practice. The studies discussed so far clearly demonstrate that if students are given feedback they perform better, and the procedure promotes learning. Another study, similar to these studies, by Sassenrath and Garverick<sup>1</sup> showed that students retained material covered in quizzes best when they received feedback in terms of the instructor's discussing the correct answers with them. This method was more effective than having students look up the answers in the book or having them check their replies against a list of answers written on the blackboard. However, all three of these methods were better than no feedback at all.

The study was conducted to see if there was an increase in scores on a retention section and a transfer section of a final examination when the amount of information from feedback on midterm examinations was increased. In terms of increasing amounts of information (a) one group received no feedback, (b) a second group checked over their answers from correct ones placed on a blackboard, (c) a third group had the questions discussed by the instructor, and (d) a fourth group re-read material for questions they answered incorrectly as well as correctly.

<sup>&</sup>lt;sup>1</sup>J. M. Sassenrath and C. M. Garverick, "Effects of differential feedback from examination on retention and transfer," <u>Journal of Educa</u>tional Psychology, 56: 1965, pp. 259-263.



Four-hundred eighty-seven students from classes in introductory psychology participated in the experiment. The subjects were randomly assigned to three experimental and one control (no feedback) groups. On a pre-test early in the semester, the four treatment groups did not differ in initial ability level. About 120 students in each of four groups received one of the feedback treatments on three mid-term examinations. Students had three objective mid-term and one objective final test. The dependent variables for the experiment consisted of the 45-item "retention" and the 30-item "transfer" parts of the examination that were common to the four groups.

Analyses of the results in general showed that on both the retention and transfer tests the group which had the questions discussed in class and the group which checked their answers from the correct ones on the blackboard were better than the control (no feedback) group and the group that reread the material on items they got incorrect on the three mid-term examinations. Sassenrath and Garverick recommended, as a result of their study, that teachers should discuss examination questions with students or let students check over their examinations; the type of feedback is less important than the fact that the students get it.

Little<sup>1</sup> in a well-controlled investigation reported that maximum learning results from testing when students are permitted to score their own papers and when discussion of errors and remedial work follow immediately. The study was conducted in fourteen sections of a course in

<sup>&</sup>lt;sup>1</sup>J. K. Little, "Results of use of machines for testing and for drill upon learning in educational psychology," in Lumsdaine and Glasser (eds.) Teaching Machines and Programmed Learning, NEA, 1960.



educational psychology averaging thirty students each. Each quarter, two sections of the course were run as "test-machine groups," two as "drill-machine groups," and the remaining three sections as control groups. Thus, there were four test sections, four drill sections, and six control sections.

All sections took pre-test, mid-term, and finals. In the test machine sections each unit test was scored by the scoring and tabulating machine; as each student finished punching his answer slip, he brought it to the instructor, who at once scored it, checked wrong answers, tabulated the score on a tabulation form already on the board, and returned the slip to the student. When all had finished, the test was discussed. Each student thus at once knew his score. Students were also required to take a make-up test if the first test scored below B.

In the drill sections, the same general procedure was used. But the tests were taken using the drill machines which automatically made corrections of errors and provided the opportunity for immediate progress to mastery of that test.

The control sections took the chapter-unit tests by marking on an answer slip which was graded by the instructor that evening and returned the next day. There were no make-up tests.

The results showed that students who immediately were appraised of their test results, and were given opportunity to correct deficiencies by make-up tests in both experimental groups, profited markedly in terms of final examination results over students who did not have such

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advantage. The mean achievement of the drill-machine group was approximately twice that of the machine scored group.

Studies described so far clearly demonstrate that objective tests can be used effectively to promote learning if the user is aware of their use, and if the user is seriously interested in promoting learning.

# Studies on Open-Book Examinations

Open-book examination is a type of examination "in which the examinees are permitted to bring and use textbooks, references, and class notes."<sup>1</sup> The intention of the instructor by giving an open-book examination is to emphasize command of knowledge, as distinguished from recall of factual information. It was suggested as a reaction to the conventional examination technique. Tussing criticized the conventional examination technique in the following terms:

There are always people in the class who are considered the "brains" who get high grades on such an examination and yet are very impractical in the use of such information. Although this is not always true, nevertheless, such an examination does place a premium on the person who reads the book very carefully and memorizes line after line or who can repeat back the instructor's notes in a somewhat verbatim manner. This type of examination obviously does not test the end product of the course, which should be something other than factual details.... The cramunload- and forget method is the one most commonly used by students during examination period.... However, the student who has the feeling of a high degree of responsibility and does not feel adequate to the arduous memory task in a short period of time, has what is commonly termed a nervous breakdown....<sup>2</sup>

<sup>1</sup>Ebel, <u>op. cit</u>. (1972), p. 119.

<sup>2</sup>L. Tussing, "A consideration of the open book examination," Educational and Psychological Measurement, XI (1951), 597-602.



In addition, Tussing gave as reasons for attempting such an examination technique that open-book examinations (a) tend to promote a course content that emphasizes application rather than a memory of specifics; (b) it places emphasis on questions dealing with reasoning rather than rote memory; (c) it would eliminate or reduce cramming; (d) lessen, if not eliminate, emotional strain during the final examination period; and (e) closely resemble a life situation where the seeker of knowledge has some facts memorized, but has the opportunity of checking sources before making a report or statement.

Kalish<sup>1</sup> attempted to determine the equivalence of two approaches to the administration of examinations; namely, closed-book versus openbook. He tested three hypotheses that (a) the open-book examination will lead to fewer student errors; (b) the open-book examination will measure different abilities than those assessed by the closed-book tests; and (c) there is no correlation between student ratings of the help received from open-book examinations and their test scores. It appeared from the results that the opportunity to use text and lecture materials resulted in no differences in total errors, but the two types of examinations measured significantly different abilities. Kalish suggested that if an instructor feels that the open-book examination is a more valid measure due to the decrease in reliance on memory and detraction from cheating, the open-book approach would be the most appropriate.

<sup>&</sup>lt;sup>1</sup>R. A. Kalish, "An experimental evaluation of the open-book examination, <u>Journal of Educational Psychology</u>, 49: 200-204, 1958.



In an evaluation of students' reaction to open-book examinations by Feldhusen<sup>1</sup> both objective and essay type examinations were used in the open-book situation, in a junior level educational psychology course at the University of Wisconsin. After a series of examinations, all of the open-book type, he found that on the objective type two-thirds of the students (60 out of 90) reported reduced tension. With the essay type it was only slightly less (60 percent). The only other effect of open-books on objective and the essay type concerned the memorizing of factual material. For the objective type 79 percent felt it reduced memorization. On the essay type 61 percent said there was a reduction. Feldhusen summarized his students' other reactions to the open-book examinations as follows:

 They believe open-book examinations reduce the tendency to cheat.

2) They believe students learn more during open than during closed book examinations.

3) They preferred open-book examinations.

4) They intended to try open-book examinations when they became teachers.

5) They had seldom or never taken an open-book examination before.

These studies support, to some extent, the rationale of this study that an examination technique should allow for and provide the

<sup>&</sup>lt;sup>1</sup>J. F. Feldhusen, "An evaluation of college students' reactions to open-book examinations," <u>Educational and Psychological Measurement</u>, 21: 637-646, 1961.

opportunity to promote student learning. This approach reduces both tension and memorization and promotes learning.

A similar examination technique, the take-home test, has also been suggested by Ebel.<sup>1</sup> The take-home test is similar to the open-book examination with an additional advantage and an additional disadvantage. Its advantage is the removal of the pressure of time; its disadvantage is the loss of assurance that the answers a student submits represent exclusively his own achievements. But it also has its limitation in that an instructor should have a large item pool, and he should not use the items used once again for a long time. The procedure in a take-home test in college teaching is as follows:

1) An objective achievement test is administered under supervision of the instructor as an in-class closed book test and immediately afterwards as a take-home test. Students are given two answer sheets, one to be turned in at the conclusion of the test period, the other at the next class meeting with the test booklets. Students are encouraged to discuss the test items with their friends, referring to the textbook, notes and references--except asking the instructor. They return, the second time, more correctly checked answer sheets. Their scores on inclass and take-home re-test are combined and a single grade is given. Ebel commented that:

With an ideal test, and ideal student, everyone might get a perfect score on the take-home test. But with real tests and real students the scores are different. Few if any of them are

<sup>&</sup>lt;sup>1</sup>R. L. Ebel, "Using tests to improve instruction," in K. Ingenkamp (ed.) <u>Developments in Educational Testing</u>, Vol. 2, University of London Press Ltd., London, 1968.



perfect. Of course, almost all the students get substantially higher scores on the take-home test than they did on the inclass test. The greatest gains, naturally tend to be made by the students who had the lowest scores in class, but even here there are wide differences. Some come close to perfect scores. Others improve only a little. Some have time, and choose to spend much of it in the pursuit of perfection. Others have less time, or choose to spend it in other ways.<sup>1</sup>

The author of this study undertook an experimental study to investigate the effectiveness of such a method of students' achievement at Michigan State University.<sup>2</sup> The preliminary analysis of the study showed that those students who took the mid-term in-class test twice, one as an in-class test, one as a take-home re-test, retained more information on the final examination than those who did not take the test as take-home re-test when the same items were re-administered. Most of the students reported that this procedure was effective with regard to promoting learning. In light of these studies on open-book and take-home examinations it is reasonable to conclude that these techniques have the following advantages:

 They stress the incentive to study both before the examination and after the examination. This method eliminates cramming to a large extent;

2) They direct the efforts of students toward the attainment of essential achievements. By taking home the test, they have the opportunity to use any relevant material. One may have thousands of books

<sup>1</sup><u>Ibid</u>.

<sup>&</sup>lt;sup>2</sup>Osman Kazanci, <u>Take Home Re-test as an Examination Technique</u>, unpublished manuscript, Michigan State University, 1972. This manuscript will be prepared subsequently for publication separately.



but what use if he does not know when and how to use them!

3) Instructional experience is enhanced since the questions are discussed after the examination has been marked. From the point of view of the psychology of learning, students become more involved and active in the process by finding out how they have done on the in-class examination through discussing it with friends and by looking for the answers to the questions at hand.

4) Since every student works on the test at his own pace, and at the most convenient time for him, time pressure is reduced, test tension is reduced, and the process of testing is individualized.

5) Since the ultimate goal of any classroom instruction is to produce individuals with a maximum of correct and usable information this procedure seems to work toward this goal.

### **Coaching Studies**

Since educational as well as industrial organizations frequently select candidates on the basis of objective tests, the practice of coaching to prepare students to take examinations has developed. Coaching is a part of the pattern often attached in the frequently voiced criticisms of standardized testing today, that standardized testing results in excessive efforts on the part of teachers to prepare their students for tests, especially those given in connection with some external testing programs like the College Entrance Examination Board. The result, it is often claimed, is that teachers emphasize only those things covered by the test to the detriment of other important aspects



of their subjects or, which is even more important, they are afraid to introduce innovations in teaching techniques that might result in their students doing poorly on standardized tests. However, studies of coaching reviewed here generally indicate that coaching has a positive effect on subsequent test performance and that it promotes learning.

French and Dear<sup>1</sup> reported research findings on studies of coaching for the College Board Scholastic Aptitude Test (SAT). In that study, two large and very similar private secondary schools took part. The two schools were matched in size, and the general nature of the instruction and the kinds of courses taken by the students were very similar. Both of the schools gave a past form of the SAT to their seniors at the beginning of the school year in September for equating purposes. During the fall one school gave its senior students weekly coaching sessions based on specially prepared exercises consisting of test items exactly like those on the SAT: mathematics problems, verbal analogies, completion items, anonyms, etc. Coaching for SAT-V (Verbal section of the SAT) handled by English teachers, was based on a series of 12 practice exercises. Coaching by mathematics teachers for SAT-M (Mathematical section of the SAT) followed a similar pattern. General instructions for taking multiple choice tests were reviewed, and techniques for most efficiently solving each kind of item were practiced.

All students in the coached school and in the uncoached school took the regular SAT for college entrance in March, six months later.

<sup>&</sup>lt;sup>1</sup>J. W. French and R. E. Dear, "Effect of boaching on an aptitude test," <u>Educational and Psychological Measurement</u>, 19: 319-330, 1959.



After corrections had been made by means of analysis of co-variance for differences found at the beginning of the first testing in September, still some differences were found in average test scores of the two schools, in favor of the coached school. The coached students did better on the verbal test, and much better on the mathematical test than the uncoached students. If mathematics is considered generally a more difficult subject than verbal materials for high school students, the effect of coaching in promoting learning can be more clearly recognized.

As reported by French and Dear, the same experiment was repeated on public school students. This time three public schools participated. In one school in which during a typical year about 25 percent of the students went to college, the seniors were coached on verbal and mathematical materials similar to those in the SAT. In the second school coaching was done only in the verbal area. In the third school, no coaching took place. The students took a past SAT in September and the regular one in March, six months later. This study was different from the first one in that there was more intensive coaching. There was individual coaching, two sessions a week with much homework. A similar significanct effect was again found.

These studies carried out by the College Board and Educational Testing Service between 1951 and 1965 were followed by another study which also indicated that coaching promoted learning. Jacobs<sup>1</sup> investigated the effects of coaching for the College Board English Composition

<sup>&</sup>lt;sup>1</sup>P. I. Jacobs, "Effects of Coaching on the College Board English Composition Test," <u>Educational and Psychological Measurement</u>, XXVI: 55-67, 1966.



Test (ECT). Two hundred sixty-six juniors from six high schools volunteered. In each school students were randomly assigned to the two groups, control (no coaching), and an experimental group. In each coached--and--control school an English teacher served as the coach. Each coach was presented with coaching material for two item types, and was told that these were item types that had appeared on the ECT in the past and were likely to occur again. The coaching was given three hours a week for six weeks. After the sixth week of coaching, all students in the study took the ETC. In the spring following the first ETC, the students in the coached--and--control schools were again given the ETC.

The results of the study were as follows:

In two of the six coached--and--control schools there was essentially no difference between coached--and--control groups. In each of the other four schools there was a statistically significant difference favoring the coached groups.

Further analysis showed that the coached group achieved its superiority by answering fewer items incorrectly.

The study in general showed that the students who receive coaching have an advantage with respect to increasing their learning over students who did not.

#### Summary

The review of the studies on the use of objective tests to promote learning presented in this chapter indicates that in many learning situations the benefits which the learner may get through the use of objective



tests are determined by different test usages. If objective tests are to be used with the intention of promoting learning in any learning or instructional situations the test user should take all necessary measures and steps. First of all, tests must meet the necessary requirements of a good test; that the items in the test must be stated unambiguously; that the test must be as reliable as possible, and valid. Second, a teacher must have a good item pool for use. Third, the teacher should plan in advance how much time will be devoted to small or large group discussions as well as to individual feedback to the students, and the type of feedback. Finally, the teacher should keep in mind that the use of tests to promote learning is an indirect contribution, not a direct one.

The examinations, on the other hand, are one of the best opportunities for good students to demonstrate their abilities and studies; they are one of the best means of progress in the eyes of many instructors and students. The studies cited in this chapter, then, indicate that there are many possible ways of bringing examinations to a happy, useful and wished state in schools. The very first thing that must be decided before everything is that "What are the things instructors are looking for in their teaching?" "Are they looking for catching students when they are not ready to punish them? ..." Or "Are they looking for the all best possible ways of teaching their students whatever they are supposed to teach?" Then, the tests show themselves where and how they must be used.



## CHAPTER V

### COMPARISON, IMPLICATIONS, SUMMARY AND CONCLUSIONS

This chapter describes the possibilities of developing a better test and measurement technique for the Turkish educational system and industry in general. For this reason a comparison on the use of objective tests in the United States and Turkish educational systems in terms of measuring students' learning outcomes and promoting learning is made. The chapter also includes summary and conclusions.

In the first section of the chapter a comparison is made by pointing out similarities and differences as found in the use of objective tests in the two countries' educational systems and in industries in general. Then, underlying reasons for similarities and differences are discussed.

The second section of the chapter shows the possibilities of developing a better objective test and measurement technique for Turkish educational system and industry in general as implied by the study. Summary and conclusions of the study are also included in this section.

## SECTION I

## COMPARISON ON THE USE OF OBJECTIVE TESTS IN THE UNITED STATES AND TURKISH EDUCATIONAL SYSTEMS, AND IN INDUSTRIES IN GENERAL

A summary table on the use of objective tests in the two countries' educational systems and industries is provided to give the readers a quick grasp of the findings.

This table (Table 3) has been prepared on the basis of the material presented in earlier chapters, and cumulative experiences and observations of the author in the United States and Turkey. It summarizes use of objective tests in the United States and Turkish educational systems and industries in general. The numbers in the table (1, 2, 3 and 4) represent elementary, secondary, and higher education and industry, respectively.

Objective tests are not used for either formative evaluation or research purposes in the Turkish educational system, whereas these teachermade tests are frequently used in the United States educational system. It is clear that there are a few similarities between the two countries in the use of teacher-made tests for formative evaluation and research purposes.

Use of teacher-made tests for coaching purposes seems an important aspect of the Turkish educational system. The reason for that is the selection of students to state boarding schools on the basis of objective test results. Classroom teachers feel a responsibility for preparing their students for the successive levels of education. While these tests



A Comparison Table on the Use of Objective Tests in the United States and Turkish Educa-tional Systems, and Industry in General Table 3.

		In	the Uni	ted Sta	tes		In Tu	Irkey	
Types of Testing	Purposes for Use		How 0	ften			How 0	ften	
		A	В	ပ	D	A	മ	ပ	۵
Teacher-made*	Grading Promote learning	1,2,3 1,2	ຕູ	4	4		-	1,3	2,4 2,3,4
	Formative evaluation Research Coaching		1,2,3 1,2,3	4 4 2,	3,4	1,2			1,2,3,4 1,2,3,4
Standardized*	Grading Placement	1,2,3	4	3,4			1 1 1 1	3,4	1,2,3,4
	kesearcn Diagnosis Guidance	 , , , , , , , , , , , , , , , , ,	2,00,0 4,4,4					ہ 20	1,2,3,4 1,3,4
	Promote learning Coaching	-	1,2,3 1,2,3	4	3,4	1,2		1 -	3,4
Program Fxamina-	Selection Research	2,4	3 3 4	-	~ -	2	1,3	4	1 2 2 4
tion*	Placement Coaching		3,4	1,2 3,4	·		1,3		1,2,3,4
] = Elementar 2 = Secondary 3 = Utorocod	y school level / school level			<ul><li>&lt; 8 &lt;</li></ul>	Usually Sometime	Ś			
d = In indust	iucautoriai tevel Cry			ם ג	Almost n	lever			

\*See Chapters II and III.
are "rarely used" at the elementary and secondary levels in the United States, they are "usually" used in Turkish educational system.

Standardized tests are used at all levels of the United States educational system for all purposes stated. In the Turkish educational system they are "rarely" or "almost never" used, except at elementary and secondary levels and then only for coaching purposes. It should be stressed that so-called standardized tests in Turkish educational system are not real standardized tests as discussed earlier. The only similarity on the use of standardized tests between the two countries is found in higher education. Since these tests are usually program examination tests, their use is discussed in the following paragraphs.

Program examination tests that, as discussed in Chapters II and III, are developed for special purposes and usually standardized are also used more frequently in the United States educational system than they are in Turkish educational system. The differences, however, in the use of program examination tests between the two countries is less obvious as compared with the differences between the two countries in use of teacher-made and standardized tests. An essential difference in use of program examination tests for selection purposes between the two countries should be kept in mind that program examination tests in the United States are used generally not to decide whether high school graduates will be accepted to colleges or universities, but they are used to select students for various scholarships and as pre-tests in order to follow up students' progress. In the Turkish educational system, these tests are used for selection purposes, they are generally the main

criteria whether a student will be allowed to attend certain schools, either a state boarding school or a higher educational institution.

Examination of Table 3 shows that, in the United States, teachermade tests are more often used for grading, promoting learning, formative evaluation, research, and coaching purposes than they are in the Turkish educational system. While teacher-made tests are "usually" used for grading at every level of education in the United States they are "rarely" used at the elementary and higher educational levels, and "almost never" used at the secondary level of the Turkish educational system. It is clearly seen that objectivity in the measurement of students' achievement in the United States educational system is frequently practiced while it is "rarely" or "almost never" practiced in the Turkish educational system. A few instructors in elementary school and higher educational institutions' in Turkey use these for grading purposes. While higher educational institutions' instructors may use objective classroom tests without any interference from any source elementary school teachers cannot use objective tests openly because of the examination regulations.

In the United States teacher-made tests are more frequently used to promote learning at the elementary and secondary levels than at the higher educational level. In Turkey while they are "sometimes" used at the elementary level, they are "almost never" used at the secondary and higher educational levels. It can be said that elementary school teachers are more apt to try innovations, or therefore they may be more informed about the usefulness of objective tests than teachers on other levels. The concern of the teachers in secondary and higher educational



schools with the learning in the classroom is reflected in different forms, mostly in the form of grade punishment. A comparison of the use of objective teacher-made tests to promote learning in the two countries clearly indicated that these tests are more often used in the United States educational system than they are in the Turkish educational system.

Use of teacher-made tests in formative evaluation at all levels of education in the United States is more often seen than it is in Turkey.

Program examination tests for selection and placement purposes are more widely used in the United States educational system than they are in the Turkish educational system. In fact, they are "almost never" used in the Turkish schools. Turkish schools use program examination tests for selection and coaching purposes. In other words, while they are used for practical as well as scientific reasons in the United States educational system they are used only for practical purposes in the Turkish educational system.

A general summary on the use of three types of testing is given in Figure 4. When a comparison is made between the two countries in terms of objective tests and their use for the purposes stated, it is clear that tests are used for all purposes, except coaching and selection, more frequently in the United States educational system than they are in Turkey. In other words, the use of tests takes place on the positive side of the scale in the United States while it takes place on the negative side in Turkey. It is interesting to stress the fact that





tests for coaching and selection purposes are more widely used in Turkey than in the United States.

Tests for selection purposes in industry are considered under the Program Examination Tests not under the Standardized Tests in both countries. Therefore, Table 3 should be read in this context. In industry objective tests are less widely used for all purposes stated in either country than in education. But again, when a comparison is made between the two countries it is clearly seen that tests are used more frequently in the United States than in Turkey. All types of tests are either "rarely" or "sometimes" used in the United States and they are "almost never" used in Turkey. There are few similarities between the countries in terms of three types of testing and their purposes stated.

## Reasons for Similarities and Differences in Use of Objective Tests in the United States and Turkish Educational Systems

Discussion of the two countries' educational systems and the place of the objective tests in the two educational systems indicated that there were at least four major reasons for the differences. Although the reasons given below seem very essential ones, cultural values of the two countries should be considered as the most important reason why such differences exist. Therefore, first, cultural values of the two countries will be given as the first reason in addition to the four reasons discussed below.

<u>Cultural Values</u>. With technological, cultural and economical values the United States is in a state of being an ultra modern society.



Turkey, on the other hand, is becoming or trying to become a real modern society during the last five decades, although it is often counted as a developing country. If Turkey is compared with the United States in regard to technology, economy, and educational values, etc., Turkey is still a traditional society while the United States is at least a well-developed modern society. For example, high illiteracy and low enrollment in schools, especially at secondary and higher schools, low per capita income, tradition directed behavior, poor technology, and export of mostly raw materials in any foreign trade arrangements are some of the characteristics frequently used to describe developing countries. These still can be identified in Turkey.

In comparing the use of objective tests in the United States and Turkish educational systems, one should keep in mind the fact that forces outside the schools of the two countries are more important than the circumstances inside the schools. They often govern and interpret the things inside. The educational systems in the two countries are living things; they have in them some of the secret workings of national lives of the countries, they reflect, while they seek to remedy, the failings of the national characters. It is also a fact that the educational system of a country is a subsystem of the larger culture in which it exists. It cannot be identified as the school system alone. Therefore the differences discussed here largely should be attributed to the differences between the two countries' cultures. Even with the relatively frequent use of objective tests in American industry, it should be noted that their use is under severe pressure in recent years

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because of the belief that they discriminate against minority groups seeking equal employment opportunity.

Centralized vs Decentralized Educational Systems. In the United States, as pointed out earlier, education is decentralized. The Constitution of the United States leaves all educational matters to the states. In return, states give autonomy to local governments. Therefore, planning and decision-making in and about educational matters, as well as in other areas, are done by many centers and agencies. Because of high mobility among American people, and exchange of ideas with various media a close cooperation among local schools and educators is realized. Local schools and educators in school districts are to meet local needs in the best possible ways. In addition to meeting local educational needs, they may feel to be equal or surpass other schools or school districts in educational matters. In other words, because of decentralized local governments, and local school authorities, educators and educational administrators who come through a highly individualized educational system with initiative look for the best scientific solutions about educational problems they encounter in their environments. On the other hand, they also conpete, as in economical matters, with other districts or at least they try to do their best not to be behind other school districts in all educational matters. Yet, because of the decentralized system, the pressures which come from parents of school children play an important role in educational matters. If these parents or other people in the area are well educated as most of them are graduates of high schools then their interest in and pressures on educational matters is well understood. All these things create a vitality in the



local school areas to discuss and find solutions to educational matters with objective measures. Without objective measures nothing could be done so perfectly. It is one of the most difficult tasks for administrators or leaders to lead or persuade so highly educated people. But if the measures are objective ones then it becomes easy to agree on any matter.

In order to measure the achievement levels of students and compare their achievement with other school districts, or with state or national norms, objective tests are used as one of the best instruments. Only with objective tests or instruments it becomes possible to measure and evaluate learning outcomes.

The future of the United States educational system, discussed above, is not seen in the Turkish educational system. In Turkey education is centralized. Every decision is made in the MOE and controlled by its agencies in towns and cities or by its central agents. Therefore, the validity of every decision about educational matters is completely dependent upon the soundness or correctness of the orders, regulations and decisions made by the central system. There is no diffusion of responsibility. National educational objectives are dictated in one way or another, and strict regulations concerning these objectives are sent to every school in the country. Either the MOE or DNEs offices do not use objective measures in order to measure and evaluate learning outcomes in Turkish schools. Only means in that case are the inobjective, quantitative statistical figures collected irregularly by various agents like state statistical institutes, and different divisions of the General Directorates of the MOE. These figures



show only what percent of each grade in a given academic year have passed or failed, how many were dismissed or transferred to another school. Since use of objective tests, on the other hand, are implicitly prohibited by the regulations it is practically impossible or at least very difficult to reach an agreement among responsible government officials and educators concerning educational objectives, cognitive objectives. The opinions of classroom teachers on the basis of oral and written (essay type) examinations are transferred to grades like 5, 4, 3, 2 and 1 at the elementary level, and 10, 9, 8, 7, 6, 5, 4, 3, 2 and 1 at the secondary level. These are the only indicators of learning outcomes. The reliability of these grades is always questionable. A contradition should be pointed here. On the one hand use of objective tests is prohibited in schools; on the other hand, use of objective tests is allowed, even supported, by the MOE in selection of students to state boarding schools at either secondary or higher educational levels. This means that the MOE either cannot count on school teachers in preparing and using objective tests or is not aware of the problems created by essay tests or is not aware of the advantages of objective tests in schools, in classrooms.

It is also a fact that there is also a shortage of educators in the MOE who are trained to some extent in objective test and measurement. Most of the MOE's officials are educated in Turkish higher educational institutions where objective test and measurement techniques are not taught. Therefore they are not familiar with the advantages and disadvantages of objective tests. Naturally it is, or it must be, very difficult for them to make any decision in a matter which is unknown to them.



Model of Educational Systems. Another important reason for such differences found between the two countries in terms of use of objective tests is the model of the educational system in the two countries. The United States has developed her own unique educational system through various educational models of mostly European educational models. Today it is a unique model in itself. It is initiated by various nations and it was imposed on some nations like Japan right after the Second World War. As a leader of the free democratic nations, it seems unavoidable not to be influenced by the American educational system in one way or another. For years the Turkish educational system was also under the influence of European countries' educational systems, mostly French and then German. The impact of this influence has continued until the twentieth century, although some influence of the American education should be kept in mind, too. The regulations concerning the grading system and the process of grading were transferred from the French educational system. As discussed earlier, these regulations with some changes are still in force in the Turkish educational system. Most of the Turkish educational administrators and educators were educated under this system. If objective tests are used for some purposes today it is mainly because of the American educated Turkish educators' influence and American educational aid to Turkey. Again it should be stressed that educators molded in a European model will be unlikely to utilize techniques drawn from a system with which they are not familiar. They will be likely instead to use known methods and procedures. Otherwise the role of the authorities is lost. This naturally necessitates



great emphasis on known methods and techniques. No one could expect that one would continue his influence or prestige on educational matters if he tried to use new, but unknown, methods and techniques.

Differences in Teacher Training. One may infer from the above discussion that there is a big difference between the two countries in training teachers. As discussed earlier, objective test and measurement takes place only in the education departments of Educational Institutes, and it is taught in broad terms in the course of educational psychology at primary teacher training schools. The hours spent on objective test and measurement in primary teacher training schools do not exceed a total of ten hours per year and the number of courses offered in three education departments of Educational Institutes is not more than three courses. Whereas, in the United States all teachers colleges offer various courses in tests and measurement. In one college it may be two courses, in another it may be four or five courses. Yet, many teacher colleges have special departments in tests and measurement. For example, Columbia Teacher Colleges, Florida State University, and many other teachers' colleges have departments of tests and measurements in their colleges of education.

Besides state or private teacher colleges, other agencies support objective test development and spend money and time to make it better. In Turkey there is no agency which supports objective test and measurement in schools. Although in some paragraphs of the elementary and secondary school programs objective evaluation is suggested but without mentioning any provision for it.

Specialization in Test and Measurement. Differences in teacher training in terms of courses offered in test and measurement between the two countries naturally causes or accelerates specialization in test and measurement in the United States while there is no such a specialization in Turkey. Since the test and measurement movement has an important role which characterizes the education in almost every phase of the United States, the system prepares and strengthens its own specialized field of test and measurement. Research works of these specialists in private and public organization diffuse use of objective tests in many ways for educational purposes all over the country. Yet testing agencies and test publishers influence schools to use objective tests. These conditions and activities are not found in the Turkish educational system. Specialists of educational test and measurement in Turkey have not yet established a close cooperation among themselves to be effective and influential in using objective tests in education.

It has been pointed out earlier that there were similarities, although very few, in the use of objective test and measurement between the United States and Turkish educational systems. These similarities can be attributed to the influence of American education which dates back to 1950. These came first in the Turkish army, then in education of Turkey. Besides the impact of the United States military aid to Turkey, technical assistance in education necessitated some Turkish teachers to become familiar with test and measurement early in the 1950's and in the 1960's. A book in educational psychology was written by a group of American educated Turkish educators. It may be said that the use of this book in the Pedagogy Department of Gazi Educational



Institutes introduced Turkish teachers to objective test and measurement. Besides that, some additional courses in educational research, and measurement and evaluation in education in this department should be mentioned here.

Another reason for similarities found between the two countries with regard to use of objective tests is that objective tests were put in use because of their impartiality, objectivity and being economical and practical in the selection of students to state boarding schools and higher educational institutes. Table 2 indicates similarities in coaching and selection purposes; mainly for these reasons rather than for purely scientific and executive reasons.

Although few similarities were found, differences found in the industrial organizations of the two countries have the same reasons as those given for educational purposes, plus the poor technology in Turkey. Therefore, a separate discussion is not justified.

### SECTION II

### IMPLICATIONS FOR TURKEY

The purpose of this study was to seek for possibilities of developing a better objective test and measurement technique for the Turkish educational system. For this reason, first, the educational systems and the place of test and measurement in these systems of the United States and Turkey were reviewed. In Chapter IV, the use of objective tests to promote learning was discussed with a particular interest. The studies cited in Chapter IV clearly implied that the use of objective tests to



promote learning was or could well be an essential part in the educational process in any formal learning situations in any place.

In Chapter V, the first section dealt with the comparison of the use of objective tests in the United States and Turkish educational systems by pointing out the underlying reasons for the similarities and differences in the two countries. In light of these discussions one may infer that there are at least three possibilities which would pave the way to the developing of a better test and measurement technique, which would be objective, impartial and a part of the learning process of education in the Turkish educational system. These three possibilities of developing a better test and measurement technique would be 1) change in the examination regulation, 2) in-service training, and 3) changes in the course programs of teacher training institutions.

### Need for Changes in the Examination Regulations

It seems that one of the biggest obstacles in use of objective test and measurement technique in the Turkish educational system is the present examination regulation which dates back to the nineteenth century. Since the establishment of the MOE, all examination regulations have been prepared by the MOE, and it will be done so as long as the centralized educational system in the country is not changed.

The main body which can propose and is permitted by the law and regulations in curriculum matters is the National Board of Education of the MOE. Some proposals concerning educational matters as well as curriculum may come from general directorates and National Education



Convention, too. From whatever source these change proposals come, they are discussed by the members of the NBE and then any decision is approved by the Minister of Education. Any change or decision, whatever it is, must be approved. The members of the NBE and general directorates propose changes in all educational matters on the basis of complaints of parents, politicians and teachers, suggestions and reports from the MOE officials and order of the Minister himself. It is a fact that in some cases the orders of the Minister may be more effective than the other suggestions, complaints or reports.

The chances for the approval of change proposals in the examination regulations are high if these change proposals come from certain sources with publicized supporting data. These sources can be stated as 1) the Minister of Education who is a politician in the first place and open to public pressure, 2) research findings which come through the studies of researchers of the universities, and 3) the NEC which is composed of educators, university professors and high level administrators, politicians, public representatives, and high level government officials. Among these, as mentioned above, the Minister of Education may be the most influential source in a centralized system. On the other hand, combined and cumulative efforts of the researchers in and outside of the MOE may cause the MOE officials to become aware of the problems created by the present examination regulations, and suggest changes in the examination regulations. Therefore, research is needed to convince or persuade the Minister of Education and the responsible officials of the MOE to make a minor change in the examination regulations. If teachers are permitted to use objective tests in cases they wish, it will



be good enough for a start. This explicitly stated permission will be the first step towards developing an objective test and measurement technique in the Turkish educational system.

<u>Research Needed</u>. As discussed above and earlier in this study, there is no research being done in the field of test and measurement toward developing a better technique of measuring students' learning outcomes in the Turkish educational system; although some researches in a very broad sense in the field of educational testing were done in earlier years.

A comparative study can be conducted on the advantages and disadvantages of the present examination system and objective testing techniques. The MOE and its related bodies would support such studies in education.

A survey research can also be conducted to identify the amount and types of problems created by the present examination regulations. These types of researches could well support the idea of change in the present examination regulations. Habitualized behavior of many decision makers could only have been changed if these survey and experimental researches were conducted and published in the Turkish Educational system.

# <u>Need for In-service Training</u> (Workshop and Seminars)

As soon as a change is made in the examination regulations in terms of permitting teachers to use objective tests or essay tests and oral examination or any combination of these, it is hoped that many

teachers will attempt to use objective tests especially at the elementary school level. Since teachers are not trained in objective test and measurement, complementary or some beginning courses, seminars and workshops will be needed to train teachers in objective test and measurement techniques. The duration and content of these in-service training programs can be well prepared and conducted with help from various agencies and personnel from universities, Educational Institutes, test and measurement specialists, and so on. On the other hand, the PAKD can prepare and distribute some brochures and pamphlets for those teachers who are interested in objective test and measurement techniques, too. The PAKD can organize some mobile workshops with its test specialists during either the semester or weekends.

#### <u>Need for Changes in the Course Programs</u> of Teacher Training Institutions

Changes in the course programs of teacher training institutions at the elementary and higher educational levels will be the last link of the chain toward developing a better, impartial, scientific, and objective test and measurement technique in the Turkish education system and in Turkish industry in general. The change in the courses offered by teacher-training institutions will not be difficult at all, if the first change in the examination regulations is made.

As it has been discussed in the previous chapters, separate courses in the field of test and measurement are offered in a few educational institutions; such as, Ankara, Istanbul and Izmir Educational Institutions, Middle-East Technical University (Educational Depart. Division),



and Hacettepe University (Educational Division). The courses offered in these two universities are for teaching certificates; whereas, the courses offered in three Educational Institutions are in the Education Departments of these institutions. In other words, most of the courses offered in Educational Institutions are required courses; whereas, in universities, students do not have to take these courses. Under these conditions students at the universities do not select these courses very often. Even sometimes it is difficult to find enough students for these courses. Only post-graduate students at these universities show interest, as the experiences and conversations of the author with university instructors indicate. But as soon as a change is made in the examination regulations toward using objective tests in school, required courses will be added or be replaced with other courses offered in higher educational courses.

In primary teacher training institutions one or two semester courses will be needed in addition to educational psychology courses. In either primary teacher training institutions or in higher educational institutions difficulties in finding instructors who could teach objective test and measurement will not be encountered at least for the time being.

Objective test and measurement techniques in the Turkish educational system will consequently bring objective selection techniques in employment in industry, although not soon. This consequently will necessitate use of objective tests in placement and training employees in industry. It will prevent the industrial administrators and Turkish industry from



the influence of politicians, high authority officials and other nonethical efforts. It will also lead Turkish industry to a modern and scientific, as well as, more productive level.

## Summary and Conclusions

The study indicated that there were essential differences in use of objective tests between the United States and Turkish educational systems. For instance, objective tests in the Turkish educational system are used mainly for practical purposes; such as, selection of students to state boarding schools at secondary and higher educational levels, and to the universities by the Turkish government, by the MOE, and university officials; they are unofficially used for preparing students at elementary and secondary levels to such state boarding schools and universities. Tests are used for these two purposes. A few teachers at the elementary schools use them for some other purposes. They do not have local or regional norms. They are not put in use through the process of standardization. But, on the other hand, their use in selection of students to state boarding schools and universities is supported officially by the government and universities. There is no scientific justification for use of such tests, but they are justified for being practical and economical. Yet, the use of objective tests are prohibited in schools. Some teachers, however, attempt to use objective tests for purposes like grading, promoting learning and formative evaluation, but not very often.

Use of objective tests in the United States educational system is very different from the Turkish educational system. Objective tests are used for all purposes. Their use is required and supported in various ways by either state governments or by the Federal Government. For these reasons many of the objective test and measurement techniques are offered as required courses in teacher training institutions. Objective test and measurement has become an important specialized branch in education, as well as in psychology. The testing industry, on the other hand, encourages use of objective tests, especially standardized tests, in the United States educational system.

The differences in use of objective tests between the United States and Turkish educational systems stem from the differences between the two countries in a) cultural values, b) administration of education, c) model of the educational system, d) training of teachers, and e) specialization in the field of objective test and measurement.

The study implied that there were some possibilities for developing an objective test and measurement technique in the Turkish educational system. These possibilities were some changes in 1) the examination resulations permitting teachers at the elementary and secondary schools to use either objective or essay type written and oral examinations or any combination of these for various purposes, 2) changes in the courses of teacher training institutions that some courses in the field of objective test and measurement could be added and offered as required courses, 3) in-service training in the form of short term courses, seminars and workshops, and 4) comparative and survey type researches in the field of tests and measurement. It may be inferred from the



discussion above that all these activities would take place concurrently, although the research needed must precede the first three activities.

Objective test and measurement techniques in the Turkish educational system seem to go through some stages. These stages could be stated as follows:

The first stage, which has been passed, was the period of development or getting acquainted with objective tests and measurement. Objective tests have been known by Turkish educators since the early 1950s, although there were some books about objective testing translated from various sources, mostly in psychology, much earlier than the 1950s. During this stage no one, except the borrowers of these tests from the United States and other countries, was interested in them. Those who were working with essay type written examinations regarded them with indifference or suspicion. This indifference and suspicion has continued until the 1960s.

A few teachers, however, and some MOE officials merely tried out objective tests because they were for something new and there was some evidence brought from abroad about their usage. This attitude, however, tended to die a natural death as the novelty wore off.

In the 1960s some pioneering efforts of the MOE and universities provided some support for objective testing in the Turkish educational system. This stage can be called the curiosity stage. This was the second stage of objective test and measurement development. It began to gain support. Toward the end of the 1960s all universities and some teachers at the elementary school level used objective tests for some purposes, mostly for selection of students to higher educational


institutions, and preparing students for state boarding schools, and higher education entrance examinations, whether the objective testing techniques were understood or not. Test results were uncritically accepted at their face value although nobody knew about their validity and reliability.

The movement which took place late in the 1960s, can be counted as the beginning of confidence. This is the third stage, although it seems it will take some time to complete its cycle. This stage has not yet caused a complete or nearly complete confidence in the Turkish MOE officials and among Turkish teachers generally. It is simply that it is not well understood. But it is not the fault of the Turkish teachers. Before going through the stages mentioned above there must have been a few changes in the courses offered at the teacher training institution, and change in the examination regulations which were adopted from the French educational system. Whereas, in the United States, the stage of indifference and suspicion, with which Rice's spelling test was met, passed when the first standardized tests appeared during the first decade of the twentieth century. At that time, as it is now, there were obstacles to use the objective test mainly because of a non-centralized system of education. Only thereafter, curiosity and confidence stages, and even a critical caution stage, were experienced. This does not imply that Turkey must pass through these stages. The author of this study feels Turkish teachers are ready to learn more about objective tests and measurement techniques, and are willing to develop their skills in objective testing. The country is ready to experience the confidence stage of objective test and measurement fully without hesitation if it

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is explicitly and officially accepted and supported, and the few provisions as discussed above are realized. Only then objective test and measurement in the Turkish educational system will cause many worthwhile happenings. Objective tests in the Turkish educational system will:

- generate justice and impartiality in grading students' achievement,
- develop, so far rarely seen, a warm psychological atmosphere, especially at the secondary level,
- create a good relationship between parents and teachers, between school administrators and school teachers, between schools and parents, between students and teachers, and between schools and school environments,
- 4) keep the third-party persons out of schools,
- create a better environment for the mental health of students as well as teachers,
- significantly reduce the number of school leavers and increase the productivity level in Turkish schools,
- reduce the cost of education, and open new spaces for newcomers,
- pave the way for identifying students' difficulties and finding solutions in a much better way in cognitive areas,
- 9) provide opportunities for promoting learning, and
- 10) eventually cause a concentration of efforts of educators in the field of tests and measurement.

Today one of the most serious obstacles, to the full development of objective tests and measurement, in Turkish schools is that the MOE has not yet achieved full realization of the advantages of objective testing. In fact, very serious problems are created by the present measurement system which is merely oral and essay type written examinations. Therefore, it is the responsibility of educational and



psychological researchers to make MOE become aware of the problems created by present examination regulations. Only then the MOE may, in fact will, with a realistic hope, take the necessary step toward developing a better tests and measurement technique. Despite the system of free schools, partiality in measuring students achievement, nonobjectivity in grading students' learning outcomes, and many other unhappy and unethical things going on inside and outside of the schools are a profound handicap to the nation's social development. If the free school system is to do justice to every student, if it is to provide education at successive levels for almost each of the students who crowd into schools, then it must adopt an objective testing technique to measure and evaluate students learning outcomes, to diagnose the difficulties students encounter in learning, and so on. Yet, the cold face of examination will unexpectedly change or disappear from our schools when objective tests are started to be used for purposes other than just testing students' achievement. Properly constructed and properly used tests will take students to mastery in whatever they are taught. A country like Turkey does need to achieve this end.

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