DOCUMENT RESUME

ED 276 964 CG 019 581

AUTHOR Schaie, K. Warner
TITLE Relating Age Change and Behavior to Job Requirements.
INSTITUTION National Inst. on Aging (DHHS/NIH), Bethesda, MD.
PUB DATE 22 Nov 86
GRANT R01-AG04470
NOTE 28p.; Paper presented at the Annual Scientific Meeting of the Gerontological Society (39th, Chicago, IL, November 19-23, 1986).
PUB TYPE Reports - General (140) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Age Discrimination; Aging (Individuals); *Court Litigation; *Job Performance; *Job Skills; *Older Adults; Psychologists
IDENTIFIERS *Age Discrimination in Employment Act Amend 1980; Expert Witness; *Mandatory Retirement

ABSTRACT

The Age Discrimination in Employment Act has been amended to outlaw mandatory retirement at any age. However, the act permits employers to impose a specific retirement age if there is a bona fide occupational qualification (BFOQ) which cannot be met by all or most individuals. Imposition of BFOQ mandatory retirement ages by employers has led to litigation. Many of these cases concern whether there are age-related changes in behavior that impair job abilities beyond a certain age. In virtually all job classifications questions of intellectual competence, judgment, and motivation are involved. Psychologists may be called as expert witnesses about these competency issues. Psychologists as expert witnesses provide expert testimony and relevant research literature, educate the attorney on methodological issues, and help prepare the attorney for trial. Job skills needed should be analyzed and the effects of age on their performance assessed. When an employer attempts to support the BFOQ defense through use of an industrial psychologist and his literature analysis, the expert trained in the aging field should look for research flaws such as inappropriate reliance on cross-sectional or group difference data, absolute magnitude of age changes, and compensation of age changes in skilled behaviors. To combat the argument that it is possible to test for individual characteristics of the job, the expert may need to identify objective assessment procedures which are age-neutral. (ABL)

Relating Age Change and Behavior to Job Requirements

K. Warner Schaie

The Pennsylvania State University

Paper presented as part of a Symposium on

Aging and Work: Gerontological Research and Legal Decisions

Harvey L. Sterns, Chair

at the Annual Meeting of

The Gerontological Society of America

Chicago, Illinois

November 22, 1986

Abstract

This paper discusses the role of the psychologist as an expert witness in litigation involving age discrimination in employment. In particular, attention is given to the manner in which the psychological aging literature can be made relevant to the circumstances of a given job situation. Methodological issues are discussed that need to be brought to the attention of attorneys and ways are described in which expert testimony can be used to inform the court in a manner to assure that the relevant psychological literature can be properly interpreted. An example of exhibits used for that purpose is provided.

Relating Age Change and Behavior to Job Requirements

Introduction

The Age Discrimination in Employment Act of 1967 (ADEA), specified that employees could not be mandatorily retired for reasons of age before age 65. The age limit was raised to 70 in 1978. And this act, of course, has recently been amended to outlaw mandatory retirement at any age with some important exceptions. However, both the original and the amended act permit employers to impose a specific retirement age of their choice if they can demonstrate that there is a bona fide occupational qualification (BFOQ) which can not be met by all or most individuals past the employer-selected retirement age. Further, it is necessary for employers to show that the BFOQ is needed because it is impossible or impracticable to perform individual assessment of job-relevant skills. Imposition of BFOQ driven mandatory retirement ages by private and public employers has led to extensive litigation. Actions have been brought by individuals affected by the imposition of early mandatory retirement rules. More importantly class action suits have been brought by the Equal Employment Opportunities Commission (EEOC) against individual employers seeking to abrogate such rules or against public entities to seek invalidation of local or state laws mandating early retirement for specific classes of employees.

The factual issues involved in many if not all of these litigations concern the question whether there are indeed age-related changes in the behavior of all or most individuals that would impair their ability to perform their job adequately beyond a certain chronological age. In some job classifications, the behaviors in question involve issues of health, physical strength and endurance. But in virtually all job classifications they involve questions of intellectual competence, judgement and motivation. And in some job classifications speed of reaction time is thought to be critical. Because of the psychological issues involved I have had the opportunity in recent years to serve as an expert witness in a number of individual and class action litigations. As you might assume I have typically, but not always, served as a witness for the plaintiffs who seek abrogation of the retirement rules, reinstatement or other relief for the damages claimed to have arisen from involuntary retirement.

The purpose of this paper is to discuss the role of a psychologist in working with attorneys for the plaintiffs in the process of age discrimination litigation. In particular, I would like to address the question of how one might marshall research evidence that is relevant to a particular litigation, as well as the methodological issues with respect to which the expert witness must educate attorneys and the court if the relevant psychological literature is to be understood properly.

Role of the Psychologist as Expert Witness

Psychologists involved in litigations of this kind seem to serve a variety of roles. The most salient one, of course, is to provide expert testimony during the trial and the defendant's attorneys deposition of the expert during which they seek to discover the strength and weaknesses of the expert's testimony. An equally important role, however, involves the services the expert can render in marshalling relevant research evidence from the psychological literature, educating the attorney on the methodological issues, and helping prepare the attorney in conducting an effective direct examination, as well as in cross-examining the defendant's experts. Many attorneys in age discriminination litigation prefer to use their experts as part of presenting their case in direct examination. This may be appropriate if quite specific testimony is given. Since the gerotological expert may be asked to testify quite broadly to the implications of age changes in physical and psychological function to job performance, I have found it actually more effective to serve as a rebuttal witness.

Review of Job Characteristics

The work of the expert begins by reviewing the documents stating the facts of the action, as well as any depositions that have been taken to obtain the views of executives in the employer's organization regarding age-related requirements and job qualifications. Particularly important is a review of any job

analyses that have been done, to discover what aspects of the job might require skills that are known to change significantly with advancing age. Unless the expert is intimately familiar with the job qualifications and circumstances involved in the litigation, it is essential next to schedule a site visit or visits that permits random or selective interviewing of employees and observations of actual job performance. In legal terminology this is often described as "entry upon land."

The specific aim of the site visit is to assess the actual occurrence of activities indicated in the formal job specification, and to determine whether the job-related tasks involve activities that would place special burdens on individuals past the specified mandatory retirement in age. In particular, the expert must determine whether there are characteristics of the job requirements that involve sensory, motor and other behavioral skills that decline with age. Direct job observation is often helpful in identifying tasks which are similar to well-researched tasks in the psychological literature. For example, in one of my studies of highway scale operators, it became clear that an essential job duty in recording truck weights was conducted in a manner virtually identically to the operations on the PMA Number test (Schaie, 1985). This fact made it useful to give prominence to literature on that task in preparing trial exhibits.

It is also necessary to assess whether known average magnitudes of decline on such skills are likely to impair the

performance of employees in their observed job duties. And it is important to determine whether it would be possible to devise simple and inexpensive methods of assessing whether individual employees are indeed capable of carrying out their assigned responsibilities. In order to obtain a broad range of information, observations should be conducted over a sample of physical locations (if job sites are widely spread) and over the broad range of the time during which employees are required to be on duty (e.g., during daylight and dark).

Assessment of Relevant Research Literature on Age Changes

Many employers attempt to support their BFOQ defense of early mandatory retirement by contracting with an industrial psychologist to conduct an analysis of the aging literature as related to the particular job. It is rare indeed that there would be a job specific literature (cf. Stagner, 1985). Consequently it is often necessary to build elaborate evidential trails. One of the responsibilities of the plaintif's expert is to examine this evidential trail for its scientific validity. When the defendant employer relies on industrial psychologists who have little experience in the aging field it is often not difficult to show that the defendant's review of the research literature is seriously flawed and that the conclusion drawn therefrom that employees should be mandatorily retired at an early age is not supported by a proper analysis of that literature. I will next

discuss some of the most pertinent objections I have found in my experience, and will show you exhibits I have used in court to clarify these points. The very same evidence can, of course, also be used in building the case for the palintiff as part of direct examinations.

Inappropriate Reliance on Cross-sectional Data. With few exceptions, most of the literature reviewed by defendant's experts involve cross-sectional studies comparing average responses of groups of different individuals at one point in time. Most of these studies compare young adults in their twenties with old adults above age 60 (the actual age is often not specified, and may well be above the age level to which the data are to be applied). Much of the research reviewed is often quite dated and inapplicable to a determination of current performance levels of individuals in the protected class. Such data may tell us that younger people performed at a higher level than their older peers. They do not contain any information that informs as to what amount the same individual would change over time. Since the contention is that employees who were once competent but are no longer competent for reasons of advancing age, only longitudinal data would be relevant to speak to this question (cf. Schaie, 1977). Figure 1 represents an exhibit that I have used to illustrate the extent to which cross-sectional data that model group differences between individuals at one point in time may misrepresent actual age changes within individuals that must be demonstrated to show

that individuals who were previously judged competent have shown decline in their job relevant skills. The data presented come from the Seattle Longitudinal Study and are for performance on a recognition vocabulary test (Schaie & Willis, 1986, Chapter 1).

Insert Figure 1 about here

Inappropriate Reliance on Group Difference Data. The review of the literature often reports a number of statistically reliable group differences between young and old adults. It typically does not provide evidence that would permit the judgment that all or most employers over the specified age perform at a signficantly lower level than do their younger peers. When measures of variability are available in any of the studies cited, it is often possible to show that there is substantial overlap in the distributions of individual differences across age (cf. Schaie, 1980, 1983). That is, on virtually all characteristics assessed in most studies, there are many members of the older comparison group that fall above the average of the younger comparison group.

The issues of overlapping distributions can often be illustrated by computing frequency distributions either from actual data, or when frequency data are not available by projecting from measures of variability. Figure 2 shows frequency distributions for the PMA Number test for the same group of

individuals at mean ages 55, 62 and 69, ages that bracketed a claimed BFOQ driven mandatory retirement age of 60 in the case for which this exhibit was prepared. Figure 3 moreover shows age changes for the group mean, and for the lowest and highest performing member of the group over the same age range. In conjunction, these data clearly demonstrate that on the variable in question age changes over the age range for which the BFOQ was claimed was clearly trivial for this job-relevant skill.

Insert Figures 2 & 3 about here

Another important issue related to individual differences is the requirement by the ADEA that a BFOQ defense must show that all or most individuals at the specified age are incapable to performing the required job skills. Defendants will often attempt to support such claim by introducing research findings that show reliable mean differences in favor of younger individuals. Such evidence is not really relevant to the issue whether all or most individuals show significant performance declines beyond a given age. I have used individual longitudinal data such as those shown in Figure 4, to illustrate that decline in competence is an individual and not a general phenomenon. Figure 4 shows proportions of individuals showing statistically significant decline over seven-yer intervals rom age 60 through age 81, again on the PMA Number test. These particular data demonstrate that

reliable decline is shown only by a minority of individual at all ages examined (cf. Schaie, 1984).

Insert Figure 4 about here

Magnitude of Age Changes. Reviews of the literature often pay scant attention to the absolute magnitude of age changes. For example, although average reaction times tends to increase by a factor of 1.5 to 2 from the twenties to the seventies, the actual increment in time required for the successful performance of a task of reasonable complexity will typically not exceed one or two seconds. Figure 5 shows an exhibit that makes this point (from Salthouse, 1985). In this display, as taks complexity increases, individuals in their sixties as compared to those in their twenties are increasingly disadvantaged. But even for the most complex task, the absolute time differential in performance is under one second!

Insert Figure 5 about here

Other changes in skills that may be relevant to the particular job requirements while showing reliable age differences, are often of equally small magnitude. Most importantly, it is extremely rare, that defendant's expert does or can show that age differences reported in the literature are in

fact of a magnitude that would on average interfere with successful job performance. For example, in my observation, it took a truck on average something like 30 seconds to pass a scale operator's station, while only 6 seconds were required to perform the desired measurements. Slowing of reaction time leading to an increase of a second or two in time needed for the job operation would consequently be irrelevant to the operators ability to do the job.

Compensation of Age Changes in Skilled Behaviors. Most defendant's reviews of the literature tend to ignore the highly relevant research evidence on aging and expertise. This literature shows that although many individuals indeed experience show some behavioral decrement by the time the late sixties are reached, that such decrement does not seem to occur for highly practiced tasks at which the individual is an "expert." Maintenance of such "expert" function typically involves experience in carrying out a complex task. In other words, experience usually suffices to compensate for behavioral slowing on well-practiced tasks that are part of a person's job requirements (cf. Charness, 1981; Salthouse & Somberg, 1982). Much of the work in the psychological literature, with the exception of longitudinal studies, involves presentation of novel stimuli in novel laboratory situations. Obviously, compensatory experiences cannot be active here, as they are likely to be in actual job situations. This is why reference to the literature on

aging and expertise is of particular relevance (also cf. Glaser, 1987; Salthouse, 1987).

Practicality of Individual Assessment

The final rationale claimed for the imposition of a BFOQ is often the statement that it is impossible to test for individual characteristics essential for the job that are based on traits that show decrement with age. One of the first problem in dealing with this contention is the frequent unwillingness of an employer to define minimum criteria for acceptable job performance. There is generally no contention, however, of the principel that performance evaluation is the routine responsibility of supervisory personel in any employment situation. Failure to develop appropriate performance evaluations therefore reflect either poor management or incompetence on the part of supervisors, rather than the impracticability of developing performance appraisals. The role of the expert, however, based on review of job specifications and direct observations may well be to pinpoint the relatively simple characteristics of the essential job requirements for the position subject to litigation. The expert can further identify job-relevant and readily available objective assessment procedures that could be administered on an age-neutral basis that could determine whether an employeed met minimum requirements. For many jobs such procedures might include periodic checks on minimally satisfactory visual and auditory

acuity, grip and lifting strength in physical demanding jobs, and simple tests of job-relevant mental abilities (cf. Schaie, 1985). Appraisal of job-relevent physical and psychological characteriastics on an individual basis most often can be simple, inexpensive and pose little additional burden upon the defendant. In fact it is surprising that industrial psychologists who often serve as defendant's experts and who are familiar with and base their expertise on the development of selection procedures at job entry are willing to contend seriously that similar procedures are inappropriate for the appraisal of employees at later stages in their work life.

Summary

In this presentation I have described the multiple roles that a gerontological psychologist can serve as an expert witness in age dicrimination litigation, particularly in class actions were employers develop BFOQ exceptions to the prohibition against mandatory retirement. I have excercised you through some of the methodological issues that might be raised in discrediting reviews of the research literature used by defendants to buttress their BFOQ and I have shown you exhibits that try to relate research findings on age and behavior in a way that may be helpful in testimony. I hope that my presentation has conveyed to you some of the excitement that I have felt in being able to show the relevance of basic research to issues of public policy. The kind

of work illustrated in my remarks is challenging, but it also has an immediacy in relating research findings to real life consequences that is rarely found in other academic pursuits.

References

Charness, N. (1981). Age and skilled problem solving. Journal of Experimental Psychology: General, 110, 21-38.

Glaser, R. (1987). On the nature of expertise. In C. Schooler & K. W. Schaie (Eds.), Cognitive functioning and social structure over the life course. Norwood, NJ: Ablex.

Salthouse, T. A. (1985). Speed of behavior and its implication for cognition. In J. E. Birren & K. W. Schaie (Eds.), Handbook of the psychology of aging (2nd ed., pp. 400-426). New York: Van Nostrand Reinhold.

Salthouse, T. A. (1987) Age, experience and compensation. In C. Schooler & K. W. Schaie (Eds.), Cognitive functioning and social structure over the life course. Norwood, NJ: Ablex.

Salthouse, T. A., & Somberg, B. L. (1982). Skilled performance: The effects of adult age and experience on elementary processes. Journal of Experimental Psychology: General, 111, 176-207.

Schaie, K. W. (1977). Quasi-experimental designs in the psychology of aging. In J. E. Birren & K. W. Schaie (Eds.), Handbook of the psychology of aging. New York: Van Nostrand Reinhold.

Schaie, K. W. (1980). Intelligence and problem solving. In J. E. Birren & R. B. Sloane (Eds.), Handbook of mental health and aging (pp. 262-284). Englewood Cliffs, NJ: Prentice-Hall.

Schaie, K. W. (1983). The Seattle Longitudinal Study: A 21-year exploration of psychometric intelligence in adulthood. In K. W. Schaie (Ed.), Longitudinal studies of adult psychological development. New York: Guilford Press.

Schaie, K. W. (1984). Midlife influences upon intellectual functioning in old age. International Journal of Behavioral Development, 7, 463-478.

Schaie, K. W. (1985). Manual for the Schaie-Thurstone Test of Adult Mental Abilities (STAMAT). Palo Alto, CA: Consulting Psychologists Press.

Schaie, K. W., & Willis, S. L. (1986). Adult development and aging (2nd ed.). Boston: Little, Brown, & Co.

Stagner, R. (1985). Aging in industry. In J. E. Birren & K. W. Schaie (Eds.), Handbook of the psychology of aging (2nd ed., pp. 789-817). New York: Van Nostrand Reinhold.

Author Note

Preparation of this paper was supported in part by research grant R01 AG04470 from the National Institute on Aging.

Figure Captions.

Figure 1. Cross-sectional and longitudinal age gradients on the Primary Mental Ability of Verbal Meaning (from Schaie & Willis, 1986).

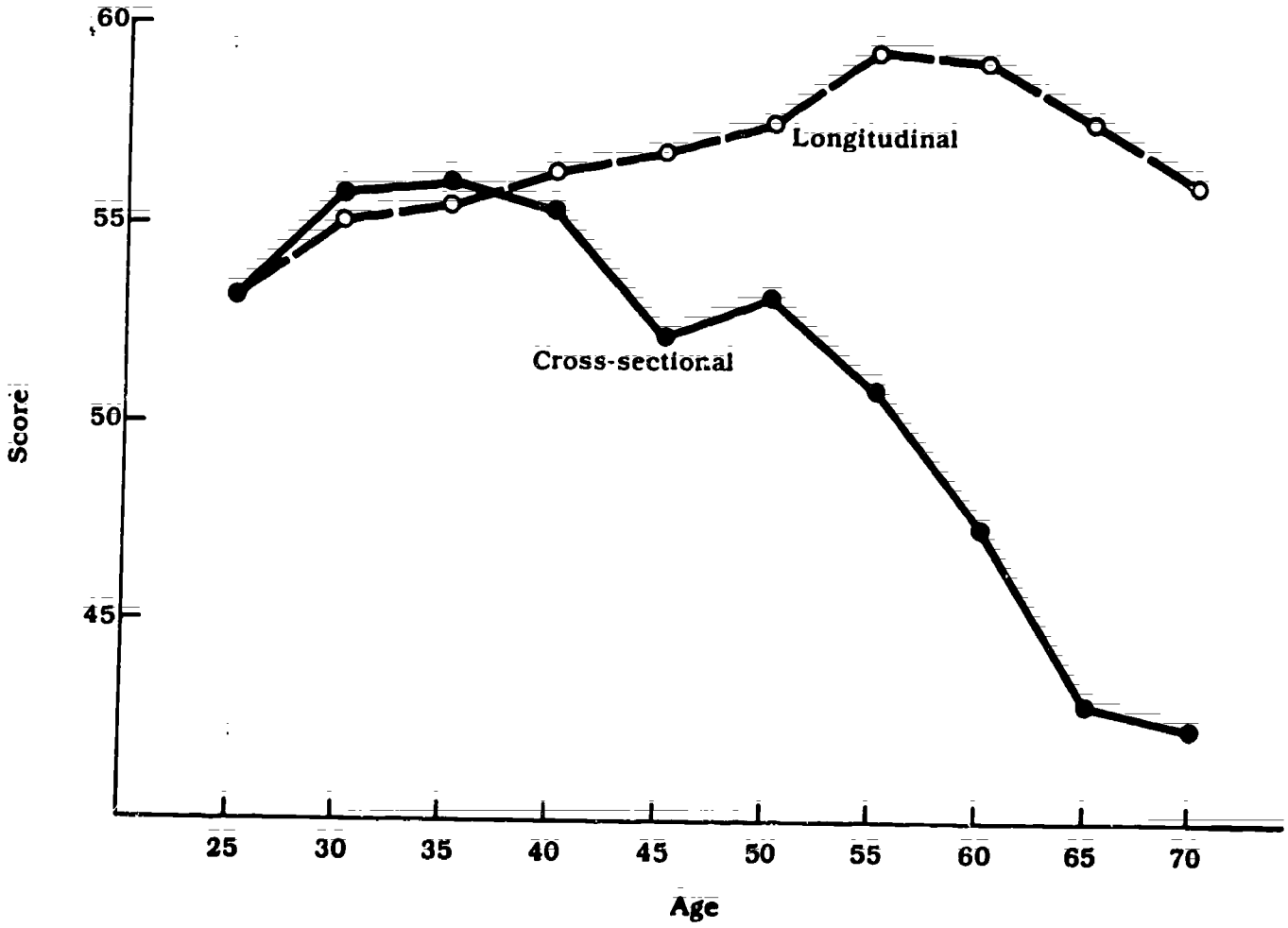
Figure 2. Overlapping frequency distributions of scores on the PMA Number Test for a group of the same individuals at mean ages 55, 62 and 69.

Figure 3. Means, lowest and highest scores for the PMA Number Test at mean ages 55, 62 and 69.

Figure 4. Proportion of individuals remaining stable, declining and increasing their performance level on the PMA Number Test over a seven year period (adapted from Schaie, 1984).

Figure 5. Performance time of old adulats as a function of performance time of young adults across different experimental conditions (from Salthouse, 1985).

Fig. 1


60
55
50
45
Score
Longitudinal
Cross-sectional
25
30
35
40
45
50
55
60
65
70
Age

OVERLAP IN DISTRIBUTIONS

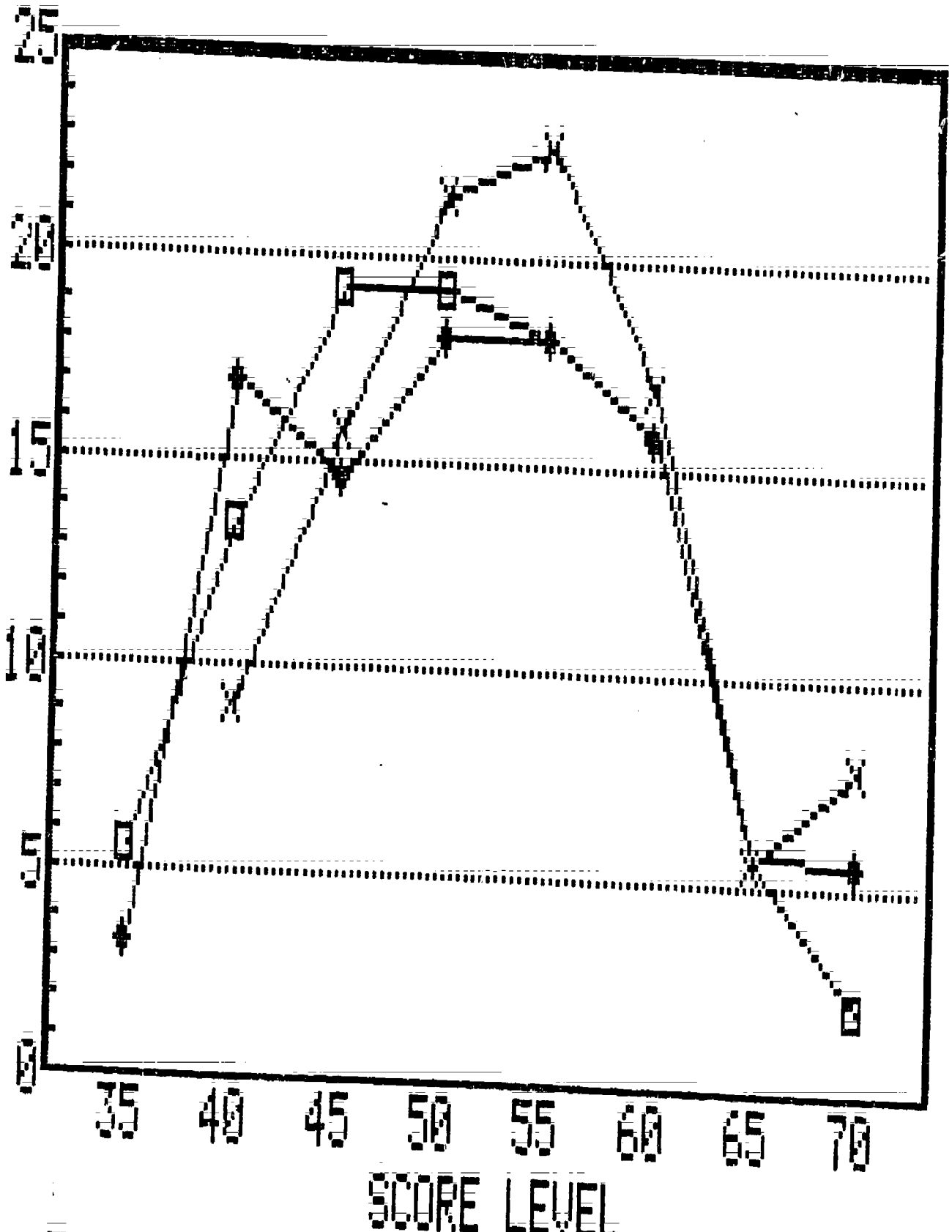
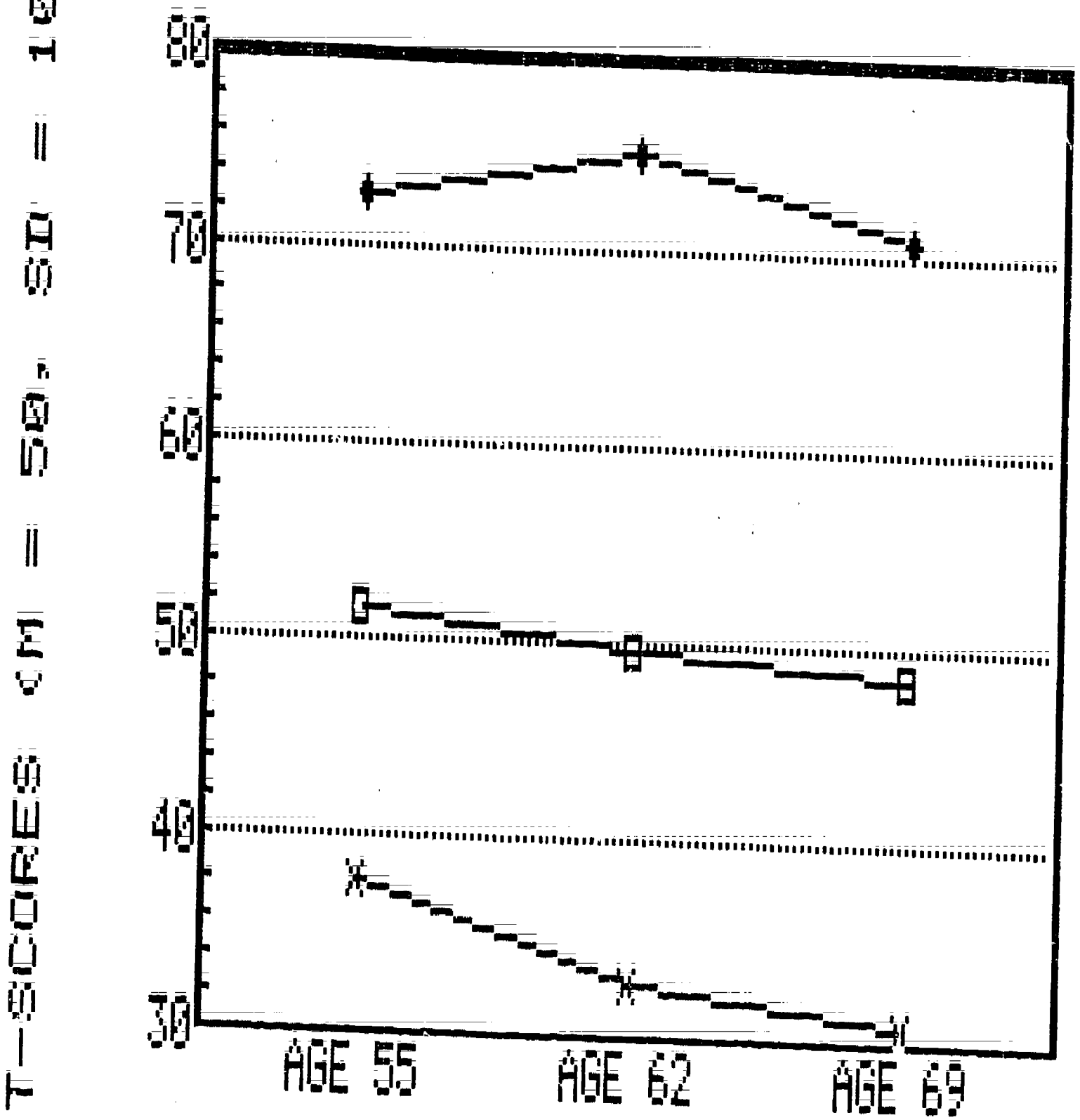


Fig. 2

AGE CHANGE IN NUMBER SKILL



□ MEAN SCORE ♦ HIGHEST SCORE

X LOWEST SCORE

Fig. 3

AGE CHANGE IN NUMBER SKILL

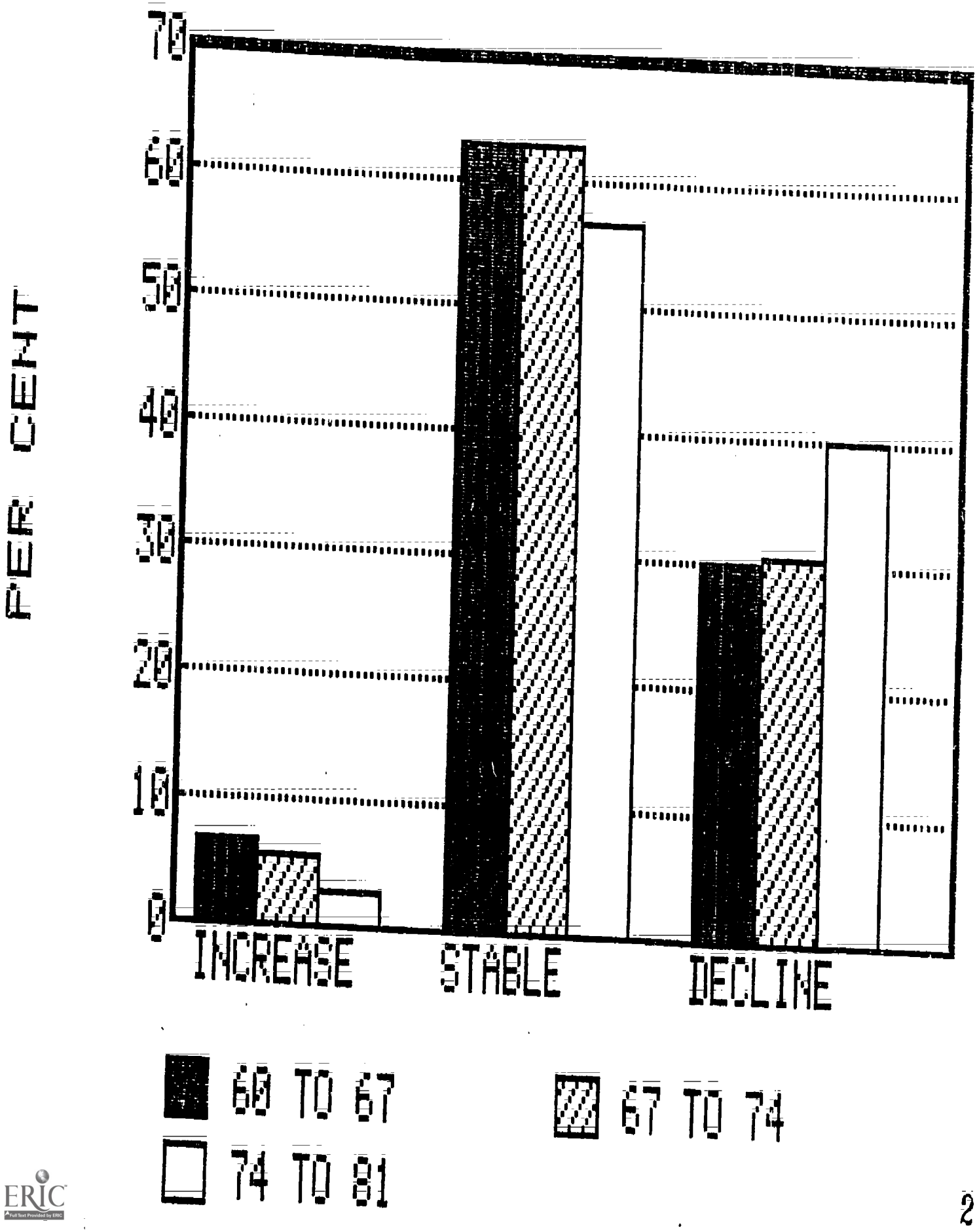
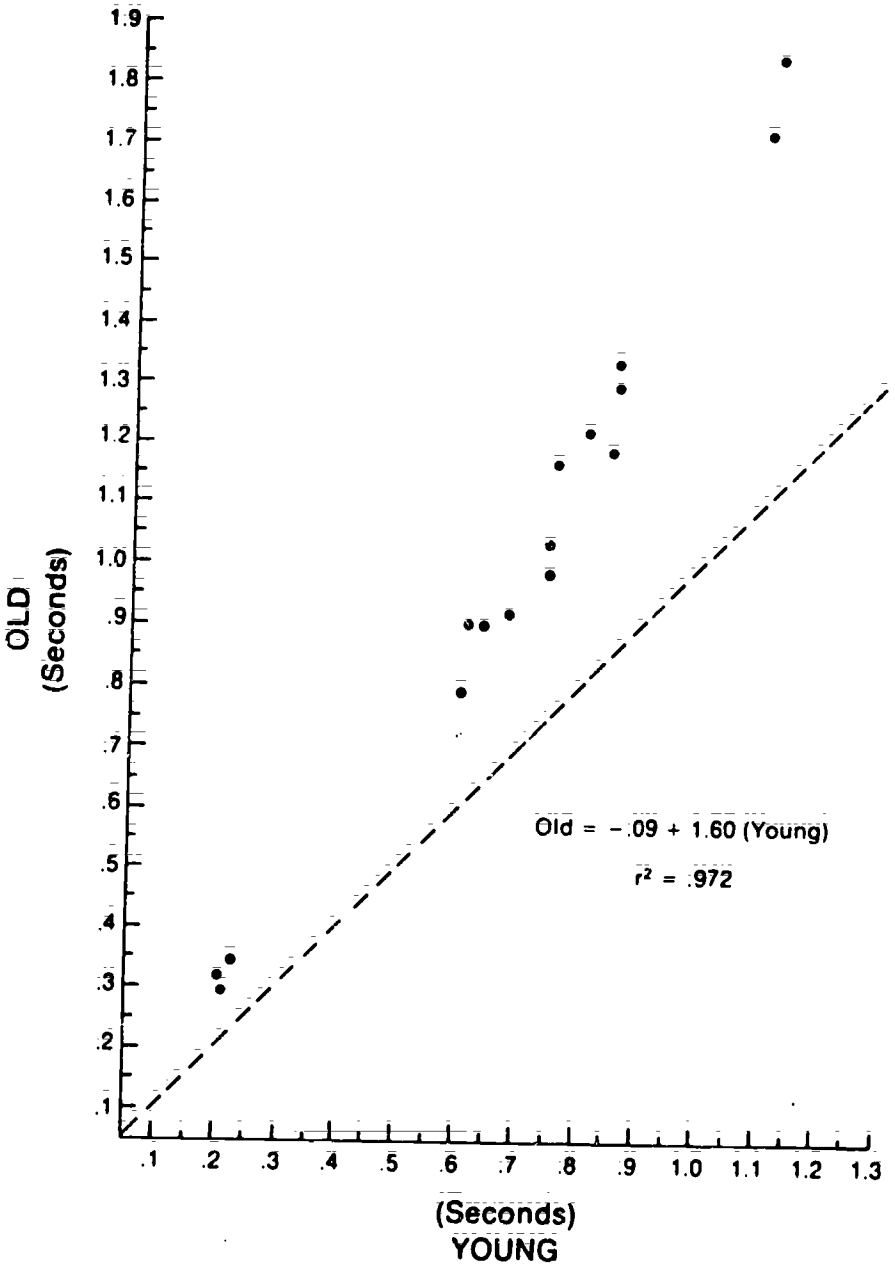


Fig. 4

Fig. 5


OLD (Seconds)
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
Old = −.09 + 1.60 (Young)
r² = .972
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
1.1
1.2
1.3
(Seconds) YOUNG