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ABSTRACT

On the basis of an established need, the Occupational Values Inventory (OVI) was developed as one of the data collection instruments for the Vocational Development Study to measure the occupational values held by ninth graders, including: (1) Interest and Satisfaction, (2) Advancement , (3) Salary, (4) Prestige, (5) Personal Goal, (6) Preparation and Ability, and (7) Security. The 35 items on the OVI consist of three statements or phrases representing three different values. The individual is forced to select the phrase or statement most important to him in selecting a job as well as the least important. Though restricted, investigations thus far indicate that the OVI reliably measures selected affective traits that uniquely contribute to distinctions between boys and girls, academic and vocational-technical students, and successful and unsuccessful students, and is a potentially useful guidance instrument. Measures of internal consistency, stability, and concurrent validities were utilized to establish reliability and validity of the OVI, and plans for predictive and construct validity studies have been made. Norms based on a sample of 548 ninth grade boys and 531 ninth grade girls are included, and a sample instrument and directions for administering and scoring the OVI are appended. (SB)

THE PENNSYLVANIA STATE UNIVERSITY
DEPARTMENT OF VOCATIONAL EDUCATION



# THE MEASUREMENT OF OCCUPATIONAL VALUES

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Pennsylvania Department of Education
Bureau of Vocational, Technical and Continuing Education

(Project No. 19-1013)

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# The Measurement of Occupational Values

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# PREFACE

As the third monograph in the series of Vocational Development Study (VDS) publications, The Measurement of Occupational Values represents a first effort to analyze the reliability and validity of tests and inventories utilized in this longitudinal investigation. This latter focus is one of the three emphases of the VDS, the other two involving the analysis of the effects of the senior high school experience upon the development of youth. The VDS is being conducted in the Department of Vocational Education at The Pennsylvania State University with the cooperation of three Pennsylvania school districts (Altoona, Hazleton, and Williamsport).

As one of the data-gathering devices utilized in the VDS to assess the development of over 3,000 youth over a ten-year period, the Occupational Values Inventory (OVI) is considered to be a potentially useful instrument for providing guidance to ninth graders. Within this publication the rationale for the development of the OVI and current evidence regarding its validity and reliability is presented.

Under development since 1967 by the authors of this monograph, the OVI is shown to reliably measure selected affective traits that uniquely contribute to distinctions between: boys and girls, academic and vocational-technical students, and successful and non-successful students. Future efforts to uncover further evidence regarding the potential guidance uses of the OVI are discussed in the monograph.

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# I

## THE ORIGIN AND MEASUREMENT OF OCCUPATIONAL VALUES

Spurred on in the early 1950's by the urging of Ginzberg (1950) and the example set by Super (1951) vocational behavior has become a topic of great concern to educators, counselors, psychologists and sociologists. Major programmatic research efforts designed to explore the underlying factors related to vocational behavior have been recently reviewed by Holland and Whitney (1969). In addition to the impact which these efforts have had upon our understanding of vocational behavior, they have also stimulated a great number of individual studies which have contributed to our current knowledge. Holland (1964) has stated:

> The present orientation, with its explicit recognition that vocational behavior is related to the life history, personality, and self-conceptions as well as to aptitudes and interests, has provided an intellectual climate which fosters a great variety of empirical studies and theoretical formulations.

Though this increasing activity appears to be a positive sign, Borow (1964) has cautioned that there is still little basis for overoptimism. He has stated:

> Like my other fields which are under vigorous cultivation through research, the field of occupational behavior suffers from bigness and disjointedness. Investigators in diverse scholarly disciplines (e.g., counseling psychology, clinical psychology, industrial psychology, occupational and industrial sociology, labor economics) have built relatively independent conceptions of occupational man, each with its own judgments of what is important, its own methodology, and its own professional argot.

What is needed to overcome this condition is a unifying framework which would tie together these varying conceptions. As Gribbons and Lohnes (1968) have recommended,

> It seems more reasonable to emphasize, as Super has..., that a system of self-concepts provides the matrix for specific occupational concepts, censoring and moulding them to a comfortable fit in the matrix, and that the self-concept system itself is a product of a vast congerie of determinants.

Assuming this control of the self-concept system upon vocational behavior, Katz (1963) has introduced the primacy of one's hierarchy of values as the dominant factor in directing the preference-building process.

> In other words, although the role of an individual may be composed of and described in terms of many attributes, the individual's values are the mediating force that binds the attributes together, weights them, organizes them, integrates them, and enables them to be activated in an organismic way in decision-making.

Support for the notion of values as the synthesizing element in choice has also been introduced by Ginzberg (1951).

> The foundation for an effective occupational choice must lie in the values and goals of an individual, for it is these which enable him to order his current achievement with reference to the future. The essential element in occupational decision-making is the effective linking of present action to future objectives. Certainly, capacities and interests must be considered, but the individual will not make an effective occupational choice unless he has support from his value scheme.

After reviewing over 70 studies dealing with work values, Zytowski (1970) concludes, "Finally, it seems reasonable to conclude that a concept of work values is a viable one in the description of vocational behavior, perhaps more so than interests or other conceptions of satisfactions."

## The Nature of Occupational Values

Having established the importance of values as a significant factor in exploring vocational behavior, it becomes essential to explain their origin, psychological nature, and manifestations in that behavior. Katz (1963) has provided a framework interrelating the constructs of needs, values, and interests, and in doing so has helped to clarify the role of values in behavior. "Values may be regarded as characteristic outer expressions and culturally influenced manifestations of needs." Of necessity, according to this view, needs must be regarded as a primary determinant of behavior, motivating an individual's activity toward the satisfaction of those needs. It may be argued, then, that needs may provide the most fruitful area to explore. In Katz's view, however, the worth of values as a construct to investigate is founded upon their nature as outer expressions of motivating forces rather than as an inner drive itself which is often unconscious. What is gained through the focus upon values is the capability to identify a vocationally relevant construct.

There appear to be at least three crucial aspects to the valuing process:

1. The nature of an individual's hierarchy of values--Which value of his range of values would result in an individual's deriving the highest degree of satisfaction if it were attained? Which value would be of the next order of importance? Which is third most important--fourth, fifth, etc.? Which is least important to him?
2. The magnitude of a value (Katzell, 1964)--What level of a particular value must be attained in order to maximally

satisfy that value? Given that salary is of highest importance to John in deciding between alternate job opportunities, how high must that salary be in order to satisfy John--$20,000, $30,000, $50,000?

3. The intensity of value (Katzell, 1964)--What degree of satisfaction is attained if a value were fulfilled? Given that John finds a job opportunity for which he qualifies and in which his primary value (salary) is maximally satisfied, will he be satisfied enough to accept the position without considering other factors related to the job such as the degree of security it provides, the status attached to the job, or the degree of interest he may have in the kind of work it requires? If so, salary is a high intensity value for John. If other factors are important for John to consider prior to his making a decision to accept the position, salary would be a relatively low intensity value for him.

After a careful survey of the values literature it was found that: primary emphasis is placed upon the values profile or hierarchy; value intensity is usually accounted for in some way; and value magnitude is usually avoided.

## The Measurement of Values

Beck and Barak (1967) and Katz (1963) have commented on the essentially ipsative nature of values. Valuing is to choose among alternatives. The crucial factor is whether John values X more than Y, rather than whether John values X more than Fred does. It naturally follows, then, that the most appropriate measure of values is one made

up of a set of forced-choice items (an ipsative frame). The task required of the individual would in this way be representative of the valuing process.

Eight available occupational values inventories were examined with respect to the degree to which they reflected the ipsative frame: Super's Work Values Inventory (1962; Hendrix and Super, 1968); Weiss' Minnesota Importance Questionnaire (1964); Stefflre's Vocational Values Inventory (1959); Center's Job Values and Desires Questionnaire (1949); Gribbons and Lohnes' "Values Indicators" (1965); Dipboye and Anderson's "List of Values" (1959); Rosenberg's Ideal Job Scale (1957); and Schaffer's "Values List" (1953). Of the above it was found that four were not ipsative, two were simple rankings, one was constructed in the ipsative design, and one was originally designed in accordance with that format, but was later revised. Of the three measures identified as ipsative the Vocational Values Inventory was the only one which made provision for the measurement of value intensity as discussed previously herein. None of the measures took into account Katzell's conception of value magnitude.

The failure of these inventories to account for value magnitude is understandable, since most of them were designed to tap the values of adolescents and young adults who had not yet entered the labor force. Value magnitude only becomes relevant given a concrete level of stimulus toward which the individual may assess his attained satisfaction level. Thus the adult worker, rather than the pre-entry adolescent, will have developed magnitude as an integral part of his value system.

From the previous discussion it may be concluded that the primary questions to be answered in considering the measurement of values are:

1) What are the relevant values in the occupational values domain? 2) How is the ipsative nature of values incorporated into the measurement scheme? 3) Is the factor of value intensity taken into account?

# II

# RATIONALE FOR THE OCCUPATIONAL VALUES INVENTORY

The purpose of this section of the monograph is to establish the need for a valid and reliable work values inventory to provide at least partial answers to the three aforementioned questions, and to describe the process through which the Occupational Values Inventory (OVI) was developed. These three areas of focus will be discussed individually as separate subsections below.

## Need for an Occupational Values Measure

Given the increasing popularity of longitudinal studies of vocational behavior as cited by Holland and Whitney (1969), the need for a measure of values which has meaning for those developmental stages between emerging adolescence and adulthood is obvious if research is to be productive. The recording of the development of an individual's values over time, and the relationships of those values with his vocational behavior is essential to the theory-building process. As Katzell (1964) has pointed out:

> While contemporary research provides considerable data supporting these propositions, and a few contradicting them, there remains a number of points that are still weakly based on evidence...Attention may therefore be drawn to the following topics which...need further research in this field: identification of the more important job-related personal values; development of construct-valid measures of these values...; clarification of the extent to which values change...as a result of vocational experiences; ascertaining of the conditions under which such changes in values do or do not occur.

Zytowski (1970) concludes in his survey of work values, "Despite its promise, the work value concept awaits considerably more empirical work before it can stand equally with constructs already established."

Within the context of the longitudinal study of vocational behavior one of the primary considerations regarding values is the determination of that age at which they reach at least a minimal level of stabilization. For the purpose of this monograph, the "minimal level" is that point at which information regarding one's values can be of some use to the individual in exploring various educational and vocational alternatives. Several investigators have explored this problem, and the results of their combined efforts appear to be relatively conclusive.

Dipboye and Anderson (1959) compared the rank ordering of nine values between two groups of students, the first composed of 823 ninth graders, and the second of 358 twelfth graders. They found "relatively small differences" between ninth and twelfth graders' ordering of values and concluded "that occupational values are generally well formed by the time the pupil completes the ninth grade, and that little change takes place during the high school career." Because the comparison between ninth and twelfth graders was cross-sectional rather than longitudinal it may be argued that such a conclusion is unwarranted. Comparing two groups of students at one point in time is quite distinct from such a comparison made upon the same group at two points in time. The expected outcome of the cross-sectional comparison would be, however, that differences between the ninth and twelfth grade means for most of the values investigated would be observed. Since similarities rather than differences were found by Dipboye and Anderson no other conclusion than that they proposed regarding the relative stability of values over time could be supported. In the opinion of the author, the degree of stability which was found

may then be viewed, as high enough to warrant attention to occupational values at least as early as ninth grade.

In longitudinally studying the career development of a group of 111 boys and girls from eighth grade through four years out of high school Gribbons and Lohnes (1968) examined shifts in values over time. Specifically, when comparing shifts in values over four points in time (eighth grade, tenth grade, twelfth grade, and two years out of high school) they found that "the emergence of more mature values somewhat contradicts the finding of Dipboye and Anderson that 'little change takes place in the student's occupational values during his high school career.' However, as noted, there are important consistencies over the seven years of our data also."

In another longitudinal investigation Thompson (1966) examined the change in values between ninth and tenth grades of a group of 1700 high school students. He also found a great deal of consistency from ninth grade to tenth grade. In summarizing his findings he stated, "there was not significant difference between how the boys, as a group, responded as freshmen and as sophomores. The same was true for girls."

The fourth study cited here which supports the position that values tend to become relatively stable between ages twelve and fourteen has been reported by Fleege and Malone (1946). In undertaking a cross-sectional comparison of values between a group of junior high school students and a group of senior high school students they found "little change" in their values.

What the authors have been attempting to establish in this monograph up to this point are: (1) the dominance of values in synthesizing vocational behavior; (2) the relatively early development

of individuals' values system, and their relative constancy over time; and (3) the resulting need for a highly valid and reliable instrument to measure occupational values. The ensuing discussion attempts to critically evaluate and summarize the commonalities among eight existing instruments designed to measure occupational values.

## Available Occupational Values Measures

A recent survey of the construct of occupational values and their measurement was conducted by Zytowski (1970). This review represented an extremely valuable and time-saving contribution to the writing of this monograph. Much of what is reported in this section was influenced by the Zytowski review. In addition, Figure 1 as presented herein is a slightly revised version of a similar scheme presented by Zytowski.

In the first section of this monograph, the eight instruments which were examined for their suitability were listed. Figure 1 lists those instruments by column, and the specific values identified within each. Zytowski constructed the figure so that reading across any row, common values from instrument to instrument may easily be identified. For the purposes of this monograph, Center's Job Values and Desires Questionnaire (JVDQ), Gribbons and Lohnes' "Values Indicators," and Dipboye and Anderson's, "List of Values" were added to Zytowski's scheme.

Although there is a natural problem of semantics in discussing common values among the instruments, an attempt has been made to present such an analysis. A simple notation of the frequencies of the eight entries, by row, was conducted, and is reported in Table 1. An examination of the table reveals that 22 different occupational values are identified, the most common values being incorporated into all eight measures, and the least common found in only one.

| SUPER | ROSENBERG | MIQ | STEFFLRE | SCHAFFER | JVDQ | GRIBBONS AND LOHNES | DIPBOYE AND ANDERSON |
|---|---|---|---|---|---|---|---|
| Security | Secure future | Security | Security | | | Demand | Security |
| Prestige | Status, prestige | Social Status | Prestige | Socio-economic status | Status, esteem | Prestige | Prestige |
| Economic returns | Good deal of money | Compensation | Money | Economic security | Profit | Salary | Salary |
| Achievement | | Achievement | | Mastery and Achievement | | | |
| | | Advancement | | | | Advancement | Advancement |
| | | Recognition | | Recognition-approbation | Fame | | |
| Surroundings | | Working conditions | | | | Location and travel | Working conditions Benefits |
| | | Company policy and Administration | | | | | |
| Associates | Work with people | Co-workers | | Affection and interpersonal relationships | | Personal contact | Relations with others |
| Management | Leadership | Authority | Control | Dominance | Leadership, Power | | |
| Supervisory | | Supervision—human relations | | Dependence | | | |
| | | Supervision—technical | | | | | |
| Independence | Free of supervision | Independence | Job freedom | Independence | Independence | | Independence |
| Altruism | Helpful to others | Social service | Altruism | Social welfare | Social service | Social service | |
| | | | | Self-expression | Self-expression | | |
| Creativity | Creativity, original | Creativity | Self-realization | Creativity and talent | Interesting Experience | Interest, Satisfaction | Interesting work |
| Way of life | | Moral values | | Moral value scheme | | Personal Goal | |
| Intellectual stimulation | Use special abilities | Ability utilization | | | | Preparation and Ability | |
| Variety | | Variety Responsibility | | | | | |
| | Adventure | Activity | | | | Marriage and Family | |

FIGURE 1. Taxonomy of Work Values [Revised from Zytowski (1970).]

Table 1

Frequencies of the 22 Values Found
in the Eight Value Measures of Figure 1

| Values | Values Measures | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WVI | IJS | MIQ | VVI | Schaf | JVDQ | G&L | D&A | f |
| Interest and Satisfaction | X | X | X | X | X | X | X,X | X | 8 |
| Prestige | X | X | X | X | X | X | X | X | 8 |
| Salary | X | X | X | X | X | X,X | X | X | 8 |
| Independence | X | X | X | X | X | X | | X | 7 |
| Social Service | X | X | X | X | X | X | X | | 7 |
| Co-workers | X | X | X | | X | | X | X | 6 |
| Leadership | X | X | X | X | X | X,X | | | 6 |
| Security | X | X | X | X | | | X | X | 6 |
| Personal Goal | X | | X | | X | | X | | 4 |
| Preparation and Ability | X | | X | | X | | X | | 4 |
| Working Conditions | X | | X | | | | X | X | 4 |
| Ability Utilization | X | X | X | | | | | | 3 |
| Advancement | | | X | | | | X | X | 3 |
| Dependence | X | | X | | X | | | | 3 |
| Recognition | | | X | | X | X | | | 3 |
| Benefits | | | X | | | | | X | 2 |
| Responsibility | | | X | | | | X | | 2 |
| Self-Expression | | | | | X | X | | | 2 |
| Variety | X | | X | | | | | | 2 |
| Activity | | | X | | | | | | 1 |
| Adventure | | | X | | | | | | 1 |
| Supervision--technical | | | X | | | | | | 1 |

A Description of the OVI Scales

Within the framework of the established need for an occupational values inventory, the essential measurement characteristics it should possess, and the results of the survey of existing instruments presented above, the Occupational Values Inventory (OVI) was developed. The seven occupational values measured by the instrument are:

1. Interest and Satisfaction--One likes the work; enjoys it; is happy at it; fulfills oneself by doing it.

2. Advancement--One perceives the opportunity to get ahead in the work; sees a good future in it; it provides an opportunity to improve oneself.

3. Salary--One perceives the financial return resulting from the work; can make a good living at it; sees it as an opportunity for a satisfactory income.

4. Prestige--One is impressed by the respectability attached to the work; can earn recognition from it; desires the feeling of importance that goes with it.

5. Personal Goal--One sees the work as fitting into his way of life; is what one always wanted to do; has been shooting for it; it's the ideal.

6. Preparation and Ability--One can succeed in the work; is good at it; it's where one's talents lie; is suited to it.

7. Security--One can obtain employment in this work; perceives that workers are needed in it; there will always be openings in it.

The rationale for inclusion of these particular seven values in the OVI is presented here as it evolved in the minds of the authors. Generally speaking, the OVI was designed so as to include the least possible number of values necessary to adequately sample the occupational values domain relevant especially to young adolescents. Using the 22 different values which appear in at least one of the inventories presented in Table 1 as a starting point, value categories which did not meet the above criteria were eliminated.

Three of the values selected for inclusion in the instrument (Interest and Satisfaction, Prestige and Salary) were found in all eight instruments reviewed and were therefore selected first. The particular emphasis and interpretation they have been given in the OVI was highly influenced by the Gribbons and Lohnes (1965) study of shifts in vocational values. The next four values appearing in Table 1 (Independence, Social Service, Co-worker and Leadership) appear quite often in the value instrument reviewed in Table 1, but were excluded from the OVI for varied and complex reasons. From reviewing the literature, it appeared that Independence had a particular relevance for adults, but very little for adolescence in the exploratory stages of development. Centers (1949) and Singer and Stefflre (1954) have reported that Independence becomes meaningful only in adulthood. Since the OVI was developed for use with youngsters in a longitudinal study of the developmental years from early adolescence through early adulthood the value Independence was not included.

The next two values appearing in Table 1 (Social-Service and Co-workers) were felt, by the authors, to be conceptually inseparable and highly overlapping during the developmental years of adolescence. It is also felt that this social value is extremely important and relevant to adolescence. The one drawback that the social type value has for an ipsative instrument like the OVI is that it is a primary value for many females and was found to differentiate between the sexes in many of the studies reviewed. Singer and Stefflre (1954), Wagman (1965), Thompson (1966), Dipboye and Anderson (1959), Gribbons and Lohnes (1965) and Schwastzweller (1960) all reported girls scoring significantly higher than boys on the Social Service value.

Information regarding the importance placed upon the Social Service motive is essential to any study investigating the development of vocational behavior. The authors argue, however, that including such a sex-differentiated scale in an ipsative instrument would eliminate the possibility of detecting other less obvious differences. What we have gained by not incorporating the Social Service value into the OVI, we certainly have lost by not making it possible to measure that value in accordance with the ipsative procedure we have indicated is essential. Perhaps a masculinity-femininity scale which is highly loaded on the Social Service value would provide a similar differentiation if used in conjunction with the OVI.

Leadership is listed in Table 1 as the seventh most common value among the eight reviewed values measures. It has been included in the OVI, but has been incorporated with the notion of Advancement, the fourth OVI scale mentioned in this section. What the authors wanted to convey here was a notion of some proximate goal beyond "Security"--the next step. For adolescence, it was felt that the more generic concept of Advancement has more meaning than the concept of Leadership. To have selected both concepts for inclusion would have created more overlap than was desirable and so the value Advancement was selected and the value Leadership was omitted. The values Security, Personal Goal and Preparation and Ability which appear as the next three values in the table and which were included in at least four of the other instruments reviewed were all selected for inclusion in the OVI. It was felt that these values provided valuing alternatives which were relevant to adolescence with a minimal of overlap. In reviewing the remaining values listed in Table 1 it was felt that they were either

not relevant and meaningful to adolescence or they overlapped other values already selected. The final makeup of the OVI thus numbers seven occupational values, which along with the Social Service value previously discussed, were felt to adequately sample the vocational valuing task required of adolescence during the exploratory year.

## Construction of the OVI

Given the seven value scales to be included in the OVI and given the essentially ipsative nature of the task to which individuals would respond, consideration was given to the format of the OVI. Super's original Work Values Inventory (1962) which accounted for value intensity and which was framed in an ipsative format was examined. After careful consideration it was decided that the tasks to which the individual were forced to respond in the OVI were too repetitive, and the nature of the specific values was assumed to be too simplistic.

In constructing the OVI it was assumed that each value is relatively complex, and in order to measure the degree to which particular values motivate an individual's behavior, those various aspects of each of the values must be sampled. An analysis of each of the value areas was undertaken and sample phrases and statements which represented those areas were written. An attempt was made to phrase a value in as many different ways as possible while still maintaining the emphasis of that value. Each phrase was written at a reading level which was judged to be approximately average for a seventh grader. The entire set of phrases representing all seven values were then randomly combined and submitted to several judges who indicated for each phrase which value the phrase represented. From the results of this

procedure the 15 phrases with the best inter-rater reliability were selected for inclusion in the OVI.

At the same time it was decided that the most realistic valuing task we could devise was that utilized in the Kuder Preference Record (Kuder, 1964), with three statements or phrases representing three different values included in an item. Using the 15 different phrases and statements previously selected to represent each of the seven OVI scales, 35 triads were constructed. This resulted in each value being placed with every possible unique pair of two other values. The task as constructed forced the individual to select the one phrase or statement that was most important to him in choosing a job, as well as the least important. The third statement or phrase was left blank.

The original instrument was published in a mimeograph form and tried out as indicated in the following section. Based upon the results of initial field trials of the mimeographed version of the OVI, extensive revisions were made in order to improve the readability and homogeneity of the phrases representing each value. The current revision has been published on both sides of one sheet, in a machine scorable form. A copy of the revised OVI along with a list of the 15 phrases representing each of the seven values are included in Appendix A.

# III

## RELIABILITY OF THE OVI

For the purpose of establishing initial evidence with regard to the reliability and validity of the OVI two samples of ninth grade boys and girls were selected. The initial data was collected on 234 boys and 221 girls attending one junior high school in Altoona, Pennsylvania. The administration of the initial mimeographed version of the OVI to this group was conducted during April, 1968. Internal consistency reliabilities and concurrent validity data have been obtained and published earlier (Impellitteri, 1968), but will also be included in the appropriate subsection below.

The second group of ninth graders to whom the OVI was administered was composed of 548 boys and 531 girls attending three junior high schools in the same city as the initial group. This data was collected during February and March, 1969 using the revised, current version of the OVI. A selected sample of 78 girls and 78 boys was readministered the OVI nine weeks after the initial administration. The total sample of 1,079 boys and girls as tenth graders was readministered the OVI in the current format during May, 1970, 13 to 14 months after the initial data was collected.

### Internal Consistency of the OVI Scales

Before reporting the internal consistency reliabilities of the scales as found in the investigations described above, some consideration must be given to the appropriateness of the method the investigators utilized in determining them. The basic question is the meaning of

internal consistency as it applies to the OVI. The authors reasoned that given the ipsative format of the instrument, the degree of internal consistency of any of its scales would be measured by: "the consistency with which an individual responded more favorably to $V_1$ phrases than to $V_2$ phrases in each of the five triads in which they appeared together, given that $V_1$ is more dominant in that individual's values hierarchy."

Each of the 35 triads included in the instrument should then be viewed as three paired comparisons, resulting in a total of 105 comparisons. Given a triad with phrases representing $V_1$, $V_2$, and $V_3$ the essential information for the sake of internal consistency is the relative strength of $V_1$ as compared to $V_2$, $V_1$ as compared to $V_3$, and $V_2$ as compared to $V_3$. As the reader may conclude, once the directions of the first two comparisons are determined the third is completely dependent. That is the practical meaning of ipsativity.

The internal consistency measurement technique to be utilized in accordance with this format must take into account that the degree of consistency of an OVI value scale $V_1$ is a direct function of the consistency of responses when it is compared in five triads with each of $V_2$, $V_3$, $V_4$, $V_5$, $V_6$ and $V_7$. Each of the OVI scales may be likened to a 30 item scale composed of six clusters of five items each scored "1" if higher than the other member of the pair and "0" if lower. The internal consistencies of the seven scales, on this basis, are substantially dependent although analyzed separately. The reason for this dependence is that the degree of consistency with which an individual responds to the five pairings of $V_1$ and $V_2$ affects the measured consistency of both the $V_1$ scale and the $V_2$ scale. When $V_1$ and $V_3$ are compared the consistency of responses contribute to both the $V_1$ scale and the $V_3$ scale.

The procedure utilized to measure the internal consistency of the OVI scales was that recommended by Rabinowitz and Eikeland (1964), an extension of Hoyt's (1941) scheme. This extension has made it possible to subdivide the effect due to differences between items into two portions: 1) the first effect due to differences between known clusters; and 2) the other effect due to the differences between items within the clusters. The importance of this feature is that it resolves the difficulty of underestimation of the OVI reliabilities by eliminating differences between the known clusters (#1 above) from the estimated error upon which the reliability is calculated.

The internal consistencies [Rabinowitz-Eikeland (R-E)] of the seven value scales of the OVI reported separately for the 1968 group and the 1969 group of ninth graders are reported in Table 2. The samples of 110 boys and 110 girls upon which the 1968 reliabilities were calculated were randomly drawn from the larger sample of 234 boys and 221 girls as described previously.

Because the 1969 figures are based upon the revised version of the OVI in its current form, they are considered to be the most revealing. The 1968 internal consistencies are included merely to support the general finding, rather than to serve as specific indicators. In the 1969 sample for both boys and girls Salary was found to be the most internally consistent value scale of the OVI, Security the second most consistent, and Personal Goal as the least consistent. Overall, the range of reliabilities over the seven scales for both boys and girls in the 1969 sample is quite narrow, the lowest being .72 for Personal Goal in the sample of boys, and the highest being .89 for Salary in the sample of girls.

Table 2

Internal Consistencies* of the OVI Scales
Based on the 1968 and 1969 Samples
of Ninth Grade Boys and Girls in Altoona

| | 1968 Sample | | 1969 Sample | |
|---|---|---|---|---|
| | Boys (N=110) | Girls (N=110) | Boys (N=548) | Girls (N=531) |
| 1. Interest and Satisfaction | .73 | .82 | .78 | .75 |
| 2. Advancement | .78 | .81 | .78 | .79 |
| 3. Salary | .83 | .88 | .88 | .89 |
| 4. Prestige | .67 | .76 | .82 | .76 |
| 5. Personal Goal | .64 | .77 | .72 | .74 |
| 6. Preparation and Ability | .66 | .76 | .74 | .74 |
| 7. Security | .72 | .70 | .82 | .83 |
| Median | .72 | .77 | .78 | .76 |

*Based on the Rabinowitz-Eikeland procedure with fixed strata.

As indicated previously the group of 1969 ninth graders in Altoona were tested over a year later with the OVI. Of the original ninth grade sample of 1,079 students 941 were retested as tenth graders. Since it was anticipated that the internal consistency of the OVI would vary for differing grades, R-I reliabilities were recalculated for the tenth graders. A comparable sample of tenth graders from the state of Utah who were involved in a vocational exploration study (Bertoch, 1970) were also administered the OVI. This group provided data upon which an independent estimate of tenth grade internal consistency was calculated. The internal consistencies for the OVI scales for each of the tenth grade samples are reported in Table 3.

Each of the OVI scales demonstrated a higher internal consistency for the tenth graders as compared with the ninth graders. A high degree of similarity between the Altoona and Utah data was observed, both with regard to the overall reliabilities and the profile of reliabilities by the individual scales. Sex differences for the two samples were also very similar.

Comparable internal consistencies for the eight occupational values instruments which were reviewed previously were not available for at least one of three reasons. The first is the inappropriateness of an internal consistency measure for values data obtained by ranking procedures. These are equivalent to one-item tests. The second reason is that given a values scale with more than one item, a measure of internal consistency is unimportant if an estimate of "value intensity" is not desired. The final reason, which must be applied to both the Work Values Inventory, of Super, and Stefflre's Vocational Values Inventory is that the concept, though seemingly appropriate, was

Table 3

R-E Internal Consistencies of the OVI Scales Based on the 1970 Samples of Tenth Graders in Altoona and Utah

| Values | Altoona Sample | | Utah Sample | |
|---|---|---|---|---|
| | Boys (N=472) | Girls (N=469) | Boys (N=175) | Girls (N=209) |
| Interest and Satisfaction | .81 | .78 | .81 | .82 |
| Advancement | .86 | .83 | .82 | .84 |
| Salary | .92 | .92 | .91 | .91 |
| Prestige | .84 | .84 | .85 | .84 |
| Personal Goal | .79 | .79 | .78 | .80 |
| Preparation and Ability | .79 | .79 | .79 | .79 |
| Security | .86 | .86 | .87 | .84 |
| Median | .84 | .83 | .82 | .84 |

judged unimportant. The relative consistency of the OVI scale, therefore remains questionable. The authors have been forced to compare these consistency results with those of other relatively global, affective measures, and claim that the OVI reliabilities are as high or higher than most other measures of this type.

Figure 2 provides graphic results of several analyses of hypothetical OVI data designed as an aid to more meaningfully interpret the actual internal consistencies observed within the samples studied. What does an observed R-E internal consistency between .80 and .85 mean in terms of an OVI scale? It may be interpreted to mean that of the 30 binary valuing decisions respondents must make for any one value dimension, an average of 21 to 22 of those decisions are consistent. Thirty consistent decisions represent the perfectly reliable case, and eighteen consistent responses are the random, perfectly unreliable case.

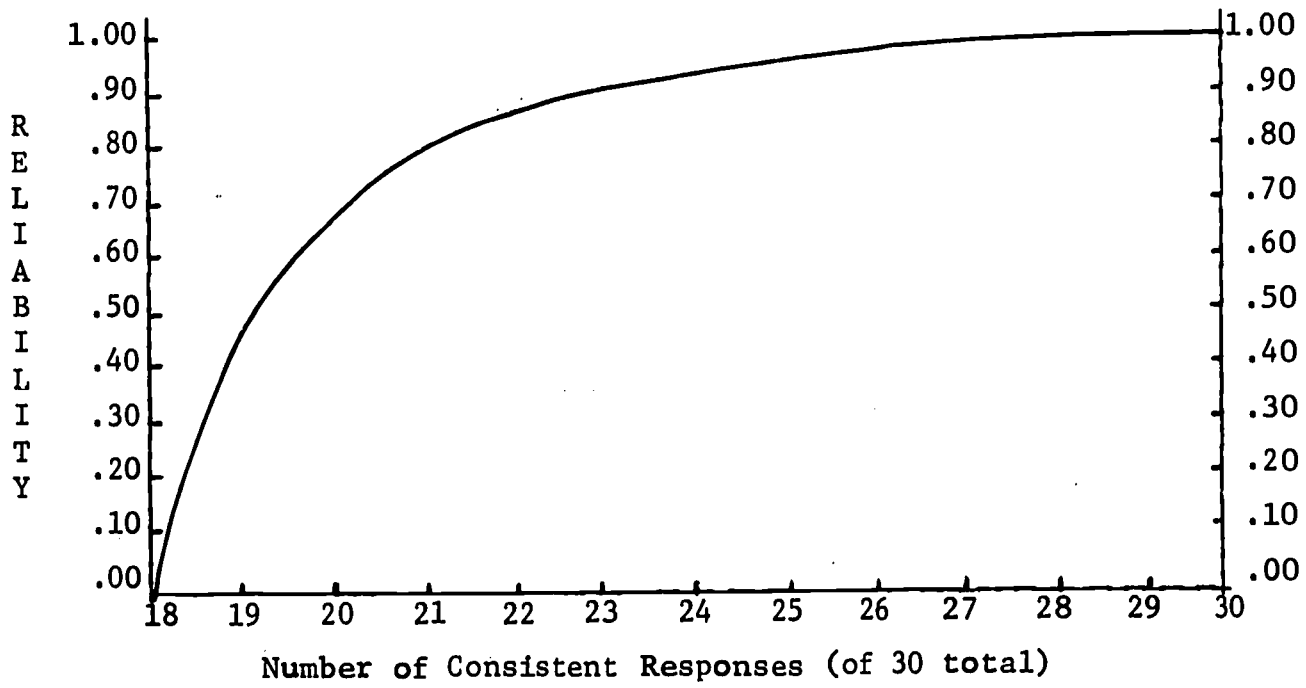


Figure 2. Computed reliabilities (R-e) of each OVI scale for those possible outcomes where the average number of consistent responses varies from 18 to 30.

Stability of the OVI Scales

As indicated in the introductory discussion within this section, 78 boys and 78 girls of the 1969 sample were selected to be readministered the OVI nine weeks after its initial administration. The reason for incorporating such a delay in the test-retest process was to insure a conservative estimate of stability. Table 4 reports the stability coefficients of the seven values for boys and girls separately as well as pre and post test means. As was anticipated due to the nine week delay in retesting, relatively low stability indices were found. The median coefficient of stability was equal to .62 for the boys and .53 for the girls. Comparing these stability findings with the internal consistencies for the seven value scales obtained from the same sample: Salary was found to be not only the most internally consistent, but the most stable as well; Personal Goal which was found to be the least internally consistent, exhibited an equally high stability as Salary for both the boys and girls; Security was one of the most consistent yet least stable values.

Additional stability data for the OVI are reported in Table 5, and are based on test, re-test of the Utah sample of tenth graders previously described. The time interval between the testings for the 190 students varied from three weeks to six weeks. Compared with the stabilities over nine weeks calculated for the ninth grade Altoona sample, the Utah figures were significantly higher. The experiemntal group results were computed separately from those of the control group since the former was exposed to an intensive treatment during the interval between pretest and posttest.

Table 4

Pretest Means, Posttest Means, and Stability Coefficients of the OVI Scales Measured by Test-Retest Over Nine Weeks for the Ninth Grade 1970 Altoona Sample

| OVI Value Scales | Boys (N=78) | | | Girls (N=78) | | | Total (N-156) | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\bar{X}$pre | $\bar{X}$post | $r_{xx'}$ | $\bar{X}$pre | $\bar{X}$post | $r_{xx'}$ | $\bar{X}$pre | $\bar{X}$post | $r_{xx'}$ |
| Interest and Satisfaction | 18.1 | 18.3 | .65 | 20.0 | 19.9 | .53 | 19.1 | 19.1 | .61 |
| Advancement | 15.6 | 15.4 | .59 | 14.1 | 12.7 | .44 | 14.9 | 14.0 | .53 |
| Salary | 13.1 | 16.2 | .69 | 10.6 | 11.4 | .67 | 11.8 | 13.8 | .69 |
| Prestige | 11.4 | 10.7 | .57 | 12.3 | 12.0 | .62 | 11.9 | 11.4 | .60 |
| Personal Goal | 17.5 | 17.4 | .67 | 19.5 | 19.0 | .68 | 18.5 | 18.2 | .68 |
| Preparation and Ability | 16.8 | 16.1 | .62 | 17.4 | 17.9 | .44 | 17.1 | 17.0 | .54 |
| Security | 12.5 | 10.8 | .55 | 11.2 | 12.1 | .48 | 11.8 | 11.5 | .49 |
| Median Stability Coefficients | | | .62 | | | .53 | | | .60 |

Table 5

Stabilities, Pretest and Posttest Means and Standard Deviations for the OVI Scales Based Upon the Tenth Grade Utah Sample

| Values | (N=140) Experimental Group | | | | (N=50) Control Group | | | |
|---|---|---|---|---|---|---|---|---|
| | $\overline{X}_{pre}$ | $\overline{X}_{post}$ | $\overline{X}_{D}$ | $r_{xx'}$ | $\overline{X}_{pre}$ | $\overline{X}_{post}$ | $\overline{X}_{D}$ | $r_{xx'}$ |
| Interest and Satisfaction | 20.6 | 20.2 | -0.4 | .69 | 20.8 | 20.3 | -0.5 | .72 |
| Advancement | 12.2 | 12.9 | +0.7 | .70 | 12.0 | 13.6 | +1.6 | .61 |
| Salary | 14.5 | 14.2 | -0.3 | .78 | 14.2 | 13.6 | -0.6 | .80 |
| Prestige | 9.5 | 10.1 | +0.6 | .64 | 9.5 | 9.6 | +0.1 | .59 |
| Personal Goal | 18.5 | 19.0 | +0.5 | .63 | 18.0 | 18.3 | +0.3 | .68 |
| Preparation and Ability | 19.7 | 19.1 | -0.6 | .62 | 20.0 | 19.3 | -0.7 | .43 |
| Security | 10.1 | 9.7 | -0.4 | .62 | 10.5 | 10.2 | -0.3 | .74 |
| Totals[a] | 105.1 | 105.2 | +0.1 | (.64)[b] | 105.0 | 104.9 | -0.1 | (.68)[b] |

[a]Because of the ipsative nature of the OVI, column sums for the means should total within rounding error to 105.0, and the sum of the differences in means should total 0.0.

[b]Figures in parentheses represent the median stability coefficient across the seven values.

The final source of OVI scale stability information was the test-retest correlations of the Altoona sample between ninth grade (1969) and tenth grade (1970). Those stabilities over thirteen months, the ninth and tenth grade means for each scale, and the difference between those means are reported for boys, girls and the combined group in Table 6. Median stabilities over the 13-month period were in the low .40's. A further examination of the data presented in Table 6 is undertaken in the section on "Validity" in this monograph.

For the 15 values of the Work Values Inventory Hendrix and Super (1968) have reported test-retest reliabilities ranging from 174 to .88 with a median of .82. These stabilities were reported for a group of 99 tenth grade boys and girls where there was a delay of only two weeks between the initial administration and the re-administration. Separate data for boys and girls were not reported.

Table 6

Stabilities, Pretest and Posttest Means and Standard Deviations for the OVI Scales Based Upon the Altoona Sample with a Thirteen Month Interval

| Values | Boys (N=416) | | | | Girls (N=412) | | | | Total (N=828) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\overline{X}_9$ | $\overline{X}_{10}$ | $\overline{X}_D$ | $r_{xx'}$ | $\overline{X}_9$ | $\overline{X}_{10}$ | $\overline{X}_D$ | $r_{xx'}$ | $\overline{X}_9$ | $\overline{X}_{10}$ | $\overline{X}_D$ | $r_{xx'}$ |
| Interest and Satisfaction | 18.3 (4.9)[c] | 19.3 (5.2) | +1.0 ** | .51 | 20.4 (4.4) | 21.0 (4.4) | +0.6 ** | .43 | 19.4 (4.8) | 20.1 (4.9) | +0.7 ** | .49 |
| Advancement | 14.4 (5.3) | 14.0 (6.2) | -0.4 | .44 | 12.7 (5.1) | 12.2 (5.4) | -0.5 | .41 | 13.5 (5.3) | 13.1 (5.9) | -0.4 | .44 |
| Salary | 14.3 (6.8) | 15.2 (7.7) | +0.9 ** | .39 | 10.7 (6.8) | 11.8 (7.5) | +1.1 ** | .45 | 12.5 (7.1) | 13.5 (7.8) | +1.0 ** | .45 |
| Prestige | 11.2 (5.3) | 9.7 (5.5) | -1.5 ** | .42 | 12.2 (4.7) | 10.7 (5.3) | -1.5 ** | .41 | 11.7 (5.0) | 10.2 (5.4) | -1.5 ** | .42 |
| Personal Goal | 17.5 (5.6) | 17.9 (5.0) | +0.4 | .36 | 19.7 (4.4) | 20.0 (4.8) | +0.3 | .42 | 18.6 (4.6) | 19.0 (5.0) | +0.4 * | .42 |
| Preparation and Ability | 17.0 (4.7) | 18.8 (4.9) | +1.8 ** | .34 | 17.4 (4.5) | 19.0 (4.7) | +1.6 ** | .40 | 17.2 (4.6) | 18.8 (4.8) | +1.6 ** | .38 |
| Security | 12.3 (5.6) | 10.3 (5.6) | -2.0 ** | .45 | 11.9 (5.3) | 10.3 (5.3) | -1.6 ** | .43 | 12.1 (5.4) | 10.3 (5.5) | -1.8 ** | .44 |
| $\Sigma\overline{X}$'s[a] | 105.0 | 105.2 | +0.2 | (.42)[b] | 105.0 | 105.0 | 0.0 | (.42)[b] | 105.0 | 105.0 | 0.0 | (.44)[b] |

*Significant at the .05 level-** at .01 level (correlated "t" test)

[a]Colum sums for means should total 105.0, and for mean differences 0.0 within rounding error.

[b]Represents the median of the seven correlations.

[c]Standard deviations appear to parentheses.

# IV

# VALIDITY OF THE OVI SCALES

The purpose of this part of the monograph is to discuss those variables to which the values scales of the OVI relate in some way. Generally, what is reported herein are concurrent validities. Plans for predictive and construct validity studies have been made, and are discussed in more detail in a later section of this monograph.

## Concurrent Validities of the OVI Scales

Kapes (1969), in a study designed to explore the concurrent validity of the OVI values, examined for each of those scales its correlation with sex, the General Aptitude Test Battery (GATB) general aptitude (G) score, college aspiration, and choice of a vocational course of study in senior high school. The sample upon which this study was based included 969 of the 1079 ninth grade boys and girls in the 1969 Altoona sample described previously. Only those students with complete data were included in the sample. The findings of the Kapes study are reported in Table 7.

The investigators reviewed the research literature in order to find studies which have explored these same variables in order to provide some reasonable comparisons. Only four relevant studies dealing with junior high school or high school youth were found. These are reported in the appropriate section below and include Dipboye and Anderson (1959), Singer and Stefflre (1954b) and (1954c), and Stefflre (1959).

Table 7

Zero-Order Correlations Between the OVI Scales
and Selected Independent Variables (N = 969 Ninth Graders)

| Values | Sex[a] | GATB G | College Aspiration[b] | Choice of Voc vs. Non-Voc Curr.[c] |
|---|---|---|---|---|
| Interest and Satisfaction | -.17** | .29** | .15** | -.18** |
| Advancement | .17** | -.02 | -.01 | .10** |
| Salary | .26** | -.13** | -.15** | .21** |
| Prestige | -.12** | -.08* | .01 | -.16** |
| Personal Goal | -.21** | .14** | .12** | -.18** |
| Preparation and Ability | -.01 | .04 | -.01 | .02 |
| Security | -.01 | -.14** | -.04 | .07* |

[a]Positive correlations are directed toward boys, negatives towards girls (N = 486 boys and 483 girls)

[b]Positive correlations are directed toward college aspirants, negatives toward non-college aspirants (N = 455 college aspirants and 514 non-college aspirants)

[c]Positive correlations are directed toward those choosing a vocational education curriculum, negatives toward those who have not (N = 293 vocational choosers, and 676 others)

*Significant at the .05 level

**Significant at the .01 level

Interest and Satisfaction--For the total sample of 969 ninth graders: those who were girls, those who scored higher on G, those who aspired to college, and those who had not chosen a vocational course of study for tenth grade tended to score higher on this value. These findings may be compared with a portion of the results of each of the four studies mentioned above. Singer and Stefflre (1954b) and Stefflre (1959) examined the relationship between the value of self-realization and college aspiration and in each case found a significant relationship. Dipboye and Anderson (1959) and Singer and Stefflre (1954c) found a significant mean difference between boys and girls on an Interesting Work or Interesting Experience dimension, also favoring the girls. Singer and Stefflre (1954b) found no relationship between aspiration level and Interesting Experience for either boys or girls although both high and low aspirants scored high on this value.

Advancement--Sex and choice of a vocational curriculum were the only two of the four independent variables that demonstrated significant correlations with this value in the Kapes study. In comparison with other studies, Dipboye and Anderson who examined the mean score difference on an Advancement value between boys and girls, also found a significant difference favoring the boys. On their Leadership value, Singer and Stefflre found no significant sex differences or differences between high and low aspirants. The finding in the Kapes study that those choosing a vocational course of study scored higher on the Advancement value cannot currently be supported nor questioned by existing research evidence.

Salary--As with the Interest and Satisfaction value, Salary also correlates significantly with each of the independent variables in this

study. In vivid contrast to the Interest and Satisfaction correlations, those who placed a high value on Salary were the boys, those who scored lower on GATB G, the non-college aspirants, and those who had selected a vocational course of study. The college aspirant difference is corroborated by the Singer and Stefflre findings, and the sex difference is verified by both the Dipboye and Anderson and the Singer and Stefflre studies.

Prestige--Those who placed a high value on Prestige in the Kapes study were the girls, those scoring lower on the GATB G, and those who had not chosen a vocational course of study. The Singer and Stefflre findings disagree with the Kapes study as to sex differences on this value, but concur in finding no significant difference between college aspirants and non-college aspirants on this value. Dipboye and Anderson's findings support the findings of this study that girls tend to score higher on Prestige.

Personal Goal--The correlations of the Personal Goal value with the four independent variables were of a similar magnitude, and in the same directions as the correlations reported for Interest and Satisfaction. No comparative findings are available to report with regard to the Personal Goal value. It has occurred to the authors that on the basis of this finding, as well as the rationale that led them to merge "Interest" and "Satisfaction," there is considerable support for incorporating Personal Goal into the Interest and Satisfaction category. Future attempts are planned in order to more adequately resolve this issue.

Preparation and Ability--None of the four independent variables correlated significantly with this value. Since none of the instruments

utilized in the four selected studies included a value like this in their investigations, no comparisons can be made.

Security--Those who scored lower on GATB G and those who had chosen vocational courses of study tended to place a higher value on Security. The lack of a significant correlation with sex is corroborated by the findings of the Dipboye and Anderson and Singer and Steffire studies. However, contrary to the Kapes study, Singer and Steffire (1954b) found that college aspiring students placed significantly less value upon Security than those who did not aspire to college.

Summary--Generally the results of this initial concurrent validity effort have demonstrated that the OVI is a potentially useful research instrument. Six of the seven values scales tend to differentiate between different kinds of students. In addition, wherever comparative evidence was available from the research literature, in most cases, verified the findings of this study. At this point in the development of the OVI the authors feel reasonably optimistic regarding the establishment of its validity.

## Changes in Observed OVI Scores Over Time

The only clue regarding the construct validity of the OVI scales is found in the test-retest data reported in Table 6. The data as reported were based on the initial testing of 1079 ninth grade boys and girls in Altoona and a retesting of the same group 13 to 15 months later as tenth graders. Usable data on both testings were obtained for 416 boys and 412 girls.

Results demonstrated significant changes in five of the seven values scales for both boys and girls. Not only did the boys and girls change on the same scales, they also changed in the same direction.

Both boys and girls valued Security and Prestige less as tenth graders than they did a year before, and valued Interest and Satisfaction, Salary, and Preparation and Ability more.

The substantial changes in values observed in the sample studied agreed with comparable changes observed by the Gribbons and Lohnes (1968) findings.

## Intercorrelations Among the OVI Scales

An additional aspect of validity, that which underlies the relatedness among the seven OVI scales, is presented at this point. The central issue in the interpretation of the intercorrelations among the seven scales is not whether they differ from zero, but whether they differ from the expected intercorrelations among scales within the same ipsative set. The average correlation between each pair of the seven value scales of the OVI may vary in accordance with the formula devised by Gleser (1969):

$$\frac{-1}{k-1} \leq \bar{r}_{ij} \leq \frac{k-4}{k}$$

where: i and j are different ipsative variables in a set.

k represents the total number of variables within the ipsative set.

$\bar{r}$ is the average of all the intercorrelations among the variables in the ipsative set.

For the OVI, then, the average correlation between each pair of the seven value scales may be expected to be no lower than -.167, and no higher than .429. Within this context the intercorrelations among the OVI are presented in Table 8. The mean of the 21 correlations reported was calculated to be -.160, extremely close to the absolute minimum of -.167 reported previously. The authors interpreted this finding in support of the relative independence of the seven OVI scales.

Table 8

Intercorrelations Among the OVI Scales
(N=969 ninth grade boys and girls)

| Values | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Interest and Satisfaction | --- | | | | | |
| Advancement | -.408 | --- | | | | |
| Salary | -.480 | .128 | --- | | | |
| Prestige | -.114 | -.151 | -.184 | --- | | |
| Personal Goal | .513 | -.420 | -.504 | -.026 | --- | |
| Preparation and Ability | .003 | -.093 | -.235 | -.349 | -.019 | --- |
| Security | -.196 | -.179 | -.209 | -.148 | -.198 | -.098 |
| Mean Intercorrelation = -.160[a] | | | | | | |

[a]The mean intercorrelation was computed without the use of Fisher Z Transformations

There is a strong indication that Personal Goal and Interest and Satisfaction are undifferentiable by the ninth graders to whom the OVI was administered. This appears to be true because of the observed correlation between them of .513 and the striking similarity of their intercorrelation profiles with the other five scales. As discussed in the portion of this monograph dealing with future efforts in refining the OVI, this relationship will bear continued observation until sufficient data have been collected upon which a decision can be made regarding pooling or non-pooling of the two scales. The degree of overlap exhibited in the current data is certainly too extensive to be accepted.

An additional difficulty should be mentioned here in interpreting the intercorrelation among the OVI scales for the reader and potential user of this inventory. That difficulty stems from the lack of comparable intercorrelative data for the other ipsative occupational values instruments which have been surveyed for the purposes of the monograph. Without exception instruments framed in the ipsative form did not report intercorrelations among scales. The magnitude of this problem is of particular significance to both the designers and users of values inventories of the type described herein. It is expected that special efforts will be made particularly by those whose instruments are commercially available to do something about this intolerable situation.

Super (1970) reported extensive data regarding intercorrelations among the 15 scales of the WVI, a non-ipsative instrument, and admits to considerable overlap among them.

# V

## NORMS FOR THE OVI SCALES

Previously in this monograph the valuing process was described as an essentially ipsative one. It was further explained that motivation for an individual is based upon whether that individual values x more than y, and not upon whether he values x more than another individual values x. The use of normative data, then, in describing an individual's value system is inappropriate.

For the purpose of interpreting group data, however, the authors provide means and standard deviations for the seven OVI scales, based upon the analysis of the 1969 ninth grade sample. These data are reported for boys and girls separately in both Table 9 and Figure 3. From Figure 3 it can be seen that boys and girls are similar to the extent that they deviate above and below the grand mean of 15 in the same direction on all seven values. However, girls differentiate themselves from boys significantly at the .05 level on the first five of the seven values with Salary being the value with the largest difference. Girls also showed considerably more dispersion over the seven values than did boys. Table 6 presented previously can be used in a similar manner to Table 9 for comparisons with tenth grade boys and girls.

Table 9

Means and Standard Deviations for the Seven Values of the OVI Based Upon the Altoona Ninth Grade Sample (1969)

| Values | Boys (N=548) Mean | Boys (N=548) Standard Deviation | Girls (N=531) Mean | Girls (N=531) Standard Deviation |
|---|---|---|---|---|
| Interest and Satisfaction | 18.44 | 4.93 | 20.27 | 4.46 |
| Advancement | 14.44 | 5.07 | 12.66 | 5.06 |
| Salary | 14.30 | 6.85 | 10.74 | 6.79 |
| Prestige | 11.37 | 5.47 | 12.36 | 4.75 |
| Personal Goal | 17.52 | 4.54 | 19.45 | 4.50 |
| Preparation and Ability | 16.92 | 4.68 | 17.40 | 4.54 |
| Security | 12.00 | 5.49 | 12.12 | 5.39 |

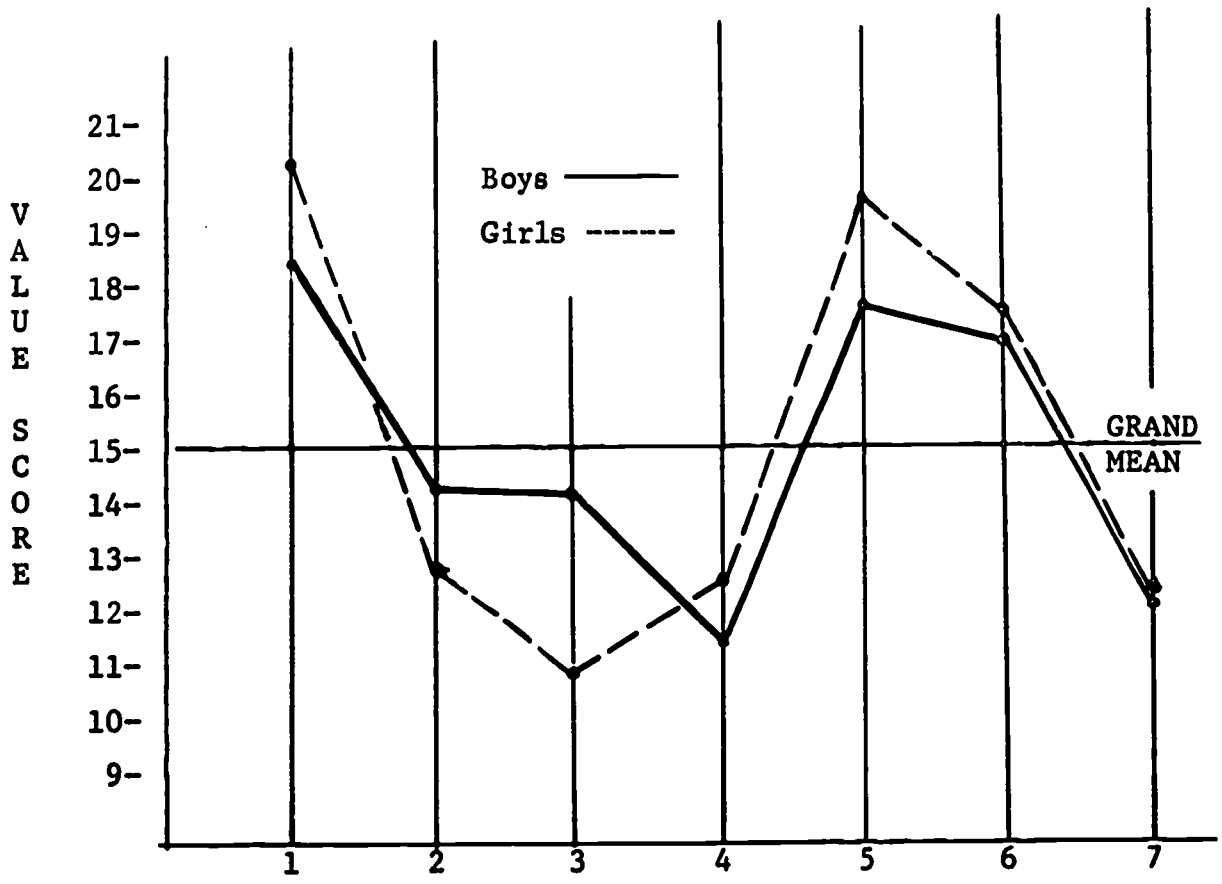


Figure 3. A Graphic Representation of the Value Profiles of Ninth Grade Boys and Girls Based on the Altoona 1969 Sample

# VI

# THE OVI: STATUS AND PROSPECT

The prior sections of this monograph were designed to present a rationale for the development of an inventory of occupational values, to describe the OVI, and to present whatever evidence has been collected to date in order to assess that instrument. Within this final section what is presented is a brief summary of the progress made in the development of the OVI, and a detailed plan for future studies which will be conducted in an effort to refine that instrument. Also discussed within the first subsection dealing with the current status of the OVI is the important issue of its availability in the current form for use by researchers.

## Current Status of the OVI

The critical question that faces each developer of tests and inventories is, "What are the criteria upon which a decision is reached that the instrument in question yields information useful enough to justify its continued existence?" Should these criteria be phrased in absolute terms (such as that the stability and internal consistency of the instrument should reach certain, specific levels), or should they be stated in relative terms (that they equal or exceed the levels of reliability and validity of current, published instruments of similar intent)? Is the continued purchase or use of an instrument by others a sufficient assessment of its worth?

Guidelines such as those published by the American Psychological Association (1966) are useful as checklists against which the developer

can assess whether he has followed acceptable procedures of test construction. They also aid him in judging the adequacy of the amount of supporting research necessary to provide for the user's information. The quality of that research, however, and the specific nature of the findings in assessing the instrument is ultimately a matter of the developer's judgment. Unbiased assessments as those instruments published in the Mental Measurements Yearbook are extremely helpful, but the Yearbook cannot keep up with the volume of test and inventory development being produced each year.

In this context the developers of the OVI, in summarizing its current status, urge that its use be extremely limited at this time. While tending to support this tentative instrument as potentially useful, the research on the OVI reported to date is severely restricted and has exposed some problem areas which may, in time, be overcome. Presently, however, there remain some crucial questions regarding its merit. Toward the improved assessment of the OVI, permission will be granted for its use by qualified researchers upon the conditions that 1) the authors are assured that appropriate use will be made of it; and 2) the results will be shared with the authors.

Future Study of the OVI

In order of their importance, additional evidence is needed regarding the valididty (construct, empirical, and content), reliability (stability and internal consistency), and developmental norms of the OVI. Several attempts to provide such evidence are currently being conducted, and others are being planned. Within this section descriptions of those efforts are presented for the information of the

reader. Within a projected span of three years the results of these investigations will undoubtedly provide substantial basis upon which to reassess the OVI.

## Investigations of the OVI Scales' Validities

Regarding measures of affective variables, of which the OVI is an example, the primary assessment of their worth is in their demonstrated validity for a specified purpose. In the order of their perceived importance to the authors, several needed studies are described to provide information regarding the OVI scales' construct validities, empirical validities and content validities. These have been proposed by Kapes (1970) in an unpublished paper.

Construct Validity. This type of validity was first considered in the early 1950's and its foremost proponents are probably Cronbach and Meehl (1955). Construct validity capitalizes on many different approaches of gathering evidence used to support the theory or construct on which an instrument is based. In this case, the construct is "work values." One of the type of construct validity studies possible is a particular correlational approach suggested by Campbell and Fiske (1959) and referred to as a multitrait-multimethod analysis. It was felt by Campbell and Fiske that a test is always a trait-method unit and that some of the observed score variance is attributable to the method used and not the trait being measured. They propose to assess the amount of method variance as opposed to trait variance by using the convergent and divergent principles suggested by Cronbach and Meehl. According to this approach, the intercorrelations among various traits measured by the same method should be smaller than the intercorrelations between the same traits measured by different methods.

Campbell and Fiske propose the construction of a multitrait-multimethod matrix which would yield reliability coefficients (test-retest for the same traits and same method at two points in time), validity coefficients (correlations between the same traits for different methods), heterotrait-monomethod coefficients (correlations between different traits for the same method), and heterotrait-heteromethod coefficients (correlations between different traits for different methods). In order to show validity, it is necessary for the first group of correlations to be fairly high and each of the remaining groups of correlations to drop significantly in size in the order in which they appear above, until they approach zero.

This approach can be adapted to a validity study with the OVI in the following manner. First, test and retest data must be gathered on a large sample. Second, intercorrelations can be calculated between the various value categories of the OVI. Next, in order to provide a different method of measuring the same traits, the subjects could be asked to rank the seven values of the OVI (provisions for this ranking are included at the end of the instrument). It would now be possible to correlate the two measures of the same value gathered by two different methods for each of the seven values (note that both methods are ipsative). The resulting correlation coefficients would be validity coefficients. Lastly, the heterotrait-heteromethod matrix of intercorrelations could be calculated with expected values near zero.

With the above matrix of intercorrelations it would be possible to test the following null hypothesis:

> Ho--the mean intercorrelations among values measured by the OVI is equal to the mean correlations between each value as measured by the OVI and each value as measured by ranking.

While the hypothesis stated above can be tested using a conventional statistical test there are also many other relationships appearing in the multitrait-multimethod matrix which would provide information about the validity of the OVI. All of these relationships can be examined for their similarities and differences and conclusions about the nature of values as measured by this instrument can be drawn. If possible, other methods of measuring these same work values should be included. Intercorrelation among work values measured by the OVI, WVI and the Job Values and Desires Questionnaire would help to provide information about the validity of the rationale used to construct the OVI. Through the use of the methods suggested here the "work values" construct can be investigated and clarified.

Empirical Validity. As defined by Helmstadter (1964), both concurrent and predictive validity are included under this general heading. The basic distinction between these two types of validity is a temporal one with predictive validity having its criteria in the future. The study proposed here will be of a concurrent nature for reasons of efficiency of design. Before any validity can be discussed, however, it is first necessary to answer the question: "Validity for what?" What is it that we might want to predict or use as a criterion of validity for a values instrument? A sensible place to start looking for a criterion is in previous studies which have demonstrated the relationship between various values and individuals' characteristics. As stated previously selected work values generally have shown a relationship to sex, social class, age, career orientation, and occupational level. Since the OVI has been primarily designed for use with junior and senior high school students, the variables career

orientation and occupational level can only be indirectly inferred. Also, since the range in the ages of these students is somewhat restricted, this variable would be less than ideal as a criterion for an initial validity study. Perhaps the best type of criterion variable for a study of this nature would be an environmentally oriented variable because the environment is the origin of values. A social class variable which includes the concepts of parents' occupational and educational level in addition to conditions of the physical environment would probably be the best single measure against which to compare OVI scores for the purpose of criterion related validation. A good example of such a measure is Warner's Index of Status Characteristics, although several different measures should be tried in order to adequately sample the social class construct. Since sex was found to show consistant relationships with values, a separate analysis should be conducted for boys and girls.

The following null hypothesis could be tested separately for boys and girls for each of the seven values of the OVI:

$Ho_i$--the zero-order correlation between social class and value i is equal to zero (i = 1, 7).

Some of the results which could be anticipated in this study are that various different values will show either positive or negative relationships with the criterion. Results similar to those found in the literature should be expected where value categories can be compared. An example of some expected results would be that the higher social class would value Interest and Satisfaction more than the lower social class who would value Salary more. Sex differences are also likely to be found. Since seven different value categories are being evaluated, it is likely that not all of the values will show

significant relationship with the criterion. Those that do not should be validated against other criteria suggested by the literature. Significant relationships which are found should be cross-validated with other samples.

While the design suggested here is fairly straightforward, other more complex designs are possible. One possible approach which is usually not employed in validity studies entails the use of multiple linear regression. Using this technique, it would be possible to test the significance of the relative contribution of a number of independent variables to predicting each of the seven values. In this manner, variables such as sex, social class, occupational level, career orientation, achievement, etc., could be evaluated with the effects of the other variables held constant. This procedure would shed additional light on the nature of work values.

Content Validity. Helmstadter (1964) includes factorial validity in this category and a factorial analysis will be suggested here. Of first concern are the difficulties involved in interpreting factors derived from an ipsative measure such as the OVI. Clemans (Psychometric Monograph, No. 14) discusses this difficulty and suggests that it is extremely difficult if not impossible to obtain psychologically meaningful results from factoring a matrix of ipsative measures. He further concludes, however, that certain psychological traits are difficult to adapt to absolute measures and therefore ipsative measures are useful and necessary. One possible solution to this dilemma is similar to that which has been suggested by O'Connor and Kinnane (1961), and by Hendrix and Super (1968).

This approach would entail converting the OVI temporarily to an absolute measure. This could be accomplished by having each subject rate each of the 105 statements on a three-point scale (i.e., most important, neutral, and least important). The resulting 105 x 105 matrix could then be factor analyzed. Factor loading could be obtained for each item on as many factors as were found to exist. These factors and their loadings could then be compared to the seven factors intended to be measured by the OVI. While it is difficult to frame and test a hypothesis about number and purity of factors, the following null hypothesis is proposed:

$Ho_i$--the OVI contains a factor composed substantially of the items presently scored for value i (i = 1, 7).

While it is impossible to decide at some level of confidence that Ho is rejected or retained, it it also not important to do so. The information provided by this analysis is much more important for the sake of revisions in scoring or arrangement of items which can then be returned to the ipsative form. If Ho appears plausible for even four or five of the proposed values, then the instrument can be retained as is and interpretation restricted to those particular values. The usefulness of items in the instrument which do not belong to some clear-cut value can be defended on the basis that they still represent an alternative against which the valued alternative can be chosen. Another possible outcome of this factor analytic study is the emergence of a dichotomous general factor such as an intrinsic vs. extrinsic value. A general factor of this nature could conceivably be created by the combination of several value scales.

## Investigations of the OVI Scales' Reliabilities

In addition to the reliability data reported in this monograph there are a number of other reliability studies needed within the next three years. Those investigations will be directed toward the stability and internal consistency of the OVI scales. Within the following subsections these two aspects of reliability will be further broken down.

Stability. Correlations between the test-retest scores of the OVI scales based on a sample of 78 girls and 78 boys with a nine-week delay are reported in a previous section of this monograph. That extended delay (nine weeks) between test and retest leaves serious question regarding whether, in the sample explored, the error variance which was identified was composed of only chance variation, or included actual variation in values over time. Another shortcoming of the stability data reported is the restriction of the sample to ninth graders only. To overcome these limitations the following studies are proposed:

1. Stability coefficients for the OVI scales will be obtained by test-retest administered with a two-week delay to independent samples of ninth, tenth, and twelfth graders, each sample composed of approximately 200 girls and 200 boys. For each of the independent samples, coefficients will be calculated for boys and girls separately and also for the combined group. It is anticipated that finding any coefficient for the seven scales below .70 will necessitate a major revision of the instrument. Most of the coefficients should exceed .80.

2. In addition to the current form of the OVI, four additional forms will be constructed for the purpose of exploring its stability. After establishing their equivalency it is planned to select a sample composed of 1,000 ninth through twelfth grade boys and girls to whom forms A and B will be administered at $time_1$, form C two weeks after $time_1$, and forms D, E, and F at two-week intervals thereafter. Comparisons of the correlations of B, C, D, E and F with A will reveal the proportion of error variance as compared to actual variation in values over time.

Internal Consistency. Similar efforts to that reported with the 1969 sample of 1,079 ninth grade boys and girls and the same group a year later as tenth graders will be conducted upon which a more adequate assessment of the OVI may be based. Comparable samples of ninth, tenth and twelfth graders will be selected to whom the instrument will be administered. Such additional information may provide clues as to whether or not the more mature groups can better make the relatively fine distinctions upon which the OVI has been constructed.

## Collection of Additional OVI Normative Data

As the reader will recall, since it has been mentioned at several points in this monograph, the process of valuing as seen by these authors is essentially an ipsative one. For the purposes of individual counseling, therefore, normative comparisons of an individual's values profile is meaningless. When used as group determiners, however, the availability of normative data may provide relevant information. Given the tertiary importance of the collection of OVI normative data the

authors have decided that the OVI data as collected for the purpose of examining its reliability and validity should be adequate to fulfill the need for norms. It is anticipated that norms will be available for ninth, tenth, and twelfth grades, for boys and girls separately. The form in which this data will be reported will simply be raw score means and standard deviations for each scale. The authors conclude that in reporting the norms in such a manner, misuse of the data will be kept to a minimum.

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APPENDIX A

The Revised Occupational Values Inventory (OVI)
in Machine Scorable Form

A List of Phrases Used in the OVI
to Represent Each of the Seven Values

e Pennsylvania State University • Department of Vocational Education • Occupational Values Inventory (OVI)

NAME FIRST INITIAL DATE

SEX | COLOR | CODE | AGE 13 14 15 16 17 18

2874

DIRECTIONS: In each group of three statements mark one most important and one least important. Leave one statement blank. MOST IMPORTANT = MI LEAST IMPORTANT = LI

**THIS TIME I WOULD CHOOSE A JOB BECAUSE:**

| | MI | LI |
|---|---|---|
| I can lose myself in this kind of work. | | |
| There is a good possibility of elevation to top jobs. | | |
| I can make a lot of money in this work. | | |

| | MI | LI |
|---|---|---|
| This work is what I've planned for. | | |
| I have the educational preparation for the job. | | |
| There is a labor shortage in this field. | | |

| | MI | LI |
|---|---|---|
| I like the possible earnings from the job. | | |
| People in this work are held in high regard. | | |
| It has been my lifelong intention to get into this field. | | |

| | MI | LI |
|---|---|---|
| There are many possibilities for promotion. | | |
| I have the technical know-how to do the work. | | |
| There will always be a demand in this area of work. | | |

| | MI | LI |
|---|---|---|
| There is an opportunity to do the things I've always wanted to do. | | |
| I like working in a job environment that is attractive. | | |
| The "size of the paycheck" interests me most. | | |

| | MI | LI |
|---|---|---|
| There is honor associated with the work. | | |
| I can be sure of a job even in hard times. | | |
| I like the opportunities for advancement. | | |

| | MI | LI |
|---|---|---|
| I have the potential ability for doing this work. | | |
| I can make a good living. | | |
| This job gives me a purpose in life. | | |

| | MI | LI |
|---|---|---|
| There is a lack of good people in this field. | | |
| I can move upward quickly in this job. | | |
| There is personal satisfaction for me in doing this work. | | |

| | MI | LI |
|---|---|---|
| It's a position of power and superiority. | | |
| The job is a personal objective for me. | | |
| I have the proper skills for this job. | | |

| | MI | LI |
|---|---|---|
| 10. The work is stimulating to me. | | |
| I can become financially well-off. | | |
| Workers are wanted for this job. | | |

| | MI | LI |
|---|---|---|
| 11. There are higher positions which can be attained later. | | |
| The job gives me a chance to be somebody. | | |
| I am able to meet the requirements. | | |

| | MI | LI |
|---|---|---|
| 12. There is a shortage of workers in this field. | | |
| I have an interest in the work. | | |
| The job is my own choice. | | |

| | MI | LI |
|---|---|---|
| 13. There is considerable income I can receive from the job. | | |
| I can rise in rank within this field. | | |
| I want the feeling of importance that goes with the job. | | |

| | MI | LI |
|---|---|---|
| 14. It's an opportunity to use my training and background. | | |
| It's the one job I'm looking forward to. | | |
| The work is pleasant for me. | | |

| | MI | LI |
|---|---|---|
| 15. I can go to greater heights in this career. | | |
| Employers are requesting workers to enter this field. | | |
| The salary allows me to buy many of the things I've always wanted. | | |

| | MI | LI |
|---|---|---|
| 16. People on this job are admired by others. | | |
| I am happy doing this work. | | |
| The job is within my reach. | | |

| | MI | LI |
|---|---|---|
| 17. The job fits into my plan of life. | | |
| There is a short supply of workers for this job. | | |
| This career offers openings for better jobs in the future. | | |

| | MI | LI |
|---|---|---|
| 18. The pay rate for the workers in this job is high. | | |
| I have experience with this work. | | |
| The job gives me a position of respect. | | |

AT THIS TIME I WOULD CHOOSE A JOB BECAUSE:

(CV

CODE

2874

| | MI | LI |
|---|---|---|
| 19. "I like the work". The work would be a challenge to me. I can progress within the career. | | |
| 20. Employers want workers with training in this kind of work. It's an impressive and respected job. The job has steady raises in pay. | | |
| 21. My capabilities are in this field. There are opportunities to get ahead in this field. I prefer doing this kind of work. | | |
| 22. It provides a way of life that is right for me. I appreciate the money I can make from the job. There are many job openings in this field. | | |
| 23. The job has a reputation of importance. The work is exciting. I can reach higher levels in this field. | | |
| 24. I like the financial rewards of the job. There is a demand for workers in this field. I am naturally suited to the work. | | |
| 25. It's what I'd like to do as my life's work. This job can lead to better jobs. The work gives me a feeling of importance. | | |
| 26. The work agrees with me. I am prepared for it and have the right training. The wages paid are good. | | |
| 27. Workers are needed in this field. People in this career are looked up to. I can fulfill my ambitions in this work. | | |
| 28. There is potential for growth within this career. I will have more money doing this work. I can qualify for the job. | | |

| | MI |
|---|---|
| 29. This work is personally satisfying. It's what I've been shooting for. This job commands the respect of others. | |
| 30. I am "good at" this kind of work. Employers are looking for workers for this job. There is contentment for me in doing this work. | |
| 31. I like the pay scale for the job. This job provides opportunities to improve myself. It is a job I've always wanted to do. | |
| 32. This type of work is well thought of by others. I have the ability to do the work. There are not enough available workers for this job. | |
| 33. It's a job that I can give much attention to. There is a good beginning salary offered. I like the high regard which the job carries with it. | |
| 34. I can advance to positions of leadership in this career. It's my ideal for a life's career. My talents lie in this area. | |
| 35. There is a necessity for workers in this area. The work brings with it a lot of prestige. I enjoy doing this kind of work. | |

A 0 1 2 3 4 5 6 7 8 9 B 0 1 2 3 4 5 6 7 8 9

→ PLEASE RANK THE FOLLOWING SEVEN FACTORS BASED UPON THEIR IMPORTANCE TO YOU IN SELECTING A JOB. BLACKEN IN THE SPACE MARKED 1 FOR THE MOST IMPORTANT FACTOR, THE SPACE MARKED 2 FOR THE NEXT MOST IMPORTANT FACTOR AND SO ON.

62

| | |
|---|---|
| INTEREST AND SATISFACTION | 1 2 3 4 5 |
| ADVANCEMENT | 1 2 3 4 5 |
| SALARY | 1 2 3 4 5 |
| PRESTIGE | 1 2 3 4 5 |
| PERSONAL GOAL | 1 2 3 4 5 |
| PREPARATION AND ABILITY | 1 2 3 4 5 |
| DEMAND | 1 2 3 4 5 |

## VALUE #1 INTEREST AND SATISFACTION

I can lose myself in this kind of work.
I like working in a job environment that is attractive.
There is personal satisfaction for me in doing this work.
The work is stimulating to me.
I have an interest in the work.
The work is pleasant for me.
I am happy doing this work.
"I like the work."
I prefer doing this kind of work.
The work is exciting.
The work agrees with me.
This work is personally satisfying.
There is contentment for me in doing this work.
It's a job that I can give much attention to.
I enjoy doing this kind of work.

## VALUE #2 ADVANCEMENT

There is a good possibility of elevation to top jobs.
There are many possibilities for promotions.
I like the opportunities for advancement.
I can move upward quickly in this job.
There are higher positions which can be attained later.
I can rise in rank within this field.
I can go to greater heights in this career.
This career offers openings for better jobs in the future.
I can progress within the career.
There are opportunities to get ahead in this field.
I can reach higher levels in this field.
This job can lead to better jobs.
There is potential for growth within this career.
This job provides opportunities to improve myself.
I can advance to positions of leadership in this career.

VALUE #3 SALARY

I can make a lot of money in this work.
I like the possible earnings from the job.
The "size of the paycheck" interests me most.
I can make a good living.
I can become financially well-off.
There is considerable income I can receive from the job.
The salary allows me to buy many of the things I've always wanted.
The pay rate for the workers in this job is high.
The job has steady raises in pay.
I appreciate the money I can make from the job.
I like the financial rewards of the job.
The wages paid are good.
I will have more money doing this work.
I like the pay scale for the job.
There is a good beginning salary offered.

VALUE #4 PRESTIGE

People in this work are held in high regard.
There is honor associated with the work.
It's a position of power and superiority.
The job gives me a chance to be somebody.
I want the feeling of importance that goes with the job.
People on this job are admired by others.
The job gives me a position of respect.
It's an impressive and respected job.
The job has a reputation of importance.
The work gives me a feeling of importance.
People in this career are looked up to.
This job commands the respect of others.
This type of work is well thought of by others.
I like the high regard which the job carries with it.
The work brings with it a lot of prestige.

VALUE #5 PERSONAL GOAL

This work is what I've planned for.
It has been my lifelong intention to get into this field.
There is an opportunity to do the things I've always wanted to do.
This job gives me a purpose in life.
The job is a personal objective for me.
The job is my own choice.
It's the one job I'm looking forward to.
The job fits into my plan of life.
The work would be a challenge to me.
It provides a way of life that is right for me.
It's what I'd like to do as my life's work.
I can fulfill my ambitions in this work.
It's what I've been shooting for.
It is a job I've always wanted to do.
It's my ideal for a life's career.

VALUE #6 PREPARATION AND ABILITY

I have the educational preparation for the job.
I have the technical know-how to do the work.
I have the potential ability for doing this work.
I have the proper skills for this job.
I am able to meet the requirements.
It's an opportunity to use my training and background.
The job is within my reach.
I have experience with this work.
My capabilities are in this field.
I am naturally suited to the work.
I am prepared for it and have the right training.
I can qualify for the job.
I am "good at" this kind of work.
I have the ability to do the work.
My talents lie in this area.

## VALUE #7 SECURITY

There is a labor shortage in this field.
There will always be a demand in this area of work.
I can be sure of a job even in hard times.
There is a lack of good people in this field.
Workers are wanted for this job.
There is a shortage of workers in this field.
Employers are requesting workers to enter this field.
There is a short supply of workers for this job.
Employers want workers with training in this kind of work.
There are many job openings in this field.
There is a demand for workers in this field.
Workers are needed in this field.
Employers are looking for workers for this job.
There are not enough available workers for this job.
There is a necessity for workers in this area.

# APPENDIX B

## Directions for Administration of the Occupational Values Inventory (OVI)

DIRECTIONS FOR ADMINISTRATION OF THE
OCCUPATIONAL VALUES INVENTORY (OVI)

1. Directions for filling out the identification information

Look at the top of the sheet.

Now, print your name, last name first.

Put in today's date.

Turn the sheet sideways and fill in the boxes for age, sex and course.

Make a heavy black mark in the boxes for age, sex and course.

| The additional code boxes included on the OVI machine scorable sheets can be used for additional information. |
|---|

Check the numbers in the lower right hand corner of the page to be sure they are the same on both sides. Check the blackened spaces to be sure they correspond to the numbers.

| If OVI's without previously marked identification numbers are being used, direction for filling in the identification boxes will have to be provided. |
|---|

If you have any questions, please raise your hand.

2. Directions for Administration

Near the top of the sheet you will find the words, "AT THIS TIME I WOULD CHOOSE A JOB BECAUSE." Think of each phrase as if it started with these words.

This is a survey of work values, factors which people might consider important in selecting an occupation. For some people getting satisfaction from their work is important. For others it's respect that people show for the kind of work that the person is doing. Many people feel that the wages or salary received for work accomplished is the most important factor in selecting an occupation.

On this sheet you will find 35 groups of three phrases, each phrase describing a particular value. In each group you are to decide which of the three values is most important to you at this time and which is least important. You must leave one phrase blank.

In some cases you may feel that all three of the values are important to you. In other cases you may feel that all three values are unimportant. Nevertheless, you must indicate the most and the least important value in each group and leave one blank.

For example, in the first group of three phrases you might think that "At the time I would choose a job because: 'I can lose myself in this kind of work'," is most important of the three phrases. If so, blacken in the space under MI.

If you thought that "At this time I would choose a job because: 'I can make a lot of money in this work'," was least important you would blacken in the space under LI. You would leave the phrase "There is a good possibility of elevation to the top job" blank.

This is only an example, of course, and you may choose to mark this group of phrases differently.

Remember. Within every group there should be one phrase marked as most important, one phrase marked as least important, and one phrase not marked at all. In some cases it may be difficult to decide which of the phrases you should check. Make the best decisions you can. Remember, this is not a test--there are no right or wrong answers. Be sure to mark one phrase as MOST IMPORTANT and one phrase as LEAST IMPORTANT. Do not skip any groups and do not spend a lot of time with any particular group. Put down your first reaction and go on.

| The ranking of the seven values which appears at the bottom of side 2 is provided for research purposes only. This task may be omitted from the administration of the OVI unless this information is specifically desired. |
|---|

If there are any questions, please raise your hand.

There is no time limit, but you can expect to finish in 15 to 30 minutes.

Ready, Begin.

# APPENDIX C

## Scoring Procedures and Data Output for Users

## SCORING PROCEDURES FOR THE OVI AND DATA OUTPUT FOR USERS

The score for each of the seven values of the OVI is arrived at by assessing each paired comparison in each triad of three values appearing together. For example, if $V_1$, $V_2$, and $V_3$ appear together in a triad, three paired comparisons results. $V_1$ is compared with $V_2$, $V_1$ is compared with $V_3$, and $V_2$ is compared with $V_3$. Given the direction of the first two comparisons, the third is completely determined and this is the practical meaning of ipsativity. If in the example used above, $V_1$ were marked most important and $V_3$ were marked least important the following scoring would result: $V_1$ receives a score of "1" and $V_2$ a score of "0" for their comparison; $V_1$ recieves a score of "1" and $V_3$ a score of "0" for that comparison; $V_2$ receives a score of "1" and $V_3$ a score of "0" for the third comparison. In this particular example $V_1$ has received 2 points, $V_2$ has received 1 point and $V_3$ has received no points. If this procedure is followed for each of the 35 triads in the OVI it results in assigning of 105 points to seven value categories. Since each value appears in a total of 15 of the 35 triads the highest possible score is equal to 30. In the most consistant case where each value was always chosen either above or below another values in a paired comparison, the values profile would yield a set of scores in the following ratio: 30:25:20:15:10:5:0. The sum of these scores is, of course, always a constant 105.

A computer program has been written to handle this scoring scheme, and data is output in card form. The program generates eight cards, seven of which are used to compute internal consistency reliabilities according to the Rabinowitz-Eikeland method which is described in

Chapter III of this monograph. Card eight contains the summary information and is of the following format:

| Column | Description |
|---|---|
| 1-4 | Identification Number |
| 5-8 | Code Box side 1 |
| 9-12 | Code Box side 2 |
| 13 | Age |
| 14 | Sex |
| 15 | Course |
| 16-22 | Ranking of 7 values |
| 23-24 | Grid A and B at bottom of side 2 |
| 25-45 | Seven value scores as a one or two digit number with a preceeding blank |
| 47-49 | Constant 105 |
| 80 | "8" indicating card number |

All extra code boxes are provided for research purposes and may be used to obtain additional information.