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The purpose of this study was to develop an inventory which would (1) help pupils analyze their occupational interests, and (2) inform teachers, counselors, and curriculum planners about pupils' attitudes toward relatively specific elements of work such as acts, tools, materials, environments and human relationships generally associated with work in building trades, office, automobile service, health aid, and retail occupations. A prototype inventory developed by Heiner, Garlington and Whipple was revised and tested with 92 Caucasian and 81 Negro ninth grade pupils in two Tacoma, Washington junior high schools. Results indicate that the instrument does set the stage for guidance. Further research could focus on (1) refinement of items on the present inventory, (2) addition of other occupational categories, and (3) empirical studies to ascertain the validity, reliability, and distribution of responses. (CH)

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June 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

# DEVELOPMENT OF AN EXPERIMENTAL FORCED-CHOICE OCCUPATIONAL PREFERENCE INVENTORY

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by
Toshio Akamine
and
Harold G. Heiner

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# DEVELOPMENT OF AN EXPERIMENTAL FORCED-CHOICE OCCUPATIONAL PREFERENCE INVENTORY

## SUMMARY


### Purpose

The purpose of this study was to develop a Forced Choice Occupational Preference Inventory with improved capabilities to (1) help pupils analyze their occupational interests and (2) to provide teachers, counselors and curriculum planners with information about pupils' attitudes toward relatively specific elements of work involved in some occupations likely to provide opportunity for youth who do not complete college.

The Inventory is designed to evoke responses indicating preferences for acts, tools, materials, environments and human relationships generally associated with work in building trades, office, automobile service, health aid and retail occupations.

### Rationale

Attitudes, perceptions, preferences, aspirations and aversions constitute a construct of motivational factors influencing pupils' occupational interest and their willingness to pursue educational programs requisite for successful careers. Motivational factors also affect the satisfactions people derive from work. In a free and increasingly diversified society educators have an obligation to help pupils make occupational choices most likely to yield reasonable amounts of success and satisfaction.

### Procedure

A prototype inventory was revised on the basis of initial testing. A RESPONSE RECORD SHEET and an OCCUPATIONAL PREFERENCE PROFILE chart that can be prepared from data provided by the Response Record Sheet have been designed. The revised instrument was used experimentally with 92 Caucasian and 81 Negro ninth grade pupils. Pupil participation and results were used as experimental bases for individual pupil guidance, group discussion and further occupational preference explorations.

### Results

Results indicate that the instrument in its present form does help set the stage for guidance and more realistic exploration of acts, tools,

materials, environment, human relationship dimensions of occupations.

## Recommendations for Further Development

Some items should be further refined. Additional occupational categories should be added. Additional empirical studies are needed to ascertain the validity, reliability and distribution of responses and intercorrelations in differing populations.

# INTRODUCTION

## Purpose

The purpose of this study was to develop a Forced-Choice Occupational Preference Inventory with improved capabilities (1) to help relatively young interests and (2) to provide information about pupils' attitudes toward relatively specific elements of work involved in some occupations likely to provide opportunity for youth who do not complete college.

This study constitutes one phase of a long-range effort to improve techniques for helping pupils initiate sustained occupational exploration at earlier ages and to provide teachers and guidance personnel with more precise information regarding attitudes influencing pupils' occupational motives and choices.

## Rationale

Attitudes, perceptions, preferences, aspirations and aversions constitute a construct of motivational factors influencing pupils' occupational interest and their willingness to pursue educational programs requisite for successful careers. Motivational factors also affect the satisfactions people derive from work. In a free and increasingly diversified society educators have an obligation to help pupils make occupational choices most likely to yield reasonable amounts of success and satisfaction.

To fulfill that obligation, teachers and counselors need means for stimulating pupils to think their way through the realities of work in various occupations. They also need information about the occupational attitudes, perceptions, preferences, aspirations and aversions of individuals and groups. Such facts will provide teachers and counselors with more precise definitions of pupils' present states of mind and will help define the behavioral changes necessary for pupils to make vocational choices congruent with current and future opportunities and to acquire occupational competence essential for fulfillment of opportunity.

Experience also indicates that involvement of pupils in collection and analysis of such information stimulates their thought, broadens their occupational perceptions and makes their personal, occupational and educational planning more rational.

For the above reasons, since 1966 the staffs of Projects ERD-257-65 and OE7-0031 have worked to develop and test three procedures for making such information available.

The authors view such information as useful to teachers and counselors mainly because it indicates the nature and limitations of most pupils' present perceptions of occupational feasibilities and goals. Such information also provides some evidence of the relative realism and fantasy of pupils' existing attitudes. This is essential. But, it is urgent that counselors and teachers appraise such evidence in terms of how well pupils' existing attitudes correspond with other facts indicating present and future occupational opportunities actually open to them. Existing preferences must also be viewed as starting points for enlargement of pupils' occupational perceptions and capabilities.

It is particularly urgent to note that evidence of existing attitudes does not provide an adequate base on which either pupils or counselors can make sound decisions about which occupation a youth should plan to enter. Existing attitudes indicate only the present state of pupils' perceptions and preferences. Learning theory generally accepts existing interests and perceptions as starting points for enlargement of pupils' insights and capabilities. But, present perceptions, especially those of youth whose experience has been limited by restricted environments, seldom correspond with either their abilities or the diversity of occupational opportunities actually open to them at present and in the near future.

Consequently, evidence of existing occupational attitudes should be used mainly as a basis for planning additional experience and instruction that will enlarge pupils' insights and better prepare them for choices that are more realistic in terms of their actual opportunities and their potential capabilities. The authors hope that this experimental inventory may be a step toward better means for helping pupils to analyze their occupational interests.

## RELATED RESEARCH AND THOUGHT

Slocum and Bowles have developed and utilized procedures for getting facts about the nature of high school pupils' occupational and educational aspirations and expectations (12). They have interpreted a large quantity of data to identify socio-economic factors that affect pupils' aspirations, expectations and plans (2).

Olsen and Venema have initiated development and testing of a projective technique utilizing symbolic drawings and questions as bases for interviews which evoke verbal responses indicating attitudes toward tools, acts, materials, tasks, personal relationships and physical environments associated with work in occupations most likely to provide opportunities for youth who do not complete college (9)

Heiner, Garlington and Whipple developed a prototype forced-choice device for obtaining similar information (7). Both techniques represent efforts to surmount the fact that measures of young people's attitudes toward various kinds of work are commonly based on responses to names of occupations, or to phrases presumed to connote general types of work. Examples are "nursing," "retailer," "civil engineer," "secretary," "repairing a clock," "interviewing clients," "repairing automobiles."

What is known about perception and semantics indicates that to most pupils such words and phrases are likely to connote misleading perceptions of the occupational realities involved. The extent of this hazard is documented by the work of Quine (10), Hayakawa (6), Schramm (11), and Wertheimer (14).

For example, few high school girls have had actual experience with the specific tasks, materials, equipment, working conditions or human relationships involved in being a "nurse" or an "airline stewardess." Few boys are familiar with those dimensions of work actually done by a "baker," an "engineer," a "laboratory technician" or a "banker." Responses to verbal or pictorial symbols for which the respondent has no experience referent are likely to be biased and misleading. Consequently, pupil attitudinal responses to items such as "nurse," "stewardess," "baker" or "engineer" probably are quite imprecise measures of their attitudes toward the actualities of work involved in the occupations.

Substantiated principles of perception and semantics and the work of Breer (3) indicate that more precise measures of attitudes toward specific tasks involved in various occupations require instruments designed to obtain responses to stimuli (words, pictures) that symbolize specific task components familiar to the respondent -- items for which he has experience referents.

Likewise, it appears necessary to obtain responses to major interrelated dimensions of the occupations symbolized. Consequently, instruments must be designed not only to evoke responses to single acts, tools and/or equipment, materials, working environment and personal relationships involved in occupations but also to combinations of those dimensions.

The Strong Vocational Interest Blank (SVIB), the Kuder Preference Record and the Occupational Interest Inventory by Lee and Thorpe are examples of interest inventories which provide means of measuring occupational interests and thus have some similarities to this forced-choice instrument. Strong (13) tried to select activities or topics that

adolescents would be able to imagine, such as work in a laboratory, being an aviator, or repairing a clock.

The forced-choice technique differs from that of Strong in both concept and procedure. It is designed to evoke responses to more precisely defined component elements of work situations rather than to generalities, the actualities of which pupils may only vaguely or unrealistically comprehend. Consequently, this instrument avoids both the use of job titles and Strong's empirical keying. In keying this instrument is more similar to that which Cronbach (4) refers to as logical keying. Kuder (8) in the construction of his inventory conceptualized clusters of traits, to which pupils could be matched. The primary distinction between these three previous approaches and the inventory and procedures reported here is that the latter is designed to measure singlely, and in combination, preferences for specific acts, tools, materials, working environment, and human relationships involved in occupations.

The forced-choice technique shows promise of providing teachers with evidence of pupils' existing attitudes toward types of work exemplified by the inventory. It also stimulates pupils to consider their preferences for the relatively specific tasks, tools, materials, circumstances and human relationships associated with work in occupations covered by the inventory.

## PROCEDURE

The prototype developed by Heiner, Garlington and Whipple has been revised to correct obscurities revealed by testing. The revised inventory includes the elements shown on Chart I.

The first 65 items require respondents to express preference for one of two alternatives. Items 66-69 require expression of preference for one of five alternatives. These latter choices serve as a partial check on the validity of responses to the preceeding items.

The revised inventory is presented in the experimental form used for further testing with 92 Caucasian and 81 Negro ninth grade pupils enrolled in two Tacoma (Washington) junior high schools.

Chart I

OCCUPATIONAL ELEMENTS INCLUDED IN EXPERIMENTAL INVENTORY

## Human Relationships

Work in room with others or alone
Converse with others while at work or not
Do work that requires help of others or work alone
Give directions to others or take directions
Plan work with others or decide alone

## Construction Work

| | |
|---|---|
| Tools | 1. Hammer, paint brush, welder |
| Environment | 2. Outdoors and fairly dirty |
| Materials | 3. Wood, steel, paint, concrete |
| Acts | 4. Pound nails, weld, paint |

## Office Work

| | |
|---|---|
| Tools | 1. Typewriter, filing cabinet |
| Environment | 2. Indoors and clean |
| Materials | 3. Paper, pencils |
| Acts | 4. Type, answer telephones, take messages |

## Auto Service

| | |
|---|---|
| Tools | 1. Wrench, screwdriver |
| Environment | 2. Indoors and greasy |
| Materials | 3. Gasoline, oil |
| Acts | 4. Find out why a car won't run, make repairs |

## Health Aid

| | |
|---|---|
| Tools | 1. Thermometers, dishes, food trays |
| Environment | 2. Indoors and clean |
| Materials | 3. Bandages, bedding, medicine |
| Acts | 4. Give medication, give baths, change beds |

## Retail Service

| | |
|---|---|
| Tools | 1. Cash register, marking stamp |
| Environment | 2. Indoors and pretty clean |
| Materials | 3. Money, merchandise |
| Acts | 4. Give people change, handle store merchandise |

# OCCUPATIONAL PREFERENCE INVENTORY

Here are 65 pairs of the many choices people can make about the kinds of work they like.

Of course, there are many other kinds of work you can choose. But, these 65 choices will help you think about the kinds of tasks, tools, materials, surroundings and personal relationships you like best.

For each pair of choices please mark an X in [A] or [B] box which shows your preference.

1. Would you rather:

   [A] Work in a room with three or four other people
   or
   [B] Work in a room by yourself

2. Would you rather:

   [A] Talk with others while you work
   or
   [B] Not have conversation interfere with your work

3. Would you rather:

   [A] Work at jobs you can do alone
   or
   [B] Work at jobs together with two or three other people

4. Would you rather:

   [A] Do work that requires you to give directions to others
   or
   [B] Work at things some one shows you how to do

5. Would you rather:

   [A] Make your own work plans
   or
   [B] Meet with three or four people to make work plans together

6. Do you prefer to work with:

   [A] A hammer, paint brush and saw
   or
   [B] A typewriter, telephone and adding machine

7. Do you prefer to work with:

[A] A typewriter, telephone and adding machine
or
[B] Wrenches, screwdrivers, drills and grinders

8. Do you prefer to work with:

[A] Wrenches, screwdrivers, drills and grinders
or
[B] Thermometers and food trays

9. Do you prefer to work with:

[A] Thermometers, dishes and food trays
or
[B] A cash register and grocery push cart

10. Do you prefer to work with:

[A] A hammer, paint brush and welder
or
[B] Wrenches, screwdrivers, drills and grinders

11. Do you prefer to work with:

[A] A typewriter, telephone and adding machine
or
[B] Thermometers, dishes and food trays

12. Do you prefer to work with:

[A] Wrenches, screwdrivers, drills and grinders
or
[B] A cash register and a grocery push cart

13. Do you prefer to work with:

[A] A hammer, paint brush and welder
or
[B] Thermometers, dishes and food trays

14. Do you prefer to work with:

[A] A typewriter, telephone and adding machine
or
[B] A cash register and a grocery push cart

15. Do you prefer to work with:

[A] A hammer, paint brush and welder
or
[B] A cash register and a grocery push cart

16. Would you rather work:

[A] Outdoors on a building job and be fairly dirty
or
[B] Indoors in an office and be clean

17. Would you rather work:

[A] Indoors in an office and be clean
or
[B] Indoors in a shop and be greasy

18. Would you rather work:

[A] Indoors in a shop and be greasy
or
[B] Indoors in a hospital and be extremely clean

19. Would you rather work:

[A] Indoors in a hospital and be extremely clean
or
[B] Indoors in a store and be pretty clean

20. Would you rather work:

[A] Outdoors on a building job and be fairly dirty
or
[B] Indoors in a shop and be greasy

21. Would you rather work:

[A] Indoors in an office and be clean
or
[B] Indoors in a hospital and be extremely clean

22. Would you rather work:

[A] Indoors in a shop and be greasy
or
[B] Indoors in a store and be pretty clean

23. Would you rather work:

[A] Outdoors on a building job and be fairly dirty
or
[B] Indoors in a hospital and be extremely clean

24. Would you rather work:

[A] Indoors in an office and be clean
or
[B] Indoors in a store and be pretty clean

25. Would you rather work:

[A] Outdoors on a building job and be fairly dirty

or

[B] Indoors in a store and be pretty clean

26. Would you rather work with:

[A] Wood, steel and paint

or

[B] Paper and pencils

27. Would you rather work with:

[A] Paper and pencils

or

[B] Gasoline and oil

28. Would you rather work with:

[A] Gasoline and oil

or

[B] Bandages, bedding and medicine

29. Would you rather work with:

[A] Bandages, bedding and medicine

or

[B] A cash register, merchandise and grocery push carts

30. Would you rather work with:

[A] Wood, steel and paint

or

[B] Gasoline and oil

31. Would you rather work with:

[A] Paper and pencils

or

[B] Bandages, bedding and medicine

32. Would you rather work with:

[A] Gasoline and oil

or

[B] Cash registers, merchandise and grocery push carts

33. Would you rather work with:

[A] Wood, steel and paint

or

[B] Bandages, bedding and medicine

34. Would you rather work with:

[A] Paper and pencils

or

[B] Cash register, merchandise and grocery push carts

35. Would you rather work with:

[A] Wood, steel and paint

or

[B] Cash register, merchandise and grocery push carts

36. Would you rather:

[A] Pound nails, weld and paint

or

[B] Type, answer telephones and take messages

37. Would you rather:

[A] Type, answer telephones and take messages

or

[B] Find out why a car won't run and make repairs

38. Would you rather:

[A] Find out why a car won't run and make repairs

or

[B] Give people medicine and baths, and change beds

39. Would you rather:

[A] Give medication, give baths, and change beds

or

[B] Give people change and handle store merchandise

40. Would you rather:

[A] Pound nails, weld and paint

or

[B] Find out why a car won't run and make repairs

41. Would you rather:

[A] Type, answer telephones and take messages

or

[B] Give medication, give baths and change beds

42. Would you rather:

[A] Find out why a car won't run and make repairs

or

[B] Give people change and handle store merchandise

43. Would you rather:

[A] Pound nails, weld and paint

or

[B] Give medication, give baths and change beds

44. Would you rather:

[A] Type, answer telephones and take messages

or

[B] Give people change and handle store merchandise

45. Would you rather:

[A] Pound nails, weld and paint

or

[B] Give people change and handle store merchandise

46. Would you rather:

[A] Pound nails, weld, paint, and use a hammer, welder, and paint brush

or

[B] Type, answer telephones, take messages, and use a typewriter and filing cabinet

47. Would you rather:

[A] Type, answer telephones, take messages, and use a typewriter and filing cabinet

or

[B] Find out why a car won't run, make repairs, and use wrenches and screwdrivers

48. Would you rather:

[A] Find out why a car won't run, make repairs, and use wrenches and screwdrivers

or

[B] Give medication, give baths, change beds, and use thermometers and food trays

49. Would you rather:

[A] Give medication, give baths, change beds, and use thermometers and food trays

or

[B] Give people change, handle store merchandise, and use a cash register and marking stamp

50. Would you rather:

[A] Pound nails, weld, paint, and use a hammer, welder, and paint brush

or

[B] Find out why a car won't run, make repairs, and use wrenches and screwdrivers

51. Would you rather:

[A] Type, answer telephones, take messages, and use a typewriter and filing cabinet

or

[B] Give medication, give baths, change beds, and use thermometers and food trays

52. Would you rather:

[A] Find out why a car won't run, make repairs, and use wrenches and screwdrivers

or

[B] Give people change, handle store merchandise, and use a cash register and marking stamp

53. Would you rather:

[A] Pound nails, weld, paint, and use a hammer, welder, and paint brush

or

[B] Give medication, give baths, change beds, and use thermometers and food trays

54. Would you rather:

[A] Type, answer telephones, take messages, and use a typewriter and filing cabinet

or

[B] Give people change, handle store merchandise, and use a cash register and marking stamp

55. Would you rather:

[A] Pound nails, weld, paint, and use a hammer, welder and paint brush

or

[B] Give people change, handle store merchandise, and use a cash register and marking stamp

56. Would you rather:

[A] Pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working outdoors

or

[B] Type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors

57. Would you rather:

[A] Type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors

or

[B] Find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines

58. Would you rather:

[A] Find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines

or

[B] Give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors

59. Would you rather:

[A] Give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors

or

[B] Give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors

60. Would you rather:

[A] Pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working outdoors

or

[B] Find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines

61. Would you rather:

[A] Type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors

or

[B] Give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors

62. Would you rather:

[A] Find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines

or

[B] Give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors

63. Would you rather:

[A] Pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working outdoors

or

[B] Give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine and stay extremely clean working indoors

64. Would you rather:

[A] Type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors

or

[B] Give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors

65. Would you rather:

[A] Pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working outdoors

or

[B] Give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors

Here are four more chances to think about which kinds of work you like <u>best</u> and which you like <u>least</u>.

Look at the five choices listed in each section. Then decide which one you like best. Put a (1) beside that choice. Then decide which one you like second best and put a (2) beside it. Keep deciding until you put a (5) beside the one you like least.

66. I rate those choices:

( ) hammers, brushes, saws and welders (C)
( ) wrenches, oil cans, grinders, and screwdrivers (S)
( ) a cash register, a price marking stamp and grocery push cart (R)
( ) thermometers, bandages, and food trays (H)
( ) typewriters, adding machines and telephones (O)

67. I rate those choices:

( ) work in a store (R)
( ) work in a service station (S)
( ) work in a hospital (H)
( ) work outdoors on building construction jobs (C)
( ) work indoors in an office (O)

68. I rate those choices:

( ) bandages, thermometers and food trays (H)
( ) papers, pencils and adding machines (O)
( ) wood, steel and paint and concrete (C)
( ) a cash register, merchandise and paper sacks (R)
( ) gasoline, oil and automobile parts (S)

69. I rate those choices:

( ) type, answer telephones, take messages and use an adding machine (O)
( ) use a hammer, saw, brush and welder to pound nails, saw boards, paint and weld metal (C)
( ) find out why a car won't run, make reparis and use wrenches and screwdrivers to fix it (S)
( ) use thermometers to take sick peoples' temperatures and give them baths and bring them food (H)
( ) use a cash register, put groceries in sacks and carts (R)

70. Now, perhaps you hope to do some kind of work other than any described. If so:

A. Name the occupation _____

B. Write a brief description of the kinds of work people in that occupation do.

C. Describe the kinds of tools and equipment used by workers in that occupation:

D. Describe the kinds of materials people in that occupation work with.

E. Describe the kinds of surroundings in which people in that occupation work.

F. Describe the ways people in that occupation work with other people.

# DIRECTIONS FOR ADMINISTRATION AND SCORING OF EXPERIMENTAL SELECTED OCCUPATIONAL PREFERENCE INVENTORY

## Administration to Groups

Provide each pupil with a copy of Part I of the Inventory. With the pupils, read the following first two paragraphs of the Inventory.

Then say, "Now let's try the first question. It asks, 'Would you rather:

[A] Work in a room with three or four other people
or
[B] Work in a room by yourself'

"If you think you like working in a room with other people better than you like working alone, put an X in the [A] box. If you think you like working alone better than working with other people, put your X in the [B] box."

Then say, "Now think a minute. Which of those two ways of working do you think you like best? Now, put your X in the box that shows which way you prefer."

Then ask, "Does any one have any questions?" If anyone does, answer them.

Then say, "O.K., let's try question number 2. Which of those two ways of working do you like best? Put your X in the box that shows your preference."

Then say, "Is everyone sure you know how you decide which box you want to mark X?" Clarify any questions.

Then say, "O.K., we're ready to go. Take your time and X the boxes that show your choices of the kinds of work shown in the other questions."

## Administration to Individuals

The above procedures can be used. If preferable to poor readers or retarded pupils, teachers or counselors can give whatever types of additional assistance appears suitable.

## Recording Individual Responses

Individual responses to specific items in the Inventory can be recorded into the Response Record Sheet as shown in Chart 2. For each component or combination of components, the total responses per occupational category can be entered at the bottom of each table.

Items 1-5

The first five items are designed to obtain indications of respondents' inclinations to work independently or in association with others. [A] responses can be interpreted and scored on the Response Record Sheet as inclination toward "independent work." [B] responses can be interpreted and scored as inclinations toward work involving "association" with others.

Of course, these indications of abstract inclinations cannot be interpreted as absolute. One can hypothesize that such general preferences would probably be modified by specific circumstances, needs and personalities.

Items 6-65

If a pupil marks [A] for item 6, simply black in the A in the spaces to the left of question 6 on the Chart.

If a pupil marks [B] for item 6, black in the B in the spaces to the left of question 6 on the Chart.

Record responses to all items 6-65 in that manner.

For items 66-69 put a [1] in the Occupational Category column the respondent ranks 1, and a [5] in the column ranked 5. Those categories are shown by the following code letters in parentheses at the right of each sub-item:

(C) Construction
(O) Office
(S) Service
(H) Health
(R) Retail

The chart will then show responses in an arrangement that graphically indicates:

A. Cumulative two-alternative preferences for tools, environment, materials, acts and human relationship dimensions typical of work in construction, office, auto service, health and retail service occupations,
B. Cumulative two-alternative preferences for combinations of the tools, environment, materials, acts and human relationships,
C. Five-alternative preferences for combinations of tools, environments, materials and acts.

Group profiles can be shown by recording on the chart the per cents of subjects making particular responses.

Chart 2-A
RESPONSE RECORD SHEET

Human Relationship Preference

| Item No. | Independent Preference | Association Preference |
|---|---|---|
| 1 | B | A |
| 2 | B | A |
| 3 | A | B |
| 4 | B | A |
| 5 | A | B |
| T | | |

Tool Preferences 6-15

| Item No. | Construction | Office | Service | Health | Retail |
|---|---|---|---|---|---|
| 6 | A | B | | | |
| 7 | | A | B | | |
| 8 | | | A | B | |
| 9 | | | | A | B |
| 10 | A | | B | | |
| 11 | | A | | B | |
| 12 | | | A | | B |
| 13 | A | | | B | |
| 14 | | A | | | B |
| 15 | A | | | | B |
| T | | | | | |

Acts Preferences 36-45

| Item No. | Construction | Office | Service | Health | Retail |
|---|---|---|---|---|---|
| 36 | A | B | | | |
| 37 | | A | B | | |
| 38 | | | A | B | |
| 39 | | | | A | B |
| 40 | A | | B | | |
| 41 | | A | | B | |
| 42 | | | A | | B |
| 43 | A | | | B | |
| 44 | | A | | | B |
| 45 | A | | | | B |
| T | | | | | |

Environment Preferences 16-25

| | | | | | |
|---|---|---|---|---|---|
| 16 | A | B | | | |
| 17 | | A | B | | |
| 18 | | | A | B | |
| 19 | | | | A | B |
| 20 | A | | B | | |
| 21 | | A | | B | |
| 22 | | | A | | B |
| 23 | A | | | B | |
| 24 | | A | | | B |
| 25 | A | | | | B |
| T | | | | | |

Tools & Act Combination Preferences 46-55

| | | | | | |
|---|---|---|---|---|---|
| 46 | A | B | | | |
| 47 | | A | B | | |
| 48 | | | A | B | |
| 49 | | | | A | B |
| 50 | A | | B | | |
| 51 | | A | | B | |
| 52 | | | A | | B |
| 53 | A | | | B | |
| 54 | | A | | | B |
| 55 | A | | | | B |
| T | | | | | |

Work Materials Preferences 26-35

| | | | | | |
|---|---|---|---|---|---|
| 26 | A | B | | | |
| 27 | | A | B | | |
| 28 | | | A | B | |
| 29 | | | | A | B |
| 30 | A | | B | | |
| 31 | | A | | B | |
| 32 | | | A | | B |
| 33 | A | | | B | |
| 34 | | A | | | B |
| 35 | A | | | | B |
| T | | | | | |

Acts, Tools, Environment Combination Preferences 56-65

| | | | | | |
|---|---|---|---|---|---|
| 56 | A | B | | | |
| 57 | | A | B | | |
| 58 | | | A | B | |
| 59 | | | | A | B |
| 60 | A | | B | | |
| 61 | | A | | B | |
| 62 | | | A | | B |
| 63 | A | | | B | |
| 64 | | A | | | B |
| 65 | A | | | | B |
| T | | | | | |

Five-choice Category Preferences 66-69

| | | | | | | |
|---|---|---|---|---|---|---|
| 66 | Code | 1 | 5 | 2 | 4 | 3 |
| | Pupil response | | | | | |
| | Weight | | | | | |
| 67 | Code | 4 | 5 | 2 | 3 | 1 |
| | Pupil response | | | | | |
| | Weight | | | | | |
| 68 | Code | 3 | 2 | 5 | 1 | 4 |
| | Pupil response | | | | | |
| | Weight | | | | | |
| 69 | Code | 2 | 1 | 3 | 4 | 5 |
| | Pupil response | | | | | |
| | Weight | | | | | |
| T | Weight | | | | | |

Chart 2-B
RESPONSE RECORD SHEET
(Example of recorded responses)

Human Relationship Preference

| Item No. | Independent Preference | Association Preference |
|---|---|---|
| 1 | B | A |
| 2 | B | A |
| 3 | A | B |
| 4 | B | A |
| 5 | A | B |
| T | 1 | 4 |

Tool Preferences 6-15

| Item No. | Construction | Office | Service | Health | Retail |
|---|---|---|---|---|---|
| 6 | A | B | | | |
| 7 | | A | B | | |
| 8 | | | A | B | |
| 9 | | | | A | B |
| 10 | A | | B | | |
| 11 | | A | | B | |
| 12 | | | A | | B |
| 13 | A | | | B | |
| 14 | | A | | | B |
| 15 | A | | | | B |
| T | 4 | 1 | 3 | 1 | 1 |

Acts Preferences 36-45

| Item No. | Construction | Office | Service | Health | Retail |
|---|---|---|---|---|---|
| 36 | A | B | | | |
| 37 | | A | B | | |
| 38 | | | A | B | |
| 39 | | | | A | B |
| 40 | A | | B | | |
| 41 | | A | | B | |
| 42 | | | A | | B |
| 43 | A | | | B | |
| 44 | | A | | | B |
| 45 | A | | | | B |
| T | 4 | 1 | 3 | 0 | 2 |

Environment Preferences 16-25

| | | | | | |
|---|---|---|---|---|---|
| 16 | A | B | | | |
| 17 | | A | B | | |
| 18 | | | A | B | |
| 19 | | | | A | B |
| 20 | A | | B | | |
| 21 | | A | | B | |
| 22 | | | A | | B |
| 23 | A | | | B | |
| 24 | | A | | | B |
| 25 | A | | | | B |
| T | 3 | 2 | 3 | 1 | 1 |

Tool & Act Combination Preferences 46-55

| | | | | | |
|---|---|---|---|---|---|
| 46 | A | B | | | |
| 47 | | A | B | | |
| 48 | | | A | B | |
| 49 | | | | A | B |
| 50 | A | | B | | |
| 51 | | A | | B | |
| 52 | | | A | | B |
| 53 | A | | | B | |
| 54 | | A | | | B |
| 55 | A | | | | B |
| T | 3 | 1 | 4 | 1 | 1 |

Work Materials Preferences

| | | | | | |
|---|---|---|---|---|---|
| 26 | A | B | | | |
| 27 | | A | B | | |
| 28 | | | A | B | |
| 29 | | | | A | B |
| 30 | A | | B | | |
| 31 | | A | | B | |
| 32 | | | A | | B |
| 33 | A | | | B | |
| 34 | | A | | | B |
| 35 | A | | | | B |
| T | 4 | 1 | 3 | 1 | 1 |

Acts, Tools, Environment Combination Preferences 56-65

| | | | | | |
|---|---|---|---|---|---|
| 56 | A | B | | | |
| 57 | | A | B | | |
| 58 | | | A | B | |
| 59 | | | | A | B |
| 60 | A | | B | | |
| 61 | | A | | B | |
| 62 | | | A | | B |
| 63 | A | | | B | |
| 64 | | A | | | B |
| 65 | A | | | | B |
| T | 4 | 1 | 3 | 1 | 1 |

Five-choice Category Preferences 66-69

| | | | | | | |
|---|---|---|---|---|---|---|
| 66 | Code | 1 | 5 | 2 | 4 | 3 |
| | Pupil response | 1 | 5 | 2 | 4 | 3 |
| | Weight | 5 | 1 | 4 | 2 | 3 |
| 67 | Code | 4 | 5 | 2 | 3 | 1 |
| | Pupil response | 1 | 4 | 2 | 3 | 5 |
| | Weight | 5 | 2 | 4 | 3 | 1 |
| 68 | Code | 3 | 2 | 5 | 1 | 4 |
| | Pupil response | 2 | 3 | 1 | 4 | 5 |
| | Weight | 4 | 3 | 5 | 2 | 1 |
| 69 | Code | 2 | 1 | 3 | 4 | 5 |
| | Pupil response | 1 | 5 | 2 | 4 | 3 |
| | Weight | 5 | 1 | 4 | 2 | 3 |
| T | Weight | 19 | 7 | 17 | 9 | 8 |

## Items 66-69

In recording responses to these items first enter the order of preference in the row marked "Pupil response." Second, enter appropriate weights into the row marked "Weight" by assigning weights as follows:

| | |
|---|---|
| First Choice | 5 |
| Second Choice | 4 |
| Third Choice | 3 |
| Fourth Choice | 2 |
| Fifth Choice | 1 |

For each occupational category compute the total weight. (See Chart 2-B for an example.)

## Item 70

Item 70 is intended to evoke open-ended verbal responses. These responses can be used to throw additional light on preferences indicated by Chart 3-A.

## Interpretations and Use of Results

Individual or group preference profiles can be prepared by use of Chart 3, "Occupational Preference Profile" to indicate pupils' relative preferences for components and combinations of components of five occupational categories. Such profiles will provide teachers and counselors with meaningful information regarding patterns of pupils' preferences for occupational categories as well as for components of categories.

The Profile will indicate preferences that can be classified as typical of work commonly classified as construction, office, auto service, health and retail service.

Pupil preferences for any of those categories should be regarded only as indications of the general nature of his preferences at this time for the limited alternatives offered by the Inventory. Responses to item 70 may provide additional evidence. Such data should be used only as a partial base for helping pupils further explore their occupational interests.

In no case does these data alone constitute reason for advising or urging a pupil to plan for entry into any of the listed occupational categories.

Inventory results may provide teachers and counselors with useful cues regarding pupils' present interests and aversions. But, as noted

in the introduction, the Inventory is useful mainly for stimulating pupil thought and discussion regarding the five dimensions of work.

Results can be used as bases for:

Teacher or counselor discussions with individuals
Group discussions led by either staff members or pupils
Themes and reports

A hypothetical example of pupils' responses is shown in Charts 2-B and 3-B. On Chart 2-B his responses to items are recorded by diagonal lines drawn across the letters A or B. Total responses for each of the five occupational categories are recorded at the bottom. These totals are then transferred to Chart 3-B.

The finished profile, Chart 3-B, indicates that this pupil shows a definite preference for construction and service occupations. His preference for the construction occupations is somewhat more pronounced than that for service occupations even though the difference between them may be statistically negligible.

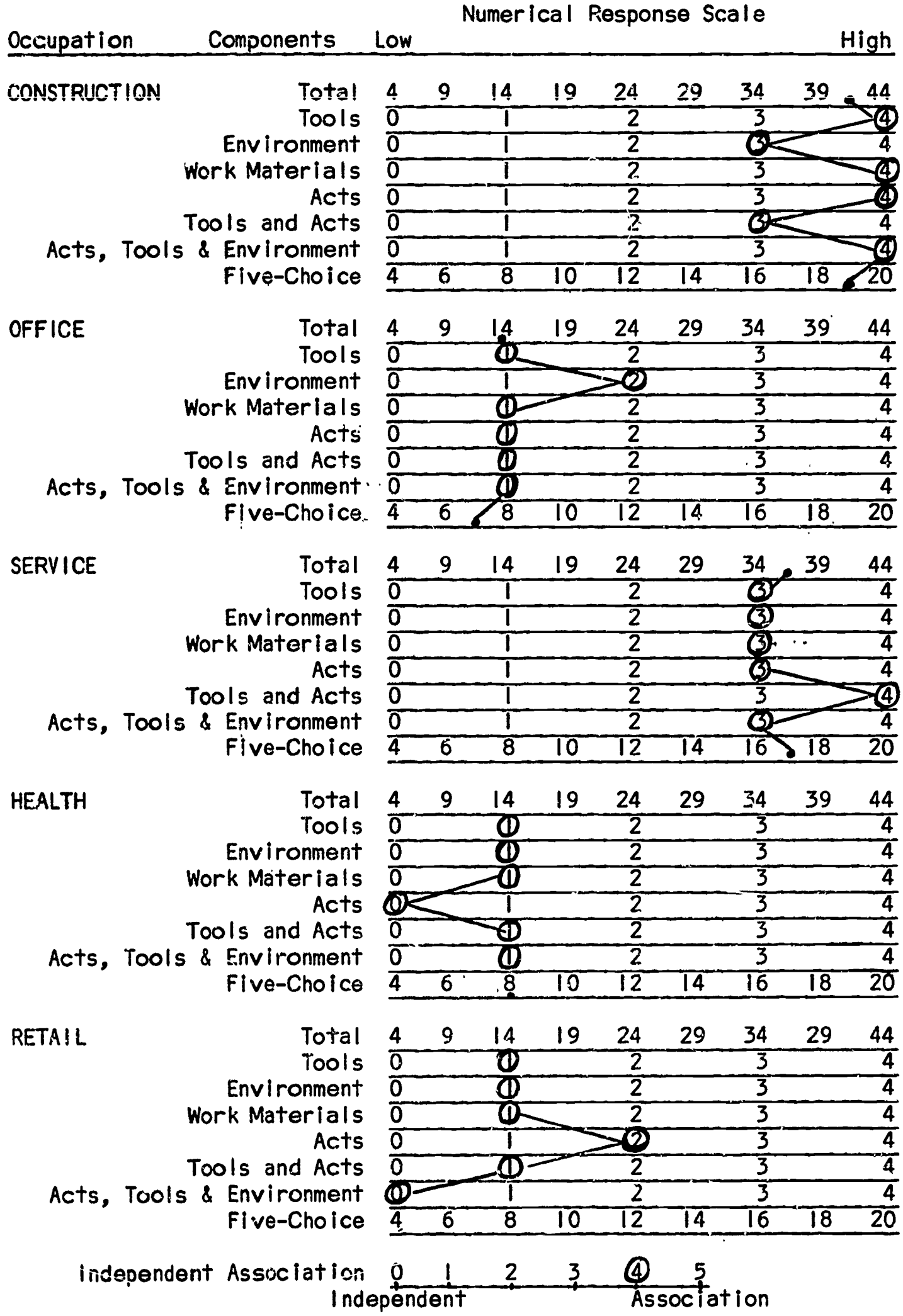
Within each of the construction and service occupational categories, his responses to various components are relatively consistent. This may indicate that the subjects' perceptions, rational or irrational, of components in these categories is relatively clear.

Chart 3-B also indicates the subject's preference for working in association with others to working independently. It is essential to remember, however, that this Inventory does not indicate in one way or another the pupil's probable capability for success in either construction or service occupations.

Chart 3-A
OCCUPATIONAL PREFERENCE PROFILE

| Occupation | Components | Numerical Response Scale Low | | | | | | | | High |
|---|---|---|---|---|---|---|---|---|---|---|
| CONSTRUCTION | Total | 4 | 9 | 14 | 19 | 24 | 29 | 34 | 39 | 44 |
| | Tools | 0 | | 1 | | 2 | | 3 | | 4 |
| | Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Work Materials | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Tools and Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts, Tools & Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Five-Choice | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| OFFICE | Total | 4 | 9 | 14 | 19 | 24 | 29 | 34 | 39 | 44 |
| | Tools | 0 | | 1 | | 2 | | 3 | | 4 |
| | Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Work Materials | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Tools and Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts, Tools & Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Five-Choice | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| SERVICE | Total | 4 | 9 | 14 | 19 | 24 | 29 | 34 | 39 | 44 |
| | Tools | 0 | | 1 | | 2 | | 3 | | 4 |
| | Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Work Materials | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Tools and Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts, Tools & Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Five-Choice | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| HEALTH | Total | 4 | 9 | 14 | 19 | 24 | 29 | 34 | 39 | 44 |
| | Tools | 0 | | 1 | | 2 | | 3 | | 4 |
| | Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Work Materials | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts, Tools & Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Five-Choice | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| RETAIL | Total | 4 | 9 | 14 | 19 | 24 | 29 | 34 | 29 | 44 |
| | Tools | 0 | | 1 | | 2 | | 3 | | 4 |
| | Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Work Materials | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts | 0 | | 1 | | 2 | | 3 | | 4 |
| | Acts, Tools & Environment | 0 | | 1 | | 2 | | 3 | | 4 |
| | Five-Choice | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| | Independent Association | 0 | 1 | 2 | 3 | 4 | 5 | | | |
| | | Independent | | | | | | Association | | |

Chart 3-B
OCCUPATIONAL PREFERENCE PROFILE
(Example of recorded responses)



## SUMMARY

### Kinds of Data Obtained

The inventory does evoke responses indicating pupils' present preferences for some specific types of acts, tools, materials, environments and human relationships associated with work in five occupational areas.

### Limited Generalization of Data

The Occupational Preference Profile does arrange responses in construction, office, service, health and retail categories that provide teachers and counselors with useful clues indicating pupils' general interests and some types of occupations open to them. Those categories, however, are selective and restrictive. They do not provide a framework adequate for either conceptualization or identification of the full range of pupils' interests or preferences.

### Effects on Counseling

Teachers and counselors report that use of the Inventory help set the stage for teacher-pupil-counselor discussions that activate more realistic occupational exploration and planning.

### Effects on Instruction

Use of the Inventory does stimulate pupils to analyze the acts-tools-materials-environment-human relationships-dimensions of occupations. Teachers report that after completing the inventory, pupils were activated to discuss and write about those dimensions and did so in more analytical fashion.

## RECOMMENDATIONS FOR FURTHER DEVELOPMENT

### Refinement of Items

Responses to specific Inventory items should be analyzed to determine the degrees to which each item is worded in terms sufficiently familiar to subjects to evoke realistic response. Additional refinements are possible. This is particularly important as a means of maximizing the value of the Inventory for work with pupils with limited experience and reading ability.

## Addition of Other Occupational Categories

The Inventory should be expanded to include additional alternatives enabling students to consider the nature of other types of work -- sub-professional and professional.

## Empirical Studies

The prototype of this Inventory was studied empirically by Heiner, Garlington and Whipple (6). Their findings on validity and reliability are generally applicable to this revised version. However, additional empirical study of validity and reliability is essential. As has been emphasized in previous sections, this Inventory is designed to provide teachers and counselors with rough estimates of relatively young pupils' occupational preferences. Such information is intended to serve as a basis for guidance and study aimed at development of more realistic preferences, choices and perceptions.

This Inventory is not designed to provide data on pupils' established occupational interest. Validation criterion needs not, and should not be how well the result of this Inventory predicts one's subsequent entry into a given category of occupations. Consequently, comparison of results obtained by use of this Inventory with those obtained from other inventories designed to predict occupational choice or job satisfaction, is not a relevant validation procedure.

This Inventory can best be validated by comparison of results with those obtained by other procedures designed to ascertain existing occupational interests, preferences, aversions, and perceptions. Populations for validation should include youth most likely to enter sub-professional occupations. The Inventory should be tested with younger pupils. Results obtained so far indicate that use with sixth or seventh grade pupils may yield useful results. It is desirable to include in the population not only older youth who are near to final decision-making with regard to occupational choice but also the younger pupils possibly those in sixth and seventh grades; pupils who are reaching age levels at which occupational attitudes and perceptions begin to emerge, or can be influenced.

Such studies should be designed to provide additional empirical data on the distributions of responses in sections of the Inventory, intercorrelations among sections, and the reliability of the total Inventory for each sub-population as well as the total population.

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