Personality, Demographics, and Self-Reported Behavioral Acts: The Development of Avocational Interest Scales from Estimates of the Amount of Time Spent in Interest-Related Activities

Lewis R. Goldberg

HOW DOES ONE STUDY "BEHAVIOR"?

Periodically, social psychologists suffer troublesome and often baffling spasms of guilt and self-flagellation. One of their most common laments is not studying real "behavior," at least recently as compared with the good old days (e.g., Baumeister, Vols, & Funder, 2007).

But, all of us "behave" all day, every day—so what? Behavior must be transduced through some medium before measurement occurs and the resulting measures can then be used for scientific purposes. Even the classic bar presses of rats and pigeons had to be mechanically transformed into graphical recordings, which then had to be interpreted by human observers.

Although some of the media through which behavior can be transduced include various kinds of mechanical apparatus (e.g., activity counts, dial settings), by far the most common medium for converting behaviors to measures is the human brain. Behavioral observers are used for this purpose in various contexts, including (a) short-term versus long-term periods of behavioral observation, (b) in experimental or laboratory settings versus in more normal life settings, and (c) observing the behaviors of others directly or from audio or video transcriptions. Each of these modes of transduction has advantages and disadvantages, many of
which are discussed in methodological textbooks. In all cases, however, humans are used at some stage of the measurement process to filter, schematize, organize, classify, conceptualize, and/or categorize their observations into a format suitable for that context.

**USING SELF-REPORTS AS TRANSDUCERS OF BEHAVIORAL ACTS**

There are some kinds of research contexts when the most accurate observer of a person’s thoughts, feelings, or behaviors is the person himself or herself (e.g., Buss & Craik, 1983). At the most basic level, one can characterize those contexts as ones when (a) the observer is nothing for the self-observer to gain by not being accurate; and (b) the task is relatively easy for most people. In addition, people are likely to be more accurate (1) when recalling the past, rather than predicting the future; (2) when asked about real past events, not hypothetical scenarios; (3) when the questions are short and clearly stated; and (4) when the response options fit the questions.

Some caveats are in order: First of all, it is important to realize that we may not know all the reasons why we behave as we do (e.g., Nisbett & Wilson, 1977). Moreover, we certainly differ in our ability to recall events, and in the kind of events that we recall most accurately. Indeed, we may sometimes forget important lifetime events, perhaps even highly traumatic events (Freyd, 1996; Gleave, Smith, Butler, & Spiegel, 2004). But, in all, we are probably pretty accurate recorders of our past activities, at least to differentiate between those things that we did a lot and those that we did rarely if at all.

**A BOTTOM-UP APPROACH TO DEVELOPING AGGREGATES OF SELF-REPORTED BEHAVIORAL ACTS: FROM 400 ACTS TO 60 ACT CLUSTERS**

To the extent that individuals are reasonably accurate reporters of the relative frequency with which they have engaged in various behavioral acts, a survey of their act frequencies in a wide-ranging array of such activities should provide the basic data from which to assess important individual differences in lifestyle. Such patterns of lifestyle differences, then, might ultimately be useful as criteria for assessing the comparative validity of measures of personality traits.

As a first step in that direction, we examined the large set of activities included in the research surveys developed by the National Merit Scholarship Corporation and administered to college student samples during 1962–1963 (Loehlin & Nichols, 1976). All of those acts that involved school-related behaviors (e.g., went to sleep in class) were either omitted or rewritten so that the resulting activity pool would be potentially relevant to an adult community sample, most of whom would no longer be associated with any educational institution. In addition, we employed focus groups of adults to examine preliminary act lists and provide additional examples of common behavioral acts that had not yet been included. Through an iterative series of such forums, we settled on a set of 400 activities, some examples of which are included in Table 11.1.

In the Fall of 1997, the 400 act descriptions were included in a longer questionnaire that was administered by mail to approximately 800 members of the Eugene-Springfield Community Sample (ESCS). The ESCS had been recruited in 1993 from lists of homeowners in this Oregon community, all of whom had agreed to complete one or two questionnaires per year for at least 5 to 10 years. ESCS participants are paid for each completed survey they return to Oregon Research Institute; they are identified only by a precoded number, and they are always requested not to include their names on their questionnaires. As of 2008, the ESCS

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
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<tbody>
<tr>
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<td>Had a ‘hangover’.</td>
</tr>
<tr>
<td>Shot a gun.</td>
<td>Cried.</td>
</tr>
<tr>
<td>Lied about my age.</td>
<td>Complained to a lawyer.</td>
</tr>
<tr>
<td>Polished my toenails.</td>
<td>Walked a beach.</td>
</tr>
<tr>
<td>Sang in a bath or shower.</td>
<td>Planned a party.</td>
</tr>
<tr>
<td>Gave money to a panhandler.</td>
<td>Skipped a meal.</td>
</tr>
<tr>
<td>Was late for work.</td>
<td>Read the bible (or other holy book).</td>
</tr>
</tbody>
</table>

**Instructions and Response Options:**

Here are things that people sometimes do. Please indicate HOW FREQUENTLY you have done each of them.

1. (1) NEVER in my life.
2. (2) Not in the past year.
3. (3) ONCE or TWICE in the past year.
4. (4) THREE or MORE times in the past year, but not more than 15 times.
5. (5) MORE THAN 15 TIMES in the past year.

*Note: Adapted from Loehlin and Nichols (1976).*
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5. MORE THAN 15 TIMES in the past year.

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participants have completed over 30 assessment measures, and the questionnaire containing the 400 act descriptions was the 14th in this sequence.

Based on a series of hierarchical cluster analyses of the intercorrelations across subjects of the frequency ratings to each of the 400 activity items, we settled on a preliminary set of 60 act clusters. These clusters ranged in size from 3 to 14 acts. Their mean item intercorrelations ranged from .15 to .60, and the coefficient alpha reliability estimates for each act cluster ranged from .40 to .90. The 14 clusters with the highest reliabilities are included in Table 11.2, along with an example activity in each cluster.

**Predicting Each of the 22 Most Reliable Act Clusters from Demographic and Personality Variables**

The mean frequency across all of the acts within each cluster was calculated for each of the ESCS participants, and these activity cluster scores were correlated with their gender, age, and education level. The gender correlations ranged up to .70 (Housekeeping chores: women reporting more). The age correlations ranged up to .50 (Anger manifestations: younger participants reporting more). The correlations with educational level ranged up to .45 (Cultural activities: the more highly educated participants reporting more).

Multiple correlations based on the three demographic indices ranged from .10 (Religious practices) to .75 (Housekeeping chores) and averaged about .40. When the most highly correlated single scale from virtually any of the four broadband personality inventories (e.g., the NEO-PI-R) was added to each regression equation, the average multiple correlation increased to about .50. Adding the five most highly correlating personality scales from that inventory increased the mean multiple correlation to around .55.

In summary, then, unlike many criterion variables used in personality research, these self-reported act clusters tend to be highly associated with demographic indices. However, for most of the act clusters, one or two personality measures can serve to increase their predictability beyond that provided by the demographic indices alone. Indeed, for some of these clusters, the predictability from both demographic and personality measures appears to be almost as high as seems possible, given the reliabilities of the clusters and the personality scales.

**Using Act Clusters as One Type of Criterion for the Evaluation of Personality Measures**

In what is probably the most comprehensive comparative-validity study ever attempted, Gruca and Co-care (2007) compared 11 multivariate personality inventories (e.g., the NEO-PI-R, CPI, 16PF, HP, MPQ, TCI, III) as predictors of three types of criteria: (a) six of the most highly reliable act clusters of those described above; (b) five Big-Five assessments by two to three knowledgeable informants; and (c) six self-reported indicators of potential psychopathology. The six activity clusters were selected to include two that were rather undesirable (Drug use and Undependability), two that included quite desirable acts (Friendliness and Creativity), and two that were more middling in their desirability implications (Communication and Erudition). Findings from a series of analyses indicated that there was little difference in the predictability of the six act clusters, with mean cross-validities ranging only from .48 to .54.

And, remarkably, when averaged across the 17 criteria of all three types combined, there was little difference in the mean cross-validities among the 11 inventories, with the cross-validated multiple correlations ranging between .40 and .45. Seemingly, then, there is much in common at the core of most modern personality inventories, despite substantial differences in the ways that they are commercially marketed.
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DEVELOPING MEASURES OF AVOCATIONAL INTERESTS AS INDEXED BY THE REPORTED AMOUNT OF TIME SPENT ENGAGING IN DIFFERENT TYPES OF INTEREST-RELATED ACTIVITIES

There are few, if any, public domain inventories measuring either avocational or vocational interests, yet both of these types of individual differences are likely to be quite useful as predictors of important human outcomes. To begin to correct this lacuna, we have now developed public domain measures of eight vocational orientations, which we propose as potential improvements over Holland’s (1973) classic 6-domain RIASEC model. Using only 89 items, these 8 new scales have alpha reliabilities ranging from .80 to .90, averaging about .85. They are provided here in Appendix A. They were included in a questionnaire administered to the ESCS in the Fall of 2006.

We measure vocational interests by asking people to indicate how much they would like to engage in various activities and occupations if they had their lives to live over again, and if there were no constraints on their skills or training. That is a form of hypothetical scenario that is probably not conducive to optimal self-reporting accuracy, but vocational choices are determined by so many factors beyond one’s interests that it makes sense to try to get at those interest patterns in such an “as-if” fashion.

Not so for avocational interests, which should be more directly linked to the frequency with which one engages in different types of interest-related activities. To test that conjecture, we have developed 33 avocational interest scales, each of which includes from 4 to 8 behavioral acts as items. There are 200 items in this new public-domain inventory, roughly 6 acts per scale.

In contrast to the 60 activity clusters developed from the 400 behavioral acts—which were based on a bottom-up strategy—the avocational scales were developed using a top-down approach. We began with an analysis of potential categories of avocational interests and then sought the specific activities that would be representative of each such interest domain.

The items included in each of these new scales are provided in Appendix B. The instructions and response options include: “Here are some things that people sometimes do. Please indicate how frequently you have done each of them, using the following scale: (1) Never in my life; (2) Not in the past year; (3) One or two times in the past year; (4) Three to ten times in the past year; (5) More than ten times in the past year.” These activity items were administered to the ESCS in the fall of 2007.

As would be expected from the findings from our analyses of the first set of activity clusters, some of the relations between the avocational interest scales and demographic indices are quite high: Correlations with gender range up to .60 (Housekeeping chores, with women reporting more) and .55 (Fashion-related activities, again with women reporting more). Correlations with age range up to .55 (Food and eating, with younger persons reporting more) and .40 (Computing, with younger persons again reporting more). And, correlations with educational level range up to .40 (Cultural activities) and .35 (Political/Organizational acts), with more educated persons more likely to engage in such pursuits.

Because of the strong correlations between activity patterns and demographic indices, we had assumed that a substantial source of the internal consistency within the act clusters stems from demographic variance, and therefore that estimates of internal-consistency reliability would be substantially attenuated in demographically distinct subsamples (e.g., men versus women). One remarkable finding from this project is that such an assumption is incorrect: The internal-consistency reliabilities of the scales do not differ much between same-sex and pooled samples.

For example, the coefficient alpha reliability of the 5-act Faction scale is .78 in the pooled sample as compared to .75 and .70 in the female and male subsamples, respectively. For the 7-act Housekeeping scale, the coefficient is .63 in the pooled sample as compared to .60 and .67 in each of the two gender-separated subsamples. What this suggests is that although demographically different subsamples may differ in their activity patterns, this is not the source of the cohesion among activities of the same sort.

Obviously not all activity patterns are equally prevalent within the ESCS; indeed, mean differences among the act clusters are quite substantial. At one extreme are activities such as Reading, Housekeeping, Gardening, Computing, Understanding, Food-related, and Shopping, which many of the ESCS participants engage in frequently; at the other extreme are activities such as Automotive, Social Networking, Gambling, Creating, Collecting, Financial, and Romantic, which are engaged in relatively rarely in this adult community sample.

For the purposes of predicting important lifestyle differences, clusters that elicit a large range of individual differences may be far more useful than those that elicit relatively little variation among the ESCS participants. The highest-variance categories include Computing, Exercise, Religion, and Drinking, whereas the lowest-variance categories include Romance, Automotive, Green-related, and Political/Organizational activities.
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RELATIONS BETWEEN AVOCATIONAL INTEREST PATTERNS AND OTHER INDIVIDUAL DIFFERENCES

Because of the enormous amount of information available on each of the ESCS participants, it is possible to examine the correlations of both avocational and vocational interest patterns with a wide array of other types of individual differences. Although most of these findings are beyond the limited scope of this chapter, a few of them may be of interest to readers of this volume.

One such topic concerns the relations between vocational interest patterns and personality traits. Using Goldberg’s (1972) 100-item Big-Five factor markers as measures of personality, we can examine the avocational interest correlates of self-reported personality factors. Overall, the correlations between measures of interest and personality are quite modest, certainly less substantial than the relations between interest patterns and demographic indices. Unsurprisingly, the highest interest correlates of Extraversion are Partying (r = .25) and Romance (r = .20). For Agreeableness, the highest correlate is Housekeeping (positively related) and Financial (negatively related), both with correlations about .20. For Conscientiousness, the highest correlate is Financial (r = .15), and for Emotional Stability it is Fashion (r = .20). Finally, for Intellect/Imagination the correlations are more substantial: .40 for Creativity, .30 for Culture, and around .25 for Self-Improvement, Understanding, and Being Alone.

NOW TO THE BOTTOM LINE: CAN AVOCATIONAL INTEREST PATTERNS ADD TO THE VALIDITY OF PREDICTIONS OF REPORTS BY KNOWLEDGEABLE INFORMANTS?

It is one thing to develop a new measure of some individual difference; it is another to establish its utility as a predictor of important human outcomes. Clearly vocational interest patterns have proved their worth over the years as predictors of job satisfaction and other work-related attitudes. But what about avocational interests? And specifically what about avocational interests as measured by self-reports of the relative frequency of individuals’ engagement in various interest-related activities? Because there has been little previous research on the utility of such measures, it is important to demonstrate their incremental validity.

But what should we use as criteria? Probably the most difficult type of criterion is one that shares no method variance with the avocational interest measures and is not related in content in any sort of one-to-one manner. Of the three types of criteria used in the comparative-validity studies of Grucza and Goldberg (2007), one type (act frequency self-reports) shares both method and content overlap, whereas another type (self-reports of aspects of psychopathology) shares a reliance on self-reports. The third type of criteria, on the other hand, personality assessments by knowledgeable informants, would seem to be as distant a type of criterion as one could imagine.

Moreover, we know from past research that (a) assessments by knowledgeable informants are highly related to self-reports on the same or similar personality traits, and (b) self-reported activity frequencies are highly related to various demographic indices, such as gender, age, and educational level. As a consequence, it is far from obvious that any avocational interest scale scores could be incrementally associated with personality assessments by knowledgeable others, after controlling both for demographic variables and for self-reports on the same personality traits. Indeed, one might argue a priori that this would constitute an unusually challenging validity test.

Each of the participants in the ESCS had been asked to recruit the “three persons who know you best” to provide personality descriptions of that participant, to be mailed directly to Oregon Research Institute in return for a $100 honorarium check. In a letter that the participants gave the informants, they were requested to be as candid as possible, and to refrain from sharing any of their assessments with the participants, who in turn received a bonus check if all three informants returned their completed forms within a specified period of time. Most participants were described by three informants, a few by two, and a very few by only one; the average of the ratings by the informants was used in our analyses.

The informants described the personalities of the ESCS participants using two separate sets of Big-Five factor markers: (a) The 44-item Big-Five Inventory (BFI) developed by Oliver John (e.g., John & Srivastava, 1999), and (b) the 40-item Big Five Mini-Markers (SMM) developed by Gerard Saucier (1994). Both inventories were augmented by two additional items tapping physical attractiveness, so the informant questionnaire included 88 items. A varimax rotation of six components derived from these 88 items, which is included as Table 5 in Grucza and Goldberg (2007), is as clean and clear a representation of the Big Five factor structure as can be found in the literature. Orthogonal factor scores on the five personality factors were used as criteria in the present analysis.

To examine the incremental validity of the avocational interest scales as predictors of informants’ reports, each of the five orthogonal factor scores was used as the criterion in a hierarchical analysis in which at Step 1 the three demographic indices (gender, age, and educational level) were...
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But what should we use as criteria? Probably the most difficult type of criterion is one that shares no method variance with the avocational interest measures and is not related in content in any sort of one-to-one manner. Of the three types of criteria used in the comparative-validity studies of Grucza and Goldberg (2007), one type (act frequency self-reports) shares both method and content overlap, whereas another type (self-reports of aspects of psychopathology) shares a reliance on self-reports. The third type of criterion, on the other hand, personality assessments by knowledgeable informants, would seem to be as distal a type of criterion as one could imagine.

Moreover, we know from past research that (a) assessments by knowledgeable informants are highly related to self-reports on the same or similar personality traits, and (b) self-reported activity frequencies are highly related to various demographic indices, such as gender, age, and educational level. As a consequence, it is far from obvious that any avocational interest scale scores could be incrementally associated with personality assessments by knowledgeable others, after controlling both for demographic variables and for self-reports on the same personality traits. Indeed, one might argue a priori that this would constitute an unusually challenging validity test.

Each of the participants in the ESCS had been asked to recruit the "three persons who know you best" to provide personality descriptions of that participant, to be mailed directly to Oregon Research Institute in return for an honorarium check. In a letter that the participants gave the informants, they were requested to be as candid as possible, and to refrain from sharing any of their assessments with the participants, who in turn received a bonus check if all three informants returned their completed forms within a specified period of time. Most participants were described by three informants, a few by two, and a very few by only one; the average of the ratings by the informants were used in our analyses.

The informants described the personalities of the ESCS participants using two separate sets of Big-Five factor markers: (a) The 44-item Big-Five Inventory (BFI) developed by Oliver John (e.g., John & Srivastava, 1999), and (b) the 40-item Big Five Mini-Markers (SMM) developed by Gerard Saucier (1994). Both inventories were augmented by two additional items tapping physical attractiveness, so the informant questionnaire included 88 items. A varimax rotation of six components derived from these 88 items, which is included as Table 5 in Grucza and Goldberg (2007), is as clean and clear a representation of the Big Five factor structure as can be found in the literature. Orthogonal factor scores on the five personality factors were used as criteria in the present analysis.

To examine the incremental validity of the avocational interest scales as predictors of informants' reports, each of the five orthogonal factor scores was used as the criterion in a hierarchical analysis in which at Step 1 the three demographic indices (gender, age, and educational level) were
first entered in a multiple regression analysis, followed at Step 2 by the orthogonal factor scores derived from self-reports to Goldberg's (1992) 100 Big-Five factor markers, and then finally followed at Step 3 by the 33 avocational interest scales, entered in a stepwise fashion, but stopping when no further variable was significantly associated with the criterion at the p < .001 level of statistical significance. Findings from each of the five hierarchical regression analyses are presented in Table 11.3. Those avocational interest scales that provided incremental validity, above and beyond the demographic indices and the self-report personality traits, are listed in Table 11.4.

At Step 1, the demographic indices predicted the five informant factors with multiple correlations that ranged from .06 (Conscientiousness) to about .35 (Emotional Stability and Intellect). By Step 2, the introduction of the five self-reported personality factors increased the multiple correlations substantially, and the resulting coefficients now ranged from about .50 (Agreeableness and Emotional Stability) to .70 (Extraversion). Remarkably, however, at Step 3 the provision of one or more avocational interest scales served to increase the multiple correlation statistically significantly in every case—a quite small amount in the case of Extraversion but by quite a substantial amount (.03 to .05) in the case of the other four factors.

The avocational interest scales that provided these significant increments in validity, which are listed in Table 11.4, suggest aspects of people's lifestyles (as reflected in the frequency with which they engage in various activities) that are differentially related to personality perceptions by others, above and beyond the individual's own self-perceptions. That is, one can think of the activity clusters as some of the cues used by others to assess our personality traits. Many of these cues may be used similarly by oneself and others to assess the same personality trait, but some of them must be used at least somewhat differently by the two kinds of judges, thus permitting the interest-related scales to predict incrementally the informants' personality assessments.

Can one achieve the same results using alternative kinds of activity clusters and/or alternative measures of self-reported personality traits? One potential problem with the analyses reported in Tables 11.3 and 11.4 is that each of the three major sets of variables (informants' reports, self-reports, and avocational interest scales) were administered to the ESCS at different times. To make sure that our findings were not an artifact of time differences in variable administration, we repeated the hierarchical regression analyses using data collected at roughly the same time (1997–1998). Because the ESCS participants had completed the exact same set of Big-Five assessments (BFI and SMM) as their knowledgeable informants, and during the same period of time, we used the five factor scores from those self-reports in Step 2 of our analyses. And, then, in place of the 33 avocational interest scales in Step 3, we used the 33 activity clusters with the highest item intercorrelations, based on the analyses described earlier in this chapter.

At Step 1, the findings were identical to those presented in Table 11.3; the demographic indices predicted the five informant factors with multiple correlations that ranged from .05 (Conscientiousness) to about .35 (Emotional Stability and Intellect). At Step 2, however, the introduction of the five new self-reported personality factors increased the multiple correlations even more substantially than before, with the resulting coefficients now ranging from about .60 (Agreeableness, Conscientiousness, and Emotional Stability) to .77 (Extraversion). Remarkably, however, once again at Step 3 the provision of one or more of the activity clusters served to significantly increase the multiple correlation in every case—again by only a quite small amount in the case of Extraversion but by quite a substantial amount (.05) in the case of Intellect/Openness.

| Table 11.3. Predicting Assessments by Knowledgeable Informants From Demographic, Personality, and Avocational Interest Measures: Multiple Correlations at Each Stage From Five Hierarchical Regression Analyses |
|-----------------|---|---|---|---|---|
|                | EXT | AGR | CON | STA | INT |
| Step 1: 3 Demographics | .20 | .28 | .05 | .37 | .35 |
| Step 2: Big-Five self-reports | .70 | .49 | .54 | .52 | .61 |
| Step 3: 33 Avoc. int. scales | .71 | .53 | .57 | .55 | .66 |
| Note: EXT = Extraversion, AGR = Agreeableness, CON = Conscientiousness, STA = Emotional Stability, INT = Intellect/Openness |
first entered in a multiple regression analysis, followed at Step 2 by the orthogonal factor scores derived from self-reports to Goldberg’s (1992) 100 Big-Five factor markers, and then finally followed at Step 3 by the 33 avocational interest scales, entered in a stepwise fashion, but stopping when no further variable was significantly associated with the criterion at the p < .001 level of statistical significance. Findings from each of the five hierarchical regression analyses are presented in Table 11.3. Those avocational interest scales that provided incremental validity, above and beyond the demographic indices and the self-reported personality traits, are listed in Table 11.4.

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<p>| Table 11.3. Predicting Assessments by Knowledgeable Informants from Demographic, Personality, and Avocational Interest Measures: Multiple Correlations at Each Stage from Five Hierarchical Regression Analyses |
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SOME CONCLUSIONS AND IMPLICATIONS

Why are some aspects of people’s lifestyles (as reflected in the frequency with which they engage in various activities) significantly related to personality trait inferences by others, above and beyond the individual’s own self-ascriptions? Avocational pursuits are among the most easily observable aspects of our lifestyles, and thus they are likely to be highly salient cues used by others to infer our personality traits. On the other hand, the things that we do a lot are likely to be highly automatic routines, to which we may pay little attention. Moreover, we may assume that what we do is pretty much the same as what is done by others, and therefore that our avocational interest patterns have little to say about our basic personality traits.

As a consequence of these two cognitive processes, the assessment of avocational interest patterns may provide particularly useful variables in understanding the differences between the personality trait inferences made by ourselves versus others.

More generally, one implication of these findings is that we may need to be far more inclusive in the types of individual differences included in our assessment batteries if we are to substantially increase the predictability of important human outcomes. Measures of cognitive abilities have a long history of utility in predicting educational and vocational outcomes, and more recently measures of personality traits have been linked to a wide range of health-related criteria, including mortality versus longevity (e.g., Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). Although measures of vocational interests are popular in counseling settings, they are rarely included in research-oriented assessment batteries. And, measures of avocational interests are virtually never included in research on either social or personality psychology. Part of the reason for this neglect may have been stemmed from the lack of availability of public-domain inventories for assessing vocational and avocational interest patterns. Hopefully, the measures described in this chapter will help to solve that problem.

ACKNOWLEDGMENTS

Funds for this project have been provided by Grant AG20048 from the National Institute on Aging, National Institutes of Health, U.S. Public Health Service.

APPENDIX A: THE ITEMS IN EIGHT NEW VOCATIONAL INTEREST SCALES (89 ITEMS)

Instructions: For each of the following activities and occupations decide how much you would like doing it if you had your life to live over again. Disregard whether you have the necessary skills or training. Please use the following scale for your responses: (1) Strongly dislike; (2) Dislike; (3) Neutral; (4) Like; (5) Strongly like.

Adventure (CISS: Adventuring; Holland: Realistic)
- Be a professional athlete
- Engage in exciting adventures
- Survive in the wilderness
- Be a racing car driver
- Face physical danger
- Be a military officer
- Compete in athletic events
- Be a bounty hunter
- Be a long-distance bicycle rider
- Be a police officer

Production (CISS: Producing; Holland: Realistic)
- Care for cattle or horses
- Be a farmer
- Construct new buildings
- Be a forest ranger
- Cultivate plants
- Go on nature walks
- Do woodworking
- Raise flowers
- Repair cars or trucks
- Work with tools and machinery

Creativity (CISS: Creating; Holland: Artistic)
- Create works of art
- Create new fashion designs
- Be a professional dancer
- Write short stories or novels
- Play an instrument in a symphony
- Redecorate one’s house
- Select art works for a museum
- Sing professionally
- Be an actor or actress
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- Select art works for a museum
- Sing professionally
- Be an actor or actress
Be an artist or architect
Act in a play
Write songs
Paint or draw

Endurance
Be a translator or interpreter
Be a librarian
Be a professor of English
Make up word puzzles
Edit a newspaper
Know many languages
Be a foreign correspondent
Speak florently on any subject
Read many books
Keep a diary or journal

Atruism (CISS: Helping; Holland: Social)
Help others learn new ideas
Care for sick people
Be an elementary school teacher
Be a social worker
Be a minister, priest, rabbi, or other religious teacher
Counsel persons who need help
Instruct parents on child care
Be a doctor or nurse
Be a physical therapist
Provide comfort and support to others
Participate in charity events
Help people make career decisions
Be a counselor or therapist

Leadership (CISS: Influencing; Holland: Enterprising)
Make important things happen
Lead other people
Be a sales or marketing director
Be the chief executive of a large company
Organize a political campaign
Be the master of ceremonies at a meeting
Plan an advertising campaign
Devise topics in a public meeting
Persuade others to change their views
Be a state governor or senator
Run for political office
Make decisions that affect a lot of people

Organization (CISS: Organizing; Holland: Conventional)
Be the financial officer for a company
Be an office manager
Plan budgets
Prepare financial contracts
Develop an office filing system
Supervise the work of others
Plan investment strategies
Establish time schedules
Monitor business expenses
Be a purchasing agent
Keep track of a company's inventory
Manage a computer database
Keep detailed records

Analysis (CISS: Analyzing; Holland: Investigative)
Be a chemist
Design a laboratory experiment
Be a mathematician
Explain scientific concepts to others
Be a physicist
Carry out medical research
Be a scientific reporter
Solve complex puzzles
Develop a computer program
Be a statistician

CISS = Campbell Interest and Skill Survey (Campbell, Hyes, & Niles, 1992)

APPENDIX B: THIRTY-THREE PRELIMINARY AVOCATIONAL INTEREST SCALES

Instructions: Here are some things that people sometimes do. Please indicate how frequently you have done each of them, using the following scale: (1) Never in my life; (2) Not in the past year; (3) One or two times in the past year; (4) Three to ten times in the past year; (5) More than ten times in the past year.

Being Alone (6 Items; Alpha = .75)
Ate dinner alone.
Went to the movies alone.
Went to a concert or theater alone.
Chose to spend a day by myself.
Be an artist or architect
Act in a play
Write songs
Paint or draw

Endurance
Be a translator or interpreter
Be a librarian
Be a professor of English
Make up word puzzles
Edit a newspaper
Know many languages
Be a foreign correspondent
Speak fluently on any subject
Read many books
Keep a diary or journal

Altruism (CISS: Helping; Holland: Social)
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Be the chief executive of a large company
Organize a political campaign
Be the master of ceremonies at a meeting
Plan an advertising campaign
Deliver talks in a public meeting
Persuade others to change their views
Be a state governor or senator
Run for political office
Make decisions that affect a lot of people

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Be the financial officer for a company
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Be a chemist
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Being Alone (6 items [Alpha = .75])

Ate dinner alone.
Went to the movies alone.
Went to a concert or theater alone.
Chose to spend a day by myself.
Drinking (5 Items [.84])
- Drank beer or wine.
- Drank whiskey, vodka, gin, or other hard liquor.
- Drank in a bar or nightclub.
- Became intoxicated.
- Had a hangover.

Exercise (7 Items [.85])
- Went running or jogging.
- Lifted weights.
- Used an exercise machine.
- Exercised for 40 minutes or longer.
- Did aerobic exercise.
- Did yoga or other movement exercises.
- Participated in an exercise program.

Fashion (5 Items [.76])
- Spent more than 10 minutes thinking about what to wear.
- Spent more than an hour thinking about what to wear.
- Read a fashion-related magazine.
- Read a fashion-related book.
- Bought a fashionable item of clothing.

Financial (6 Items [.75])
- Obtained stock market prices.
- Read a book on a financial topic.
- Bought or sold stocks or bonds.
- Bought or sold real estate.
- Purchased a commodity as an investment.
- Worked on a retirement plan.

Food-Related (7 Items [.64])
- Chewed gum.
- Ate candy.
- Ate in a restaurant.
- Ordered food to be delivered.
- Ate food while walking or wearing.
- Ate too much.
- Ate or drank while driving.

Gambling (6 Items [.79])
- Played bingo for money.
- Gambled with cards or dice.

Culture (6 Items [.82])
- Attended a public lecture.
- Visited an art exhibition.
- Visited a museum.
- Attended a ballet performance.
- Attended an opera or a concert.
- Attended a stage play or musical.

Computing (6 Items [.89])
- Used a computer.
- Sent a message by electronic mail (e-mail).
- Surfed the Internet.
- Read news on the Internet.
- Played a computer game.
- Looked up information on the Internet.

Creativity (7 Items [.69])
- Tried something completely new.
- Produced a work of art.
- Wrote poetry.
- Acted in a play.
- Painted a picture.
- Played a musical instrument.
- Sang or played an instrument in public.

Collecting (5 Items [.84])
- Worked on my collection.
- Bought something for my collection.
- Traded something in my collection.
- Read a book about the things that I collect.
- Bought a book about the things that I collect.

Child-Related (6 Items [.86])
- Played with a child.
- Let a child win a game.
- Took a child on an outing.
- Served as a baby sitter.
- Read a story to a child.
- Read the comics to a child.

Went on a trip by myself.
Spent an entire vacation by myself.
Went on a trip by myself.
Spent an entire vacation by myself.

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- Ate in a restaurant.
- Ordered food to be delivered.
- Ate food while walking or sitting.
- Ate too much.
- Ate or drank while driving.

Gambling (6 Items [.79])
- Played bingo for money.
- Gambled with cards or dice.
Purchased a scratch ticket.
Gambled on a slot machine or video poker game.
Went to a casino.
Bet money on a sports event.

Game Playing (5 Items [.65])
Worked on a jigsaw puzzle.
Played cards.
Played a board game.
Played chess or checkers.
Learned a new board or card game.

Gardening (6 Items [.85])
Cared for a potted plant.
Gardened.
Did yard work.
Planted or transplanted a plant.
Bought or picked flowers.
Bought plants for a garden or yard.

Green Activities (7 Items [.52])
Used public transportation.
Composted food scraps or yard waste.
Walked or rode a bicycle to work.
Changed a habit to have less impact on the environment.
Used both sides of a piece of paper before discarding it.
Picked up litter.
Recycled one or more items.

Housekeeping (7 Items [.75])
Washed dishes.
Made a bed.
Cleaned the house.
Ironed linens or clothes.
Cooked a meal.
Baked a cake, pie, cookies, or bread.
Knitted, quilted, sewed, or crocheted.

Music (8 Items [.77])
Listened to music on the radio.
Listened to music while working.
Downloaded music from the Internet.
Traded music with a friend.

Purchased a musical album.
Shopped in a music store.
Read music-related news.
Used an MP3 player or iPod.

Partying (5 Items [.82])
Had someone over for dinner.
Went to a small party.
Went to a large party.
Planned a party.
Entertained six or more people.

Pets (5 Items [.84])
Played with a pet animal.
Fed a pet animal.
Cared for a pet animal.
Bathed or groomed a pet animal.
Purchased a pet animal.

Political/Organizational (7 Items [.70])
Signed a petition.
Attended a rally or demonstration.
Donated money to charity.
Donated money to a political campaign or cause.
Volunteered for a club or organization.
Attended a town meeting.
Wrote a letter to a newspaper or politician.

Reading (5 Items [.75])
Read a book.
Bought a book.
Read in bed before going to sleep.
Read an entire book in one sitting.
Visited a public library.

Religious/Spiritual Practices (7 Items [.89])
Discussed religion or spirituality.
Prayed (not including blessings at meals).
Read the Bible or other sacred text.
Gave a blessing at a meal.
Attended a church or religious service.
Listened to a religious program on the radio or TV.
Read a book about religion or spirituality.
Purchased a scratch ticket.
Gambled on a slot machine or video poker game.
Went to a casino.
Bet money on a sports event.

Game Playing (5 Items [.65])
Worked on a jigsaw puzzle.
Played cards.
Played a board game.
Played chess or checkers.
Learned a new board or card game.

Gardening (6 Items [.85])
Cared for a potted plant.
Gardened.
Did yard work.
Planted or transplanted a plant.
Bought or picked flowers.
Bought plants for a garden or yard.

Green Activities (7 Items [.52])
Used public transportation.
Composted food scraps or yard waste.
Walked or rode a bicycle to work.
Changed a habit to have less impact on the environment.
Used both sides of a piece of paper before discarding it.
Picked up litter.
Recycled one or more items.

Housekeeping (7 Items [.75])
Washed dishes.
Made a bed.
Cleaned the house.
Ironed linens or clothes.
Cooked a meal.
Baked a cake, pie, cookies, or bread.
Knitted, quilted, sewed, or crocheted.

Music (8 Items [.77])
Listened to music on the radio.
Listened to music while working.
Downloaded music from the Internet.
Traded music with a friend.

Purchased a musical album.
Shopped in a music store.
Read music-related news.
Used an MP3 player or iPod.

Partying (5 Items [.82])
Had someone over for dinner.
Went to a small party.
Went to a large party.
Planned a party.
Entertained six or more people.

Pets (5 Items [.84])
Played with a pet animal.
Fed a pet animal.
Cared for a pet animal.
Bathed or groomed a pet animal.
Purchased a pet animal.

Political/Organizational (7 Items [.70])
Signed a petition.
Attended a rally or demonstration.
Donated money to charity.
Donated money to a political campaign or cause.
Volunteered for a club or organization.
Attended a town meeting.
Wrote a letter to a newspaper or politician.

Reading (5 Items [.75])
Read a book.
Bought a book.
Read in bed before going to sleep.
Read an entire book in one sitting.
Visited a public library.

Religious/Spiritual Practices (7 Items [.89])
Discussed religion or spirituality.
Prayed (not including blessings at meals).
Read the Bible or other sacred text.
Gave a blessing at a meal.
Attended a church or religious service.
Listened to a religious program on the radio or TV.
Read a book about religion or spirituality.
Romance (6 Items [.57])
- Wrote a love letter.
- Went on a date.
- Went dancing.
- Dined by candlelight.
- Attended a formal dance.
- Wore formal clothing.

Self-Improvement (5 Items [.66])
- Read a self-help book.
- Studied some subject.
- Learned a new skill.
- Enrolled in a course of study.

Shopping (7 Items [.66])
- Spent 10 minutes or more in a nongrocery store.
- Spent an hour or more in a nongrocery store.
- Bought something other than groceries.
- Checked the sales ads in a newspaper.
- Read newspaper ads for nongrocery items.
- Shopped on the Web.
- Used eBay to buy or sell something.

Social Networking (5 Items [.69])
- Used a computer for social networking.
- Read someone’s personal web page.
- Made an entry on a personal web page.
- Participated in an online discussion group.
- Used instant messaging to chat online.

Sports (6 Items [.79])
- Discussed sports.
- Watched a televised sports event.
- Attended an athletic event.
- Played a team sport.
- Played basketball.
- Played tennis or golf.

Summer Activities (7 Items [.74])
- Went on a picnic.
- Went on a hike.
- Walked on a beach.

Went swimming.
Went backpacking or camping.
Went boating or rafting.
Went fishing or hunting.

Travel (6 Items [.79])
- Took a trip.
- Went sightseeing.
- Took travel photographs.
- Stayed in a hotel, motel, or resort.
- Traveled by train or plane.
- Went on a cruise or tour.

TV (7 Items [.61])
- Watched television.
- Watched television news.
- Watched a television soap opera.
- Watched a television talk show.
- Watched a television reality show.
- Recorded a television program.
- Watched too much television.

Understanding (6 Items [.61])
- Read a news magazine.
- Watched an educational channel on TV.
- Looked up a word in a dictionary.
- Read the editorial page of a newspaper.
- Looked something up in an encyclopedia.
- Read poetry.

Vehicles (4 Items [.50])
- Rode a motorcycle.
- Read a car magazine or book.
- Bought a car, truck, or motorcycle.
- Raced a car, truck, or motorcycle.

Writing/Remembering (7 Items [.69])
- Made an entry in a diary or journal.
- Wrote a postcard.
- Wrote a handwritten letter.
- Wrote poetry.
- Wrote a thank-you note.
- Put pictures in a photo album.
- Worked on a scrapbook.
Romance (6 Items [.57])
Wrote a love letter.
Went on a date.
Went dancing.
Dined by candlelight.
Attended a formal dance.
Wore formal clothing.

Self-Improvement (5 Items [.66])
Read a self-help book.
Studied some subject.
Learned a new skill.
Enrolled in a course of study.

Shopping (7 Items [.66])
Spent 10 minutes or more in a non-grocery store.
Spent an hour or more in a non-grocery store.
Bought something other than groceries.
Checked the sales ads in a newspaper.
Read newspaper ads for non-grocery items.
Shopped on the Web.
Used eBay to buy or sell something.

Social Networking (5 Items [.69])
Used a computer for social networking.
Read someone's personal Web page.
Made an entry on a personal Web page.
Participated in an online discussion group.
Used instant messaging to chat online.

Sports (6 Items [.79])
Discussed sports.
Watched a televised sports event.
Attended an athletic event.
Played a team sport.
Played basketball.
Played tennis or golf.

Summer Activities (7 Items [.74])
Went on a picnic.
Went on a hike.
Walked on a beach.
REFERENCES


