TEST REVIEW:
Career Exploration Inventory
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Title: The Career Exploration inventory

Acronym: CEI

Author: John J. Liptak

Publication Date: 1992

Publisher: JIST Works, Inc.

Publisher's Address: 720 North Park Avenue, Indianapolis, IN 46202

Price: $29.95 per 25 tests and manual.

Computer Scoring Software Available: None.

GENERAL INFORMATION

Primary Constructs Assessed: Work, leisure, and learning interests.

Test Purpose: According to Liptak (1992a), the CEI was designed to help, individuals explore career and job alternatives based on their work, leisure, and learning interests from the past, present, and anticipated future.

Administration Type: The CEI was designed to be self-administered in individual or group settings, self-scored, and self-interpreted without counselor intervention.

Population/Range: According to Liptak (1992a), the CEI can be used with 'Working and unemployed adults, students, youth, and special populations such as economically disadvantaged, corrections, substance abuse, and others"(p. v). An age range was not reported for the CEI, although Liptak (1992a) stated that the test was normed on "employed and unemployed adults aged 13 to 73"(p. v).

Time Required to Administer: The time required to administer the test was not reported in the manual, but is generally close to 30 minutes Time Required to Score and Interpret: The time required to score and interpret the test was not reported in the manual but is generally close to 30 minutes.

Interpretive Scores Derived: The CEI, a criterion-referenced test, reported raw scores. No norm-referenced scores were provided. Subtest Format: The 15 major clusters of interest were Mechanical, Animal Care, Plants, Physical Sciences, Life Sciences, Artistic,

Item/Scoring Format: The test taker was asked to derive a simple sum of scores for each of the 15 interest clusters on the CFI Work, Leisure, and Learning Inventory. The numbers in the "Total" column represented the test taker's total score for each of the 15 corresponding interest clusters. The higher the test taker's total score for each interest cluster, the higher the interest in that cluster (Liptak, 1992b).

Qualifications of Examiners: The CEI is classified as a level A test.

PRACTICAL CONSIDERATIONS

Attractiveness of Test Materials: The CEI test materials consisted of a test Protocol and the Professional Manual. Both were very, attractive and well organized.

Durability of Test Materials: Both the CEI and the Professional Manual appeared to be durable. The test itself was printed on heavy paper so that it wouldn't easily tear when moving from step to step. The Professional Manual was spiral bound. It had a front and back cover that was printed on heavy paper. For added protection and durability, the front cover had a plastic overlay.

User-Friendly Format: The CEI was very user-friendly. The test taker needed only the testing booklet to take the test, making it easy to self-administer, self-score, and self-interpret. The manual was not as user-friendly as the test itself.

Ease of Administration: The CEI can be administered by an examiner, but was very easy to self-administer, self-score, and self-interpret because the directions were clearly stated and easy-to-read. The CEI would also be very easy to administer to an individual or a group for the same reason. Liptak (1992a) provided some tips for administering the CEI, as well as some suggestions for using the CEI with individuals and groups in the manual.

Clarity of Administration and Scoring Procedures: Administration and scoring procedures were clearly stated in the directions provided on the CEI. Each step of the CEI had its own set of directions that were specific and easy to understand. In addition, several steps provided examples that demonstrated how the test taker should perform that step.

GENERAL ADMINISTRATION AND SCORING PROCEDURES

The CEI consisted of several components or subscales that were divided into nine steps. Each step had its own set of directions.

Step one, asked the test taker to identify his or her, past, current, and future work, leisure, and learning interests. Work was defined as full and part-time occupational experiences that were paid or unpaid, including volunteer work. Leisure was defined as
any recreational activities, hobbies, or other life experiences. Learning encompassed any schooling, training, or informal learning of the test taker. After the test taker identified the activities, he or she was asked to consider how his or her work, leisure, and learning interests were similar; how those interests influence one another; which interests have stayed the same over time; and which three activities are most enjoyable (Liptak, 1992b).

The second step of the CEI asked test takers to complete the CEI Work, Leisure, and Learning Inventory. The inventory was comprised of 120 items that were grouped into eight items each for 15 major clusters of interest. The eight items for each of the 15 major clusters of interest described an activity related to that particular interest cluster. The test taker was asked to identify past, current, and/or future interest for each of the 120 items by circling P for past, IC for currently, and/or F for future. The test taker was given a number of options. He could circle one, two, or three of the choices according to his level of interest. He could also leave the item blank if there was no interest.

Step three of the CEI asked the test taker to add up her total score on the CEI Work, Leisure, and Learning Inventory. The test taker was asked to move across each row of the inventory and count all of the letters (P, C, F) that were circled in that row, Then she was asked to write the number of circled items in the 'Subtotal' column for each row. The test taker was then asked to add each pair of subtotals together to get a total for each pair. This was recorded in the 'Total' column. The totals were numbered 1 through 15 for each of the interest clusters (Liptak, 1992b).

The next step of the CEI, step four, asked the test taker to complete the CEI Interest Profile. The profile allowed the test taker to transfer his total score for each interest cluster into graphic form. Each of the interest clusters was represented on the profile as well as a scale from 1 to 24. The test taker was asked to record her total for each corresponding interest cluster on the scale.

Step five provided the test taker with an interpretation of what the scores on the interest profile mean.

Step six provided the' test taker with a Work, Leisure and Learning Activities Guide. The guide provided information for each of the 15 interest clusters. The information included a short description of the interest cluster, related occupations, typical leisure activities, related education, and training, and the related Guide For Occupational Exploration (GOE) or The Enhanced Guide For Occupational Exploration (EGOE) category and subgroups.

Step seven asked the test taker to identify the three interest clusters with the highest total scores from step three. Then the test taker was asked to identify the occupations, leisure, and learning activities for each cluster that he would like to learn more about based on the information presented in the Work, Leisure, and Learning Activities Guide (Liptak, 1992b).
Step eight of the CEI provided the test taker with sources of additional information such as the library, computer systems, school and college reference guides, in which he could find more information on the interests identified in step seven. The last step of the CEI, step nine, asked the test taker to identify future plans for work, leisure, and learning based on what he or she learned from taking the CEI. The action plan of step nine allowed the test taker to record his or her short term and long term goals for work, leisure, and learning.

NORMATIVE INFORMATION

Type of Norms: The CEI is criterion-referenced, but no criterion-referenced interpretive information was provided.

Age/Grade of Participants: The CEI was standardized on 210 participants, aged 18 to 73. Of the 104 participants from the Job Training Partnership Act Program, ages ranged from 18 to 73. For the 106 participants 'from the Employee Career Development Program (ECOP) at Virginia Tech, ages ranged from 23 to 62 (Liptak, 1992a).

Sex of Participants: 125 (60%) females; 85 (40%) males.


Number of Participants in Sample: 210 participants.

Normalization Technique: Not applicable.

Sample Characteristics:

Geographic Composition: The 104 participants from the Job Training Partnership Act Program were residents of Westmoreland and Fayette counties in PA. The 106 participants were from the ECDP were employed at Virginia Polytechnic Institute and State University in Virginia.

Racial Composition: Not reported.

Residential Composition: Not reported.

Socioeconomic Composition: Not reported. However, Liptak (1992a) stated the Job Training Partnership Act Program worked with low-income residents of Fayette and Westmoreland counties in Southwestern Pennsylvania and participants had to be income-eligible to participate in the program. It was assumed that the 104 participants from the Job Training Partnership Act Program low-income residents. The 106 participants were from the ECDP were employees of Virginia Tech, but no Socioeconomic data was reported.

Availability of Subgroup Norms: Not provided.
RELIABILITY

Inter-item Consistency: The internal consistency measures of the 15 categories ranged from .56 to .84 (Liptak, 1992a). According to Liptak, 'The CEI demonstrates internal consistency estimates comparable to that of existing interest inventories"(p. 76).

Split-half: Not reported.

Test-Retest: Test-retest reliability was determined by re-administering the Career Exploration Inventory to a sample of the original group of participants (n = 55) approximately three months after the initial testing. Correlations for the 15 interest categories ranged from .80 to .92(mean r .84).

Alternate-Form: Not applicable.

Scorer Reliability. Not reported.

VALIDITY

Content Validity: The developer of the CEI selected five independent judges with expertise in the fields of career and leisure counseling to make judgments about the 12 items that represented the fields of work and leisure for each of the 15 interest categories in the preliminary form of the inventory. Most judges were in agreement with the form, content, and placement of the interest categories. However, changes did occur with the recommendation of three of the five judges.

CRITERION-RELATED VALIDITY

Concurrent: Concurrent validity for the CEI was determined by comparing each participant's (n=210) three highest interests, as identified by the CEI, with a list of the participant's favorite work and leisure activities from the past, present, and anticipated future. The number of "hits" was then calculated for each of the time frames. According to Liptak (1992a), "Hits are defined as accurately measured developmental work and leisure interests as measured by the CEI and identical developmental interests identified by the subject on the Career Planning Guide' (p. 77). The percentage of hits for leisure interests in the past was reported to be 77 percent, while the percentage of hits for leisure interests in the present was reported to be 79 percent. The percentage of hits for work interests in the past was reported to be 72 percent, while the percentage of hits for work present was reported to be 69 percent. The frequency of accurately measured hits was also calculated using only the participant's highest interest category identified by the CEI. Liptak (1992a) stated, 'In order to be considered a hit, the subject's highest score in a particular work and leisure category had to match with the work and leisure activities listed by the subject' (P. 77). The percentage of hits for leisure interests in the past was reported as 51 percent, while the percentage of hits for leisure interests in the present was reported as 49 percent. The percentage of hits for work interests in the past was reported as 43 percent, while the percentage of hits for work present was reported as 44 percent. According to Liptak (1992a), 'Using the top score for each category, the
CEI obtained hit rates (43 to 51 percent) that are comparable to data obtained from other interest inventories" (p. 78).

Predictive: Not provided.

Construct validity: According to Liptak (1992a), 'Construct validity for the CEI was measured by the number of times the instrument accurately predicted a subject's developmental, sustained interests from the past, in the present, and those anticipated in the future" (pp. 78-79). To measure the construct validity, participants were asked to list interests from the past, present, and those anticipated in the future using "The Career Planning Guide" Sustained interests, those interests that were present in all three time frames, were then identified from each of the participant's lists. Hits were then calculated by comparing the participant's sustained interests with the category that the participant scored the highest on the CEI. The percentage of hits for sustained leisure interests was reported as 67 percent, while the percentage of hits for sustained work interests was reported as 54 percent.

STRENGTHS

The Career Exploration Inventory's major strength lies in its ability to be efficiently self-administered, self-scored, and self-interpreted. This was possible because of its well-organized format and clearly written directions. It was designed so that the test-taker could easily follow the nine steps that made up the test. Each step had its own set of easy-to-understand directions, and examples for several of the steps were provided to help clarify the instructions even more. In addition, the scoring procedures of step three were very rudimentary, making it easy to calculate the scores for the 15 interest categories. The Work, Leisure and Learning Activities Guide provided as part of the CEI was a good source of information on the 15 interest categories, and additional sources of information were listed for test takers so they could do further research. The cost of the CEI was very reasonable, as well. An administrator could get 25 test booklets and a manual for $29.95. In addition, the CEI could be taken in a relatively short amount of time. This test reviewer estimated that the test could be taken, administered, and interpreted in approximately an hour. Another of the CEI's strengths was that it could be used with both individuals and groups providing more options to professionals that choose to use the CEI with clients. The CEI had very few restrictions on Who Gould administer or use the test also making it widely available to many individuals. In addition, the test booklet itself was very attractive, well constructed, and durable.

WEAKNESSES

Although the test development of the CEI appeared to be very thorough, numerous technical and procedural flaws were noted. First, what Liptak (1992a) called norming procedures were really standardization procedures, because the CEI was not norm-referenced. In addition, the participants used in the standardization procedures did not truly represent the population that the author stated could use the test. Liptak (1992a) stated that the CEI could be used with "students, youth, and special populations such as the economically disadvantaged, corrections, substance abuse, and others"(p. v), yet the
CEI was not standardized on those populations. In addition, there were problems with the sample of participants used to standardize the test. The first problem was that the total sample of participants (N = 210) was small with a larger percentage (60%) of the sample being female. In addition, the CEI was administered differently to the two groups. The group that consisted of unemployed and underemployed adults participating in the Jobs Training Partnership Act Program in Southwestern Pennsylvania had the assistance of the researcher and the option of care-or counseling. The group that consisted of the individuals that had participated in the Employee Career Development Program at Virginia Polytechnic Institute and State University were mailed a copy of the CEI with an accompanying cover letter and were asked to return it to the researcher via campus mail (Liptak, 1992a). In addition, information was not provided on the ethnic composition or the socioeconomic status of the sample. The inconsistency in administration procedures, the small sample, and the lack of stratification among the participants are problematic. Other problems with the CEI involved the adequacy of reliability and validity of the instrument for the purposes stated. One of the problems with the test's reliability was that the internal consistency measurements, or coefficient alphas, were low for 13 of the 15 Interest Categories. Only two of the measurements met the minimal requirements of .80. They were the Mechanical Interest Category with a coefficient alpha of .83 and the Clerical Interest Category with a coefficient alpha of .84. The 13 remaining Interest Categories had coefficient alphas ranging from .56 to .76. In addition, computation of the coefficient alphas was accomplished with input from only 30 individuals. A larger sample was needed. In terms of test-retest reliability, the CEI was found to have acceptable correlation coefficients for the 15 Interest Categories. The coefficients ranged from .80 to .92, however the inventory was only re-administered to 55 of the 210 participants. In addition, neither the selection of participants, nor the re-test administration procedures were reported. There were also problems with the CEI's concurrent validity. The actual percentage of hits entailing the top three choices ranged from 69% to 79%. However, when the frequency of accurately measured hits was calculated using only the participant's highest interest category, the percentage of hits was even lower, ranging from 43% to 51%. The construct validity of the CEI had similar problems. The percentage of hits for sustained leisure interests was reported as 67 percent, while the percentage of hits for sustained work interests was reported as 54 percent. Those percentages, like those measuring concurrent validity, were of questionable accuracy. A problem with the profile and its interpretation was that norms were implied, when no norming procedures were reported during the development of the CEI. All 15 Interest Categories had a mean of 12 and a standard deviation of 6. The likelihood of 15 different scales having the same mean and standard deviation was statistically improbable. In addition, the criteria for having a disinterest in a category (below 6) or a significant interest (above 18) were poorly determined because the overwhelming majority of individuals would score between 6 and 18. In short, no documentation on how the author determined his criteria was provided in the manual. The test manual frequently mentioned the CEI could be self-administrated, self-scored, and self-interpreted without supervision. However, Liptak (1992a) stated, 'This approach, however, is not recommended unless there is no reasonable alternative' (p. vii). This statement was contradictory to what was presented as a major strength of the test.
REFERENCES
