
Brief Reports

Adapting the Career Decision-Making System for Use in Canada

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A review of the literature found very few studies that examined whether interest inventories and vocational development theories researched primarily in the United States have relevance cross-culturally. Campbell and Hansen (1981) and Hansen (1984) concluded that the interests of people in a particular occupation are extremely similar across cultures on the *Strong-Campbell Interest Inventory*. Lamb (1976) studied the interest structure in John Holland's theory of vocational development and found that it was valid for Blacks, Native Americans, Oriental Americans, and Spanish-speaking Americans. Using the Career Decision-Making System (CDM), Harrington and O'Shea (1980) found that the Holland hexagonal structure of interests had validity among four diverse Spanish-speaking Mexican-American, Cuban, South American, and Puerto Rican subcultures. They warned that questions about cross-cultural test generalization and the validity of the instrument must be addressed before the instrument can be relied on. This article will describe how the authors developed English and French forms of the CDM for use in Canada and how they investigated their cross-cultural validity.

The CDM is a theory- and research-based comprehensive career planning system that surveys interests, both self-stated and inventoried, values, training plans, abilities, and school subject preferences. It incorporates extensive career information and presents a model for career decision-making in client-oriented interpretive materials. The CDM's uniqueness lies in its going beyond a simple survey of interests. Information is presented so as to integrate career-planning determinants into a wholistic framework for the individual and counsellor. Wise, Charner, and Randour (1976) stated that effective career decision-making requires a multidimensional approach involving four aspects: knowledge, values, preferences, and self-concepts. Knowledge can be defined as factual information about work and self; values, as commitment to an object because it is good or right; preferences, as interests, likings, and aspirations; and self-concepts, as beliefs held about abilities one has and how successful one would be at an activity involving those abilities. Knowledge involves the question "What do I know?"; values, the question "What is important to me?"; preferences, the question "What do I like?"; and self-concepts, the question "What do I do well?" The CDM has two components: a 12-page consumable Survey Booklet which is self-scored; and a

four-page Interpretive Folder. O'Shea and Harrington (1980) reported self-scoring yielded accurate CDM results with three diverse samples in about 90 per cent of the cases, which is substantially higher than what other self-scored inventories obtained. The system is currently used with grade 7 through grade 12 students, college and university students, and adults in many settings, for example, in job placement, prisons, and rehabilitation agencies.

The authors' research and that of others had convinced them that Holland's theory of career development explained most of the interest variance being measured by interest inventories (Campbell & Hansen, 1981; O'Shea & Harrington, 1972; Cole & Hansen, 1971). Accordingly, the CDM authors developed a 120-item, sex fair interest inventory with Holland-based scales.

In brief, the Holland theory asserts that there are six basic personality types—Realistic, Investigative, Artistic, Social, Enterprising, and Conventional—and that most people can be categorized by a single type or combination of types. Corresponding to these six personality types are six occupational environments with the same names—Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. According to the theory, each personality type will seek out its corresponding occupational environment. Thus, an Enterprising personality will seek out an Enterprising occupational setting, while a Social-Artistic type will seek out a Social-Artistic environment. In the CDM, the Holland terms (in parentheses) have been replaced with others more descriptive of the jobs included within a category: Crafts (Realistic), Scientific (Investigative), The Arts (Artistic), Social (Social), Business (Enterprising), and Clerical (Conventional).

The following describes the steps in the development of the Canadian CDM. The authors frequently visited Canada observing and speaking with counsellors about how they do career counselling. Canadian collaborators were identified. The CDM career cluster structure was compared with the Canadian occupational structure. The English language interest survey was field-tested to examine the instrument's construct validity. Canadian spelling and *Canadian Classification and Dictionary of Occupations* (CCDO) (Employment and Immigration Canada, 1971) job titles were substituted; minor changes were made in the job listings to reflect where most Canadians work; and typically used Canadian career information materials were referenced. After the results of the English field-test were studied, the instrument was translated by an experienced French-speaking counsellor and field-tested in order to examine its construct validity.

Career Clusters and Structure of Occupations

The CDM uses a person's two highest scores on its six interest scales to suggest for exploration three or four of the 18 CDM career clusters. For

example, if a person's two highest scales are Scientific-Crafts, they lead to three career clusters—Math-Science, Technical, and Skilled Trades—each of which provides a work environment characterized by a mix of Scientific and Craft activities.

The 18 CDM career clusters were originally obtained (Harrington & O'Shea, 1976) by applying Holland's occupational classification system to the Worker Trait Groups in the *Dictionary of Occupational Titles*, Third Edition (DOT), Volume II (U.S. Department of Labor, 1965). Each occupation within a Group was assigned a code through use of Holland's *The Occupations Finder* (1974) and Holland's (1972) table for converting DOT codes to Holland codes. For example, Holland assigns a code of CSE to receptionists to signify that they are primarily conventional types and, to a lesser extent, Social and Enterprising types. Worker Trait Groups with similar codes were grouped together. Eighteen career clusters resulted and names were assigned that seemed to describe the common elements in each group. The process was replicated when the Fourth Edition of the DOT (U.S. Department of Labor, 1977) was printed, and 18 career clusters emerged again with very few occupations requiring change to new career clusters.

The task of adapting the CDM to the Canadian work force was greatly facilitated by the fact that Employment and Immigration Canada has made extensive use of the Holland model, including assigning Holland codes to all occupations listed in the *Canadian Classification and Dictionary of Occupations* (Employment and Immigration Canada, undated). When the authors examined the assigned codes for each of the jobs in the 18 career clusters, they did not find it necessary to rearrange the cluster groupings for the Canadian CDM. Some CCDO Minor Groups had to be assigned to two CDM clusters because they included CCDO Unit Groups that related to both clusters.

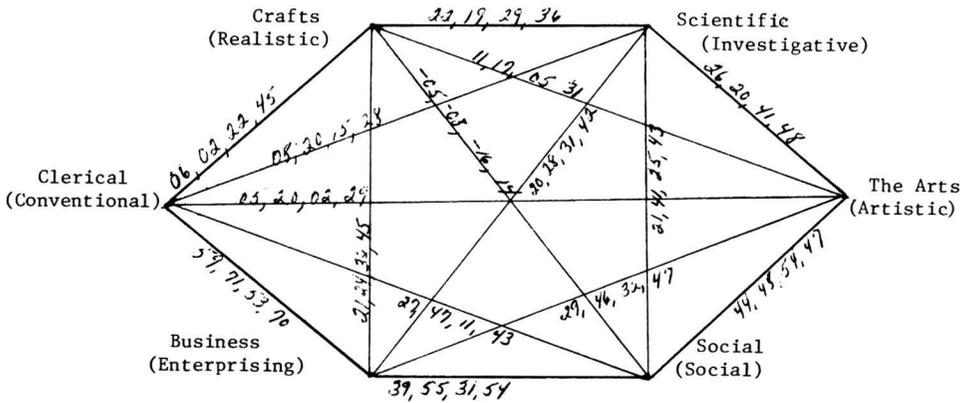
Construct Validity

The data for these studies were collected during 1983 and early 1984, when the English edition was administered to 2,113 students attending 26 schools and community colleges in six provinces—British Columbia, Alberta, Manitoba, Ontario, New Brunswick, and Newfoundland. The French edition was given to 559 students attending schools in New Brunswick. While not representative, the resulting samples did reach a wide range of Canadian youth. Three types of communities were targeted for sampling purposes: rural, suburban, and urban, for example, Calgary, Winnipeg, Ottawa, and Fredericton. Three educational levels were included: junior high school, high school, and community college.

The CDM theoretical basis is the Holland hexagonal model of career development. Holland has found that the relationship among the six occupational types can be ordered according to a hexagon in which distances between the types are inversely proportional to the size of the zero-

FIGURE 1

The hexagonal model as illustrated by three editions of the CDM and Holland's Vocational Preference Inventory (VPI)



KEY: In each group of four correlations, the first is for the Canadian CDM English-speaking sample, the second is for the Canadian CDM French-speaking sample, the third is for the U.S. CDM, and the fourth is for the VPI sample.

order correlations between them (Holland, Whitney, Cole, & Richards, 1969). The data in Figure 1 are based on samples of 815 high school and college students for the U.S. CDM, 2,113 eighth-grade through-community college students for the Canadian English edition, 559 students in grades eight through 12 for the Canadian French edition, and 759 high school seniors for the *Vocational Preference Inventory* (VPI; Holland, 1965). The data show that CDM scales have the same inverse relationships between distance and size as do Holland's corresponding VPI scales. Thus, for the Canadian sample, English edition, the Social scale correlates $-.05$ with the crafts scale, the most distant scale on the hexagon, but $.37$ and $.48$ with The Arts and Business scales respectively, the two scales closest on the hexagon. The correlations between the Crafts and Clerical scales were lower ($.02$ for the English-speaking sample and $.06$ for the French-speaking sample) than the hexagonal model would suggest. The CDM scales, however, generally have lower intercorrelations than the VPI scales, an indication of greater scale homogeneity.

Alpha coefficients were used to measure to scales' reliability. The median coefficients were high, $.92$ or $.93$ for each educational level of both English and French samples.

TABLE 1
*Mean CDM Interest Scale Raw Scores for English, French,
 and U.S. Samples by Educational Level and Sex*

<i>Grades 8 and 9</i>						
<i>Scale</i>	<i>Males</i>			<i>Females</i>		
	<i>CDN English N=477</i>	<i>CDN French N=99</i>	<i>U.S.* N=2045</i>	<i>CDN English N=526</i>	<i>CND French N=84</i>	<i>U.S. N=1959</i>
Crafts	15.6	20.2	18.5	5.9	7.4	7.4
Scientific	12.7	14.4	13.6	10.5	15.5	11.2
The Arts	8.6	10.0	10.1	13.7	12.4	13.5
Social	9.0	11.2	10.4	17.6	17.1	18.2
Business	12.0	12.1	12.2	12.2	12.5	13.9
Clerical	10.6	12.8	10.0	13.7	15.5	15.4
Mean	11.4	13.5	12.5	12.2	13.4	13.3

* The U.S. sample consisted of Grades 7 through 9

<i>Grades 10 through 12</i>						
<i>Scale</i>	<i>Males</i>			<i>Females</i>		
	<i>CDN English N=418</i>	<i>CDN French N=179</i>	<i>U.S.* N=3083</i>	<i>CDN English N=538</i>	<i>CDN French N=197</i>	<i>U.S. N=2563</i>
Crafts	16.3	20.2	21.3	7.0	7.0	8.6
Scientific	15.3	14.3	13.1	12.4	12.8	11.4
The Arts	11.4	8.4	10.8	15.1	11.2	14.0
Social	11.6	11.1	10.7	22.4	19.3	20.3
Business	15.0	12.5	14.4	14.0	12.9	15.4
Clerical	11.4	12.6	10.8	15.1	17.6	18.6
Mean	13.5	13.2	13.5	14.3	13.5	14.7

Average interest scales raw scores were studied (Table 1). Only means are cited in the table to enable readable comparisons between the Canadian English, French, and U.S. samples. The popularity of items in the survey as a whole was almost equal for males and females. Balance between scales was not achieved. Concerns for empirical predictive validity justify this lack of between scales balance. The reported male-female differences are in the same direction as those found on corresponding scales of the *Self-Directed Search* (Holland, 1972) and *Strong-Campbell Interest Inventory* (Campbell & Hansen, 1981).

In conclusion, the above results suggest that the *Harrington-O'Shea Career Decision-Making System* (Harrington & O'Shea, 1985) might be a useful tool in career counselling.

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