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The Validation of the Career Decision-Making Difficulties Scale in a Chinese Culture

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The purpose of the study was to test the classification system for career decision difficulties of college students in a Chinese culture. Five hundred twenty-one college students completed the Chinese version of the Career Decision-Making Difficulties Questionnaire. Data obtained were analyzed by multivariate analysis of variance, factor analysis, and a clustering algorithm, ADDTREE. The results indicated significant differences between decided and undecided students on their perceptions of career difficulties, $\Lambda(10,464) = .729$. The results of factor analysis and the ADDTREE analysis indicated that the three-group classification system for career decision-making difficulties was generally supported. However, for the undecided students in the process of career decision making, the factors before and during the process were mixed.

Keywords: career decision making, career difficulties, career problems

Career decision making is one of the central research issues in vocational psychology (Betz, 1992; Tinsley, 1992). To develop a theoretical context for the construct of indecision, Gati, Krausz, and Osipow (1996) presented a model to classify career difficulties people might encounter in making a decision. The model is hierarchical—broad categories of career difficulties are separated into categories and then subcategories based on finer distinctions.

At the top of the taxonomy proposed by Gati et al. (1996) are two general categories, “Prior to beginning the decision process” and “During the process.” Prior to the beginning of the process includes the factors “lack of readiness” due to lack of motivation, indecisiveness, and dysfunctional myths. The category during the

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process, on the other hand, is further divided into two categories: lack of information and inconsistent information. Lack of information includes information about self, information about occupations, ways of obtaining additional information, and information about the decision-making process. Inconsistent information includes internal conflicts, external conflicts, and unreliable information. The purpose of the present study concerns the applicability of this model in a Chinese culture, specifically in Taiwan.

To verify this classification system, Gati et al. (1996) developed the Career Decision-Making Difficulty Questionnaire (CDDQ) to evaluate the difficulties perceived by individuals. The validity and reliability of the CDDQ were then tested in several studies, both in the United States and in Israeli, after the theoretical model was proposed. Osipow and Gati (1998) examined the construct validity of the career decision-making difficulties questionnaire and found that undecided students had significantly higher scores on the CDDQ. Similarly, Lancaster, Rudolph, Perkins, and Patten (1999) found that decided students had a tendency to present themselves as having fewer difficulties in decision making than undecided students. As far as sex differences, Gati and Saka (2001) indicated that high school boys reported greater difficulties than girls in external conflicts and dysfunctional beliefs. The structure of the 10 difficulty categories of the revised CDDQ was found similar to that proposed by Gati et al. (1996).

Gati, Osipow, Krausz, and Saka (2000) further examined the validity of the taxonomy through counselee versus counselor perspectives. The 95 counsees expressed fewer difficulties related to lack of motivation compared with a general sample of 259 young adults. The counselors and counsees agreed more strongly about difficulties related to readiness for decision making and inconsistent information than about difficulties related to lack of information. The structure of the decision-making difficulty category of the CDDQ was similar to that proposed by Gati et al. (1996). In another study, Albion and Fogarty (2002) examined the structure of the CDDQ by using structural equation modeling. For both adults and high school student samples, the model confirmed the multidimensional structure of the CDDQ.

Regarding the applicability of the CDDQ in predicting the individual's indecision status, Gaffner and Hazler (2002) investigated the relationships between career indecisiveness and personality types and difficulties in making career decisions. Their sample consisted of 111 undergraduate students from a small Midwestern university. The results identified lack of career readiness on the CDDQ to be a better single predictor of indecisiveness than any other combination of variables. This result verified the validity of the Readiness scale of the CDDQ.

In another study conducted by Gati, Saka, and Krausz (2001), the effectiveness of a computer-assisted career guidance system was examined. For the 417 young adults from Israeli Veterans Administration counseling centers, career decision-making difficulties were found to be highest for individuals who were in

a status prior to the prescreening stage of the career decision-making process. For those who were at the choice stage, the difficulty scores were lowest. The results indicated the discriminant validity of the CDDQ in differentiating those who are not ready to make a decision from those who are already at the choice stage.

Vondracek, Schulenberg, Skorikov, and Gillespie (1995) examined the relationship between identity statuses and different kinds of career decisions. Their findings demonstrated that membership in a specific identity status group was significantly related to the nature and amount of career indecision. Achievement respondents had significantly lower career indecision scores than respondents in the other three status groups.

Cohen, Chartrand, and Jowdy (1995) divided students who had not yet made a career decision into four groups: (a) ready to decide—low anxiety, high self-esteem, good vocational identity; (b) developmentally undecided—emotionally stable but do not yet have a clear picture of themselves or the world of work; (c) choice anxious—high choice anxiety, little need for career information, low vocational identity; and (d) chronically indecisive—low vocational identity, high need for career and self-information, low goal directness, and low self-esteem. In this study, career difficulties experienced by students in different stages of career decision were examined to further understand the discriminant validity of the career difficulties classification.

One of the limitations of the CDDQ mentioned by Kelly and Lee (2002) was that the internal consistency of the Lack of Readiness scale was not sufficient. Another problem was that the CDDQ was not developed specifically for undecided students, and it might not capture all the salient aspects of indecision. However, the CDDQ did provide a quick and systemic way to assess a wide variety of individuals' decision problems.

Thus, the primary purpose of the present study was to examine the internal structure of the CDDQ with a sample from Taiwan. The secondary purpose was to test the career-related difficulties perceived by college students in terms of their differences on sex, grade, and decision-making status.

METHOD

Participants

The participants consisted of 188 male and 329 female students from 12 universities in Taiwan. Four other participants did not indicate their sex. All came from different majors across the six categories classified by Holland (1997). Among them, 21.7% were freshmen, 15.0% were sophomores, 28.0% were juniors, 30.1% were seniors, and 4.4% were graduate students. They were between the ages of 17 and 30 with a mean of 21.22.

Instrument

The Chinese version of the Career Decision-Making Difficulties Questionnaire (CCDDQ) was used in this study. It was developed by Tien (2001) based on the 44 difficulties listed by Gati et al. (1996). The author added six items specific to the cultural context in Taiwan. Those items included the concepts of family members' involvement in making a decision, the college entrance examination system, and economic and political development of the country. However, those items were not included in the final analysis in this study because the factor analysis for the 50 items did not indicate a convergence of the six items in the previous study (Tien, 2001).

According to Gati et al. (1996), the 44 items represent 10 distinct types of problems and are subsumed by three major categories of career difficulties. The first category, lack of readiness, includes three subcategories of difficulties: (a) lack of motivation, (b) general indecisiveness, and (c) dysfunctional beliefs. The second category, lack of information, includes four subcategories: (a) lack of knowledge about the steps involved in the process of career decision making, (b) lack of information about self, (c) lack of information about the various occupations, and (d) lack of information about the ways of obtaining additional information. The third major category is inconsistent information, which is the result of (a) unreliable information, (b) internal conflicts, and (c) external conflicts. Participants respond to a 9-point scale where 1 indicates relatively low difficulties and 9 indicates relatively high difficulties. The internal consistency of the 10 scales based on 307 college students (149 men and 158 women) ranged from .53 to .91 (Tien, 2001).

In addition to the items on the CCDDQ, all participants were asked to choose among five alternatives to indicate their decision status. Those five statements represented five different identity development statuses: (a) identity diffusion ("I am not sure about what to do in the future and I am not worried about it. Everything will be fine"); (b) anxious type of indecision ("I am worried about making decisions for my future. Even if I got enough information, it's still hard for me to make a decision"); (c) explorative type of indecision ("I am not sure about my future. If I can gather more information about myself and the world of work, it will be easier for me to make a decision"); (d) foreclosure ("I know what to do as my career in the future and I have never worried about it"); and (e) identity achievement ("I was worried about my future and did a lot of exploration. Now I am clear and have decided about what to do as my career"). The five statements were developed based on Marcia's (1966) classification of adolescent identity status. He divided the identity status into four groups: achievement, foreclosure, moratorium, and diffusion. In this study, I adapted the ideas of differences between indecision and indecisiveness (Herr & Cramer, 1996) and divided the moratorium members into two subgroups, anxious types of undecided and explorative types of undecided students. The anxious type of undecided student is theoretically related to the factors of indecisiveness. The explorative type of undecided student, on the other hand, is theoretically related to the factor of lack of

information about the world of work. In the current study, I combined the first three types (a), (b), and (c) of students as the undecided group because of the small cell number in each of the types. The (d) and (e) students were categorized as the decided group in the process of data analysis.

Procedure

The participants responded to the questionnaire in classes of 20 to 45 students in career planning–related courses. The questionnaires were mailed to 12 university counseling centers, and the counselors or the staff psychologists in the counseling center helped with the administrative procedure. The participants completed the Basic Information and Decision Status Questionnaire before the CCDDQ was administered. It took participants about 40 min to complete the questionnaires.

Data Analysis

To test the differences between decided and undecided groups of students on their perceptions of career difficulty, multivariate analysis of variance (MANOVA) was used. The decided group included students with identity achieved and foreclosure status. The undecided group, on the other hand, included the explorative/anxious undecided and identity diffusion students. Homogeneity of decided and undecided groups was tested to cope with the problem caused by different cell numbers. In addition, principle factor analysis (PFA) with an oblimin rotation was administered to examine the factor structure of the career difficulties perceived by college students. The PFA was applied because it is the most appropriate procedure for locating factor space after the dimensionality of instrument has been established (Merenda, 1997).

In additions, I used ADDTREE (Sattath & Tversky, 1977), a kind of cluster analysis algorithm used by Gati et al. (1996), to examine the empirical structure of the 10 scales of the CCDDQ. ADDTREE is compelling because it represents the proximity matrix in the form of an additive or “path length” tree, in which the variables are divided into clusters according to the proximity between them (Osipow & Gati, 1998).

RESULTS

Preliminary Analysis of the CCDDQ

The means, standard deviations, and reliabilities of the scale scores are presented in Table 1. The table also presents the number of items for each scale and

Table 1
Means and Intercorrelations Among the Chinese Career
Decision-Making Difficulties Questionnaire (CCDDQ) Scales (N = 521)

CDDQ Scales	R1	R2	R3	L1	L2	L3	L4	I1	I2	I3
Lack of Readiness										
Lack of Motivation (R1)										
Indecisiveness (R2)	15									
Dysfunctional Myths (R3)	-15	24								
Lack of Information										
About the Process (L1)	13	45	22							
About Self (L2)	17	53	17	71						
About Occupations (L3)	12	36	13	55	66					
About Ways of Obtaining										
Additional Information (L4)	06	35	19	55	63	65				
Inconsistent Information										
Unreliable Information (I1)	18	43	15	56	75	63	65			
Internal Conflicts (I2)	15	33	15	31	45	36	34	44		
External Conflicts (I3)	12	13	09	12	25	13	19	24	38	
Number of items	3	4	3	3	8	4	2	6	7	4
Reliability (α)	.67	.72	.63	.86	.91	.89	.81	.87	.61	.93
Mean	4.20	5.43	5.40	4.35	4.92	5.52	4.90	5.04	4.79	4.44
Standard Deviation	1.94	1.76	1.80	2.07	1.89	2.00	2.06	1.78	1.28	2.27

Note. All decimals in correlation coefficients are deleted.

intercorrelations among the scale scores. The means for the 10 scales seem reasonable and the standard deviations indicate an acceptable variability. The internal consistency for the 10 scales ranged from .61 to .93. Generally speaking, the scales related to information are more stable.

As far as the intercorrelations among the scale scores, intercorrelations within the lack of information category are much closer to each other. The unreliable information in the category of inconsistent information seems closer to the scale scores on the category of lack of information. Hence, we can categorize the unreliable information into the category of lack of information.

Discriminant Validity of the CCDDQ

Career difficulties perceived by college students were examined in terms of sex and decision status differences. Table 2 is a summary of MANOVA tests for sex and decision status differences. For the sex variable, male and female students' scores on the scales are not significantly different except for the scale Lack of

Table 2
Means, Standard Deviations, and Multivariate Analysis of Variance of the
Chinese Career Decision-Making Difficulties Questionnaire (CCDDQ)
Scales in Different Sex and Different Decision Status

CDDQ Scales	Sex					Decision Status					
	Men (<i>n</i> = 188)		Women (<i>n</i> = 329)		<i>F</i>	Decided (<i>n</i> = 197)		Undecided (<i>n</i> = 317)		<i>F</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
	Λ (10, 468) = .972					Λ (10, 464) = .729***					
Lack of Readiness											
Lack of Motivation	4.45	1.97	4.00	1.91	5.83*	4.56	1.98	3.50	1.67	35.67***	
Indecisiveness	5.28	1.86	5.58	1.70	3.24	5.85	1.62	4.87	1.83	36.85***	
Dysfunctional Myths	5.30	1.78	5.47	1.77	1.03	5.50	1.76	5.28	1.81	1.75	
Lack of Information											
About the Process	4.40	2.07	4.34	2.08	.09	4.97	2.04	3.33	1.70	81.62***	
About Self	4.96	1.85	4.93	1.91	.02	5.55	1.70	3.90	1.73	103.05***	
About Occupations	5.47	1.89	5.56	2.10	.21	5.94	1.83	4.86	2.17	33.83***	
About Ways of Obtaining Additional Information	4.90	1.96	4.94	2.10	.05	5.39	1.88	4.16	2.12	43.22***	
Inconsistent Information											
Unreliable Information	5.00	1.76	5.04	1.78	.06	5.59	1.53	4.06	1.74	99.94***	
Internal Conflicts	4.84	1.20	4.77	1.33	.27	5.10	1.17	4.29	1.32	48.36***	
External Conflicts	4.60	2.00	4.39	2.40	.89	4.81	2.12	3.90	2.41	18.77***	
Lack of Readiness	4.89	1.25	4.91	1.14	.02	5.27	1.04	4.29	1.16	90.00***	
Lack of Information	5.10	1.64	5.11	1.79	.01	5.64	1.56	4.21	1.67	88.42***	
Inconsistent Information	4.84	1.17	4.78	1.33	.24	5.21	1.06	4.12	1.31	98.06***	
Total	4.93	1.18	4.92	1.22	.01	5.36	1.00	4.20	1.17	132.58***	

p* < .05. **p* < .001.

Motivation. Males' average score on the Lack of Motivation scale are significantly higher than that of females.

As far as the differences between decided and undecided students, the *F* values of the MANOVA tests were all significantly different except for the scale Dysfunctional Myths. The means for the decided group were all lower than the means for the undecided group. This result indicated that decided students have a tendency to present themselves as having less difficulty than do undecided students.

Table 3 is a summary of MANOVA tests for students in different grades. In the 10 subscales, the grade differences on the four subscales were significant: Dysfunctional Myths, Internal Conflict, External Conflict, and Ways of Obtaining Additional Information. These results indicated that career difficulties relat-

Table 3
Means, Standard Deviations, and Multivariate
Analysis of Variance of the Chinese Career Decision-Making
Difficulties Questionnaire (CCDDQ) Scales in Different Grades

CDDQ Scales	Grade										F
	Freshman (n = 113)		Sophomore (n = 78)		Junior (n = 146)		Senior (n = 157)		Graduate (n = 23)		
	M	SD	M	SD	M	SD	M	SD	M	SD	
$\Lambda(12, 249) = .946$											
Lack of Readiness											
Lack of Motivation	4.71	2.09	4.00	1.86	3.96	1.71	4.07	2.02	3.97	1.93	2.72 [°]
Indecisiveness	5.79	1.61	5.54	1.90	5.57	1.70	5.24	1.82	4.54	1.60	3.07 [°]
Dysfunctional Myths	5.24	1.88	5.58	1.74	5.48	1.67	5.44	1.84	5.08	1.65	0.63
Lack of Information											
About the Process	4.90	2.19	4.65	2.18	4.49	1.92	3.90	1.97	3.08	1.63	6.28 ^{***}
About Self	5.26	1.80	5.02	1.86	5.21	1.90	4.58	1.90	3.96	1.55	4.28 [°]
About Occupations	6.12	1.77	5.44	1.83	5.65	2.01	5.16	2.16	4.70	2.33	4.60 ^{***}
About Ways of Obtaining Additional Information	5.28	2.15	4.92	1.95	5.05	1.92	4.66	2.10	4.18	2.06	2.21
Inconsistent Information											
Unreliable Information	5.42	1.81	5.08	1.66	5.19	1.77	4.68	1.74	4.16	1.66	4.27 [°]
Internal Conflicts	4.96	1.21	4.71	1.40	4.87	1.27	4.67	1.31	4.74	1.08	0.98
External Conflicts	4.54	2.36	4.31	2.17	4.70	2.03	4.42	2.47	3.53	1.85	1.34
Lack of Readiness	5.21	1.06	4.99	1.35	4.93	1.11	4.71	1.21	4.20	0.92	4.81 ^{***}
Lack of Information	5.51	1.61	5.12	1.68	5.31	1.75	4.76	1.76	4.20	1.63	4.89 ^{***}
Inconsistent Information	5.02	1.10	4.74	1.29	4.94	1.29	4.61	1.33	4.25	1.28	3.03 [°]
Total	5.23	1.07	4.94	1.24	5.06	1.18	4.69	1.22	4.22	1.15	5.48 ^{***}

[°] $p < .05$. ^{***} $p < .001$.

ed to personal dysfunctional beliefs, conflicts, and obtaining information are all concerns of individuals in different age groups in college.

Internal Structure of the CCDDQ

Because the difficulty scores produced by college students are different according to the students' decision-making status, separate factor analyses for decided and undecided students were conducted to examine the factor structure of the 10 scales. Table 3 is a summary of the second-order factor analysis for the two groups.

For students who have decided on their future directions, three factors were observed with eigenvalues greater than 1.0. Five of the 10 scales loaded on Factor 1. Loading heavily on this factor were scales related to information, such as Information About the Decision-Making Process, Information About Self, Information About Occupations, Information About Obtaining Additional Information, and Unreliable Information. The second factor, named conflict, includes two scales: Internal Conflicts and External Conflicts. Loading heavily on Factor 3 were Readiness scales, including Lack of Motivation, Indecisiveness, and Dysfunctional Myths. The three factors accounted for about 63.72% of the total variance.

For those undecided students, there were also three factors with eigenvalues greater than 1.0. Similar to the results for decided group of students, those with loadings on Factor 1 include the same five scales related to information plus the Indecisiveness scale in the readiness category. The scales loading on Factor 2 are Internal and External Conflicts. The third factor includes Lack of Motivation and Dysfunctional Myth scales in the category of readiness. The three factors accounted for about 63.09% of the total variance.

In addition to the factor analysis, a clustering algorithm called ADDTREE was applied to test the empirical model proposed by Gati et al. (1996). Figures 1 and 2 present the empirical structure of the 10 scales obtained by ADDTREE analysis of the intercorrelation matrixes for decided and undecided samples. The clustering structure in Figures 1 and 2 adequately summarizes the empirical relations among the scales: The variance that was linearly accounted for by the distances in the clustering structures was 98.8% and 98.5% for decided and undecided samples, respectively. The distance between any pair of scales in this clustering structure is represented by the sum of the horizontal segments on the shortest path connecting them. Thus, scales within the same cluster are generally more closely related to each other than those belonging to different clusters.

For the decided group of students, as can be seen in Figure 1, the 10 scales are grouped into three clusters except for the scale Lack of Motivation. The three major clusters, as proposed by Gati et al. (1996) are lack of readiness, lack of information, and inconsistent information. The cluster of lack of readiness includes, as expected, the scales of Indecisiveness and Dysfunctional Myths. The cluster of lack of information includes the scales of Lack of Knowledge About the Decision-Making Process, Lack of Information About Self, Lack of Information About Occupations, Lack of Information About Ways of Obtaining Additional Information, and Unreliable Information. Finally, the cluster of inconsistent information includes two scales, Internal Conflicts and External Conflicts. Lack of Motivation was clustered together with the category of inconsistent information.

For the group of students who are undecided in career decision making, Figure 2 indicates that the 10 scales were grouped into three clusters. However, the classification structure is a little bit different from that proposed by Gati et al.

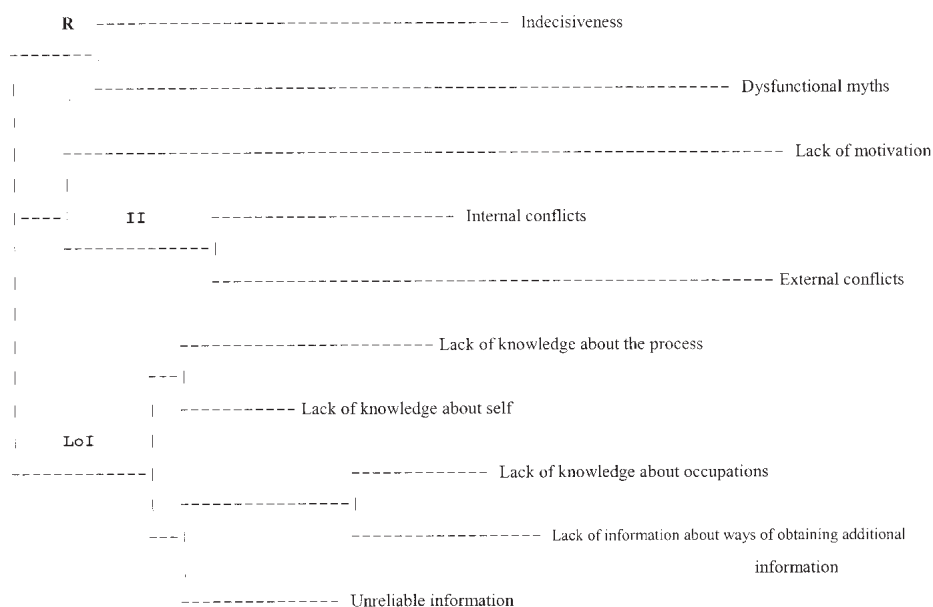


Figure 1. The empirical structure of the 10 difficulty scales—decided sample ($n = 197$).

Note. R = readiness; LoI = lack of information; II = inconsistent information.

(1996). The three major clusters, as proposed by Gati et al. (1996) are lack of readiness, lack of information, and inconsistent information. The cluster of lack of readiness includes the scales of Lack of Motivation, Indecisiveness, and Dysfunctional Myths. However, for the undecided students in this study, the three subscales were not clustered into the same category. The scale Dysfunctional Myths was independent as one category. The scale Indecisiveness was clustered within the category related to lack of information. The scale Lack of Motivation was clustered together with the category of inconsistent information.

DISCUSSION

Structure of the Chinese Version of the CCDDQ

The purpose of the study was to examine the properties and structure of the Chinese version of the CDDQ. Generally speaking, the results suggest that the empirical structure of the 10 CDDQ scales was similar to the theoretical model proposed by Gati et al. (1996). However, the structures varied upon further examination of the differences between career decided and undecided students.

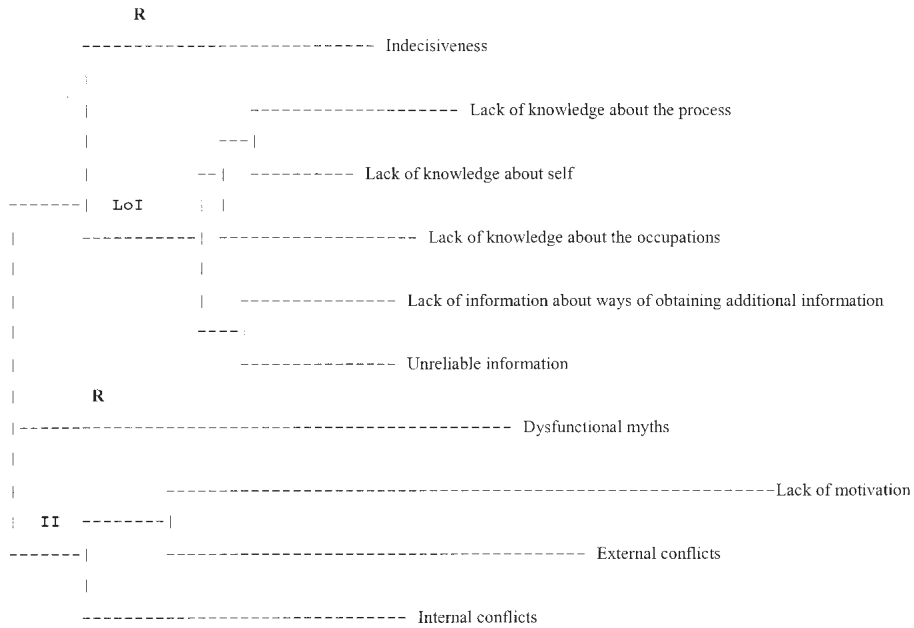


Figure 2. The empirical structure of the 10 difficulty scales—undecided sample (n = 317).
 Note. R= readiness; LoI = lack of information; II = inconsistent information.

For the participants who had made a career decision, the three major categories emerged as expected. Two exceptions were that motivation was located in the category of inconsistent information and unreliable information was located in lack of information. The two exceptions were reasonable in terms of their meanings of construct. Unreliable information is related to lack of enough vocational material. Lack of motivation might result from personal conflicts. It might also make individuals feel confused about information they receive from different people.

For the participants who are undecided in their career, the dysfunctional myths category was independent as one category. The other two scales on the readiness category did not emerge in the same group. The Indecisiveness scale was located within the category of lack of information. Motivation emerged in the category of inconsistent information. The structure of career decision-making difficulties perceived by undecided students did not fit the theoretical model very well in terms of its Readiness scale. More specifically, the scales on Lack of Information and Inconsistent Information emerged well as expected. However, the scales in Readiness mixed with scales in the other two categories. For undecided students, it is hard to differentiate the factor “prior to” from “during” the process of career decision making.

Table 4
Factorial Structure of the Career Decision-Making
Difficulties Questionnaire (CDDQ) on Two Groups

CDDQ Scales	Decided (<i>n</i> = 178)			Undecided (<i>n</i> = 297)		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Lack of Readiness						
Lack of Motivation (R1)			.591			.827
Indecisiveness (R2)			.723	.559		
Dysfunctional Myths (R3)			.572			.748
Lack of Information						
About the Process (L1)	.631			.793		
About the Self (L2)	.716			.874		
About the Occupations (L3)	.880			.825		
About Additional Information (L4)	.917			.780		
Inconsistent Information						
Unreliable Information (I1)	.693			.785		
Internal Conflicts (I2)		.628			.671	
External Conflict (I3)		.842			.872	

Note. Factor loadings under .5 were not listed.

Discriminant Validity of the Chinese Version of the CDDQ

As far as the discriminant validity, the results of the current study indicated the differences between decided and undecided students. Undecided students perceived more difficulties in career decision making. Similar studies also indicated the differences between decided and undecided students (Gati et al., 2000; Lancaster et al., 1999). With regard to the sex differences on career difficulty perception, not many studies verify the differences between males and females. The current study did not show a significant sex difference except for the Motivation scale. In summary, the discriminant validity of the Chinese version of the CDDQ was verified.

CONCLUSIONS AND SUGGESTIONS

I tested the theoretical model of the classification system for career decision difficulties. Five hundred and twenty-one college students completed the Chinese version of the CDDQ. Data obtained were analyzed by analysis of vari-

ance, factor analysis, and ADDTREE. The results indicated significant differences between decided and undecided students on their perceptions of career difficulties. The three-group classification system for career-decision difficulties was generally supported by the data in this study. The three groups of career difficulties were renamed as readiness, information, and conflicts.

In future research, the relationship between anxiety and career difficulty perception could be examined. It is strongly suggested that anxiety correlates with career indecision (Stead & Watson, 1993). Further studies are suggested to examine the relationships between those variables in Chinese culture.

In addition, Valde (1996) indicated that three subtypes of identity achievement might exist—exploration, tentative commitment, and openness to alternatives. For those who have decided future career directions, the process of making a decision might be different. It is necessary to further examine their perceptions of career difficulties and influences of those perceptions on career decision-making process.

For counseling practitioners, the CDDQ has the potential to serve as a diagnostic instrument in career counseling. The reliability and construct validity of the Chinese version of the CDDQ are good and could be applied in further research and counseling practice.

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