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Revision of the Career Maturity Inventory: The Adaptability Form

Mark L. Savickas[1] and Erik J. Porfeli[1]

Abstract

Initially administered in 1961, the Career Maturity Inventory (CMI) was the first paper-and-pencil measure of vocational development. The present research revised the CMI to reestablish its usefulness as a succinct, reliable, and valid measure of career choice readiness, with a few theoretically relevant and practically useful content scales for diagnostic work with school populations up to and including Grade 12. The new Form C was produced by combining rational organization of item content with confirmatory factor analysis (CFA). In the end, CMI Form C provides a total score for career choice readiness, three scale scores reflecting career adaptability dimensions of concern, curiosity, and confidence, and a score reflecting relational style in forming occupational choices. Initial evidence supports the face, construct, and concurrent validity of the CMI scores as indicators of career choice readiness.

Keywords

Career Maturity Inventory, Career Adaptability, Vocational Development

Initially administered in 1961, the Career Maturity Inventory (CMI) was the first paper-and-pencil measure of vocational development. The idea for the inventory evolved from Super's (1955) Career Pattern Study that investigated the process of making career choices, rather than the content of the choices. The word "maturity" was used to mean ripeness or readiness, so the CMI measures a student's readiness for making occupational choices. The 50 items, each answered true or false, elicit attitudes and beliefs that together form the dispositional response tendencies that mediate choice behaviors. The items were selected from a pool of 1,000 statements made by actual clients during educational and vocational counseling sessions.

Crites (1965) described the item selection process as "rempirical," meaning a combination of the best features from the rational and from the empirical methods of test construction. Following the empirical approach, the goal was to have the CMI measure maturation as a behavioral syndrome defined by the empirical relationship among the variables that comprise it. To select items empirically, Crites (1965) conducted a cross-sectional study of students in Grades 5–12 to identify items

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that showed an increasing monotonic function across these grades as well as a significantly higher mean score at Grade 12 than at Grade 5. This developmental gradient supported the construct validity of the inventory as a measure of maturation. Following the rational model, Crites wrote the items to state or describe the hypothetical construct of attitudes toward and beliefs about career decision making. To meet this rational or logical criterion, he selected from the empirically validated items, those items that represented attitudes and beliefs discussed in vocational development theory and inferred from relevant research findings. The statements deal with involvement in the preparing to choose, orientation toward intrinsic rewards, independence in decision making, preference for relying on different choice bases, conceptions of the choice process, decisiveness, and realism. In the end, the total score operationally defined vocational maturity as a behavioral syndrome and the items represented the hypothetical construct of attitudes toward and beliefs about career decision making.

By 1972, the CMI had been used in over 500 published projects, including research studies, program evaluations, and needs assessments. Scores from the inventory fit appropriately into a nomological network that centered on vocational development and correlated as expected with numerous motivational and personality variables. A few researchers criticized the CMI as a proxy for grade, socioeconomic status, or reading ability. Nevertheless, the accumulated research on the inventory provided strong support for its reliability and validity. The CMI has been used extensively by counselors to screen clients' readiness for different career interventions and to clarify the interpretation of interest inventory scores. Because the items had been selected rationally, in due course counselors learned that discussing the rationales for the test items, or "teaching the test," was an effective intervention both for individual counseling sessions (Savickas, 1990a) and for career education curricula (Savickas, 1990b).

A major limitation in the original CMI was addressed by the 1978 revision. Form A of the CMI was unidimensional, measuring only vocational maturity in general. For the 1978 revision, Crites rationally constructed scales to provide more specific diagnostic information. To form these scales, Crites added 25 items to the 50 items in Form A. These additional items were selected from the original pool of 1,000 items and also showed both the cross-sectional and the longitudinal developmental gradient. In the end, the 1978 Counseling Form B-1 included scale scores for orientation, involvement, independence, compromise, and decisiveness. The Counseling Form's total score remained based on the original 50 items in Form A-1 that were also included in Form B-1. Form A-2, with 50 items, became known as the screening form and Form B-1 with 75 items and five scales became known as the counseling form. The difference between Forms B-1 and A-2 is that for research and screening purposes, the 50 items in Form A-2 are sufficient. The total score associates strongly with decidedness, choice satisfaction, and vocational identity achievement (e.g., Holland, Gottfredson, & Nafzinger, 1973). For counseling purposes, the 75 items in Form B-1 added content scales to focus counseling conversations and career education instruction.

The next step in the evolution of the CMI saw publication of an adult version (Crites & Savickas, 1995). Although confusingly referred to as a revision of the CMI, the adult form should never have replaced Form A-2 nor Form B-1. The CMI adult form removed items specific to Grades 5–12 (e.g., I plan to follow the line of work my parents suggest). New items were written that applied to adult populations. The total number of items was cut to 25 to reduce administration time and content scales were eliminated. And finally, the response format changed from true or false to agree or disagree. In hindsight, the 1995 revision never succeeded. The revision was more conceptual than empirical. Counselors did not use it with adults and school personnel adopted it when they might have been better served by continuing to use the Screening Form A-2 or the Counseling Form B-1.

The goal for the present research was to revise the CMI in way that reestablishes its usefulness as a succinct, reliable, and valid measure of career choice readiness, with a few theoretically relevant and practically useful content scales for diagnostic work with school populations, possibly up to Grade 12. We also wanted to construct a revised and shortened screening form for career choice

readiness as well as a counseling form to focus interventions on specific content. We also decided to make the revision free to users, rather than a commercial product.

A distinctive feature of the new CMI Form C is the addition of theory. Similar to how Holland's theory was applied to Strong's inventory (Campbell & Holland, 1972), we wanted to apply Savickas' (2005) career construction theory to Crites' inventory. A central feature of career construction theory is the model of career adaptability. The theory defines career adaptability as a multidimensional construct that characterizes an individual's psychosocial readiness and resources for coping with current and imminent vocational development tasks, occupational transitions, and work traumas. Pertaining to the CMI, as students particular ''adapt-abilities'' increase, so too does the general readiness to make realistic occupational choices. Functioning as a set of self-regulation strategies, career adaptability enables individuals to effectively implement their self-concepts in occupational roles.

Four global dimensions of career adaptability are organized in a structural model with three levels, each named according to its function: concern, control, curiosity, and confidence. These four dimensions represent general adaptive resources and strategies. At the intermediate level, the model articulates a distinct set of functionally homogeneous variables for each of the four general dimensions. Each syndrome of variables includes specific attitudes, beliefs, and competencies that shape the concrete behaviors used to adapt. Attitudes fuel behavior while beliefs direct it. Although conceptually distinct, treating attitudes and beliefs both as dispositions, that is a state of mind toward something, has practical advantages in constructing psychometric inventories. For this reason the original CMI (Form A), and its predecessors the Career Concepts Test and the Vocational Development Inventory, included items representing both attitudes toward and beliefs about the career choice process. The CMI does not measure the cognitive competencies, which include comprehension and problem-solving abilities. The best current measure of career choice competencies is the Career Development Inventory (Savickas & Hartung, 1996) available at www.vocopher.com.

In career construction theory (Savickas, 2005), students should approach career choice tasks with concern for their futures, a sense of personal control over their careers, the curiosity to experiment with possible selves and explore social opportunities, and the confidence to engage in designing their occupational futures and executing plans to make them real. Career concern essentially means a future orientation, a sense that it is important to prepare for tomorrow. It disposes individuals to become aware of vocational development tasks and occupational transitions to be faced and choices to be made in the near and distant future. Different models of vocational development have referred to concern as planfulness, anticipation, awareness, involvement, and orientation. A lack of concern is called career indifference and it reflects planlessness and pessimism about the future. Career control means that an individual feels a responsibility for constructing a career through decisive, assertive, and conscientious actions. Rather than relying on chance or luck, it means choosing by taking a disciplined, deliberate, goal-oriented, and organized approach in performing vocational development tasks. A lack of career control may be called indecisiveness and enacted as confusion, procrastination, or perfectionism. Career curiosity refers to initiative in learning about the world of work that leads to information-seeking behaviors. It includes openness to new experiences, inquisitive exploration, and reflection about the fit between self and the work world. A lack of curiosity is called career unrealism and may be seen as naïveté about the work world and inaccurate images of the self. Career confidence denotes the anticipation of success in solving the complex problems involved in career decision making and occupational choice. It includes the sense of self-efficacy that one can successfully execute the behaviors need to cope with challenges and overcome obstacles in making and implementing choices. Individuals need confidence to act on their interests and aspirations. Lack of confidence is called career inhibition.

We examined the 75 items in Form B-1 and then selected a subset to create empirically derived scales that measure the four adaptability attitudes. We did not select any of the items that stated

beliefs, because they represent conceptions of career and work rather than attitudes toward career choice. We chose a total of 40 items, 10 for each attitude hoping that these rationally selected items would empirically form scales of 5–8 items each for concern, control, curiosity, and confidence. Selection of items to represent concern and confidence was straightforward. For curiosity, we had to use items that represent the products of curiosity rather than the processes of information seeking. Finding items in Form B-1 to operationally define a sense of control was difficult. There are 11 items in Form B-1 that deal with independence in decision making. These items were intended to measure the "extent to which an individual relies upon others in the choice of an occupation." A sample item is "I plan to follow the line of work my parents suggest." When these items were written in the early 1960s, the dominant cultural view was that students should make their own choices, and they were deemed to be immature if they relied upon their parents' choices for them. So, a response of true to the sample item would be scored as immature. Today, we better recognize cross-cultural differences regarding the role of parents in career decision making; therefore, the universal scoring of these items as immature is no longer appropriate. In this regard, Hardin, Leong, and Osipow (2001) criticized the cultural relativity of vocational development theories. They articulated the need to understand how different cultures approach career choice. The emphasis on independence seems less likely for some groups than others and that in collectivist cultures interdependence and involvement of the family may be the norm (Hardin et al., 2001). They warned against using independence as an indicator of career maturity, especially with individuals from ethnic groups low on acculturation.

Acknowledging that, in relation to context, either interdependence or independence may be mature has important implications for revising the CMI. In addition to cultural sensitivity, the independence items posed another issue. Independence as an interpersonal variable is not part of career construction theory. The theory views control as an aspect of intrapersonal processes that foster self-regulation, not interpersonal processes that affect self-regulation (Fitzsimons & Finkel, 2010). Careful examination of the independence items raised this concern about their fit to the definition of control as intrapersonal self-discipline and the processes of being conscientious, deliberate, goal-oriented, and organized in performing vocational development tasks and making occupational transitions. Its opposite is confusion not dependence. So with these reservations in mind, we proceeded to empirically examine whether the independence items could represent control or not.

Method

Having rationally selected four groups of items to represent the dimensions of career adaptability, the next step was to determine the fit of items to their intended constructs. Rational organization of the items provides no way of doing this, so we applied confirmatory factor analysis (CFA) to identify the latent constructs in the 40 manifest items. The data came from the following participants.

Participants

The participants in the study were 453 students attending Grades 9–12 in a Midwestern urban high school. Of these students, 216 were female (9th grade = 73; 10th grade = 74, 11th grade =26, and 12th grade = 43) and 237 were male (9th grade = 173, 10th grade = 138, 11th grade = 61, and 12th grade = 81).

Measures

The participants indicated their grade and sex and then responded to the 75 items in the CMI Counseling Form B-1 by indicating agree or disagree for each item. In addition, the students completed the Vocational Identity Scale (VIS). We administered the VIS to provide a validity check for

the revised CMI. The relation between the CMI Screening Form A-2 and the VIS is well established. We tested the relationships between the four adaptability constructs and the VIS to further assess the validity of the newly configured CMI.

VIS. The VIS measures the degree to which individuals possess a clear and stable picture of their goals, interests, and talents. The VIS evolved from research on the correlates on vocational indecision (Holland & Holland, 1977) and was derived from two earlier scales—the Vocational Decision-Making Difficulty Scale (Holland et al., 1973) and the Identity Scale (Greenberger, Josselson, Knerr, & Knerr, 1975). Holland, Gottfredson, and Power (1980) concluded that these two antecedent scales use different item content to measure opposite poles of the same dimension. Items from the two scales were selected empirically to form the VIS. In taking the VIS, participants respond "true" or "false" to 18 items. The total score is computed as the sum of the false responses. Holland, Daiger, and Power (1980) reported internal consistency KR-20 coefficients ranging from .86 to .89 for male and female high school students, college students, and workers. Brisbin and Savickas (1994) concluded that high VIS scores (about 14) indicate identity commitment, whether achieved or foreclosed, low scores (about 6) indicate avoidance of the choice process, and medium scores (about 10) indicate appropriate engagement in the choice process. Holland, Daiger, and Power (1980) suggested that counselors use the VIS to assess the degree to which a client needs vocational assistance, a good criterion against which to compare readiness to make a career choice as measured by the revised CMI.

Results

Because we had a theory guiding item selection, we used hierarchical CFA with items loading on either concern, control, curiosity, or confidence and the four constructs loading on readiness. The original model contained 10 items per scale; however, only 6 of the 10 items demonstrated sufficient loadings (e.g., >.3) on each factor. The hierarchical model was recomputed absent the items with weak loadings and the resulting model demonstrated adequate fit ($X^2 = 414.02$, $p > .01$; goodness-of-fit index [GFI] = 0.93; standardized root mean square residual [SRMR] = .051; root mean square error of approximation [RMSEA] = 0.038). The factors were composed of items reflecting concern, control, curiosity, and confidence. Coefficient alphas for the resulting four 6-item scales were concern = .62, control = .69, curiosity = .74, and confidence = .78. At first view, the scale scores appear to be meaningful, unidimensional, and marginally reliable with good face validity (Loadman, Broohart, & Wongwanich, 1991). The 24 items, responded to agree or disagree, are presented as 4 sets of 6 items. The items and scoring key appear in Appendix A.

As shown in Figure 1, the hierarchical CFA yielded a single higher order factor, which represents career choice readiness. With a single exception, the magnitude of the loadings of the first-order factors on the second-order factor of readiness is in the order expected: concern = .51, curiosity = .83, and confidence = .95. Inspection of the model in Figure 1 showed the problem anticipated for the control factor. The control scale correlated only .28 to the higher order factor of readiness. Although, even with the weak correlation of .28, the data fit the model being tested, this substantially lower correlation coincides with the warning by Hardin et al. (2001) not to regard the independence items as straightforward indicators of maturity or adaptability in a multicultural society.

Based on this comment about interdependence versus dependence, we chose to compute a total score for the CMI-Form C based on the sum of the 18 items for concern, curiosity, and confidence. We do not mean to say that the model of adaptability with 4 Cs was not supported, just that the 75 items in CMI Form B-1 did not provide a good pool of items to represent career control viewed as an intrapersonal variable, not an interpersonal variable such as independence in forming a career choice. Nevertheless, we did not discard the items we had selected to represent career control because they did correlate with readiness. After examining the content in the 6 control items, we

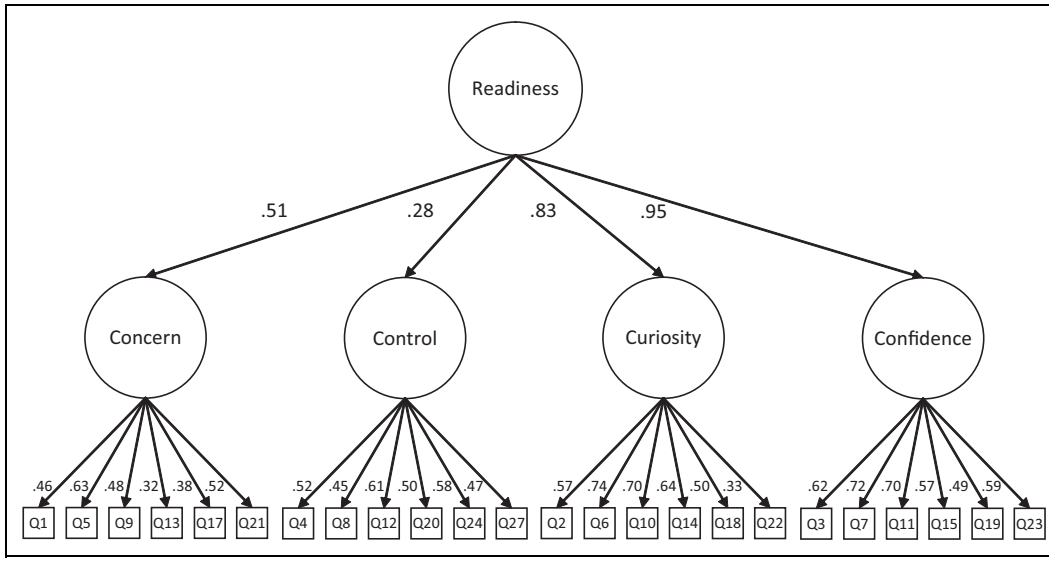

Figure 1. Measurement model of concern, control, curiosity, and confidence.

rekeyed them and named the resulting scale consultation rather than control. High scores on the consultation scale mean that the individual consults family and friends about career choices, in an interdependent relational style. Low scores mean that the individual prefers to make career choices with an independent relational style. Thus, the consultation scale reflects relational style or interpersonal strategy in constructing career choices. Not including the consultation scale in the total adaptability score recognizes the diversity of effective styles of adapting and does not, as do CMI Form A-2 and Form B-1, penalize individuals who define their identities largely through relationships with family members. Relationship partners can support goal orientation and pursuit while monitoring goal progress and achievement (Fitzsimons & Finkel, 2010). The final, 3-factor hierarchical model for concern, curiosity, and confidence appears in Figure 2. The correlations of the first-order factors to the second-order factor barely changed, all within .02 of each other relative to the 4-factor model and the model fit was quite good ($X^2 = 232.73$, $p > .01$; GFI = 0.95; SRMR = 0.047; RMSEA = 0.041).

The end result for the CMI Form C is that each respondent receives five scores. The first score is a total score for career choice readiness based on the 18 items in the Concern, Curiosity, and Confidence Scales. It measures an individual's degree of adaptability in career decision making and readiness to make occupational choices. The next three scores are for the Concern, Curiosity, and Confidence Scales. The Concern Scale measures the extent to which an individual is oriented to and involved in the process of making career decisions. The Curiosity Scale measures the extent to which an individual is exploring the work world and seeking information about occupations and their requirements. The Confidence Scale measures the extent to which an individual has faith in her or his ability to make wise career decisions and realistic occupation choices. The fifth score is for the Consultation Scale, which measures the extent to which an individual seeks assistance in career decision making by requesting information or advice from others. Higher scores suggest a more interdependent relational style and lower scores suggest a more independent relational style. The profile of five scores provides a good view of an individual's attitudes toward career decision making and readiness to make occupational choices. Based on the scores, counselors or career educators may design interventions that fit the specific needs of different clients and students, about which we will have more to explain later in this article.

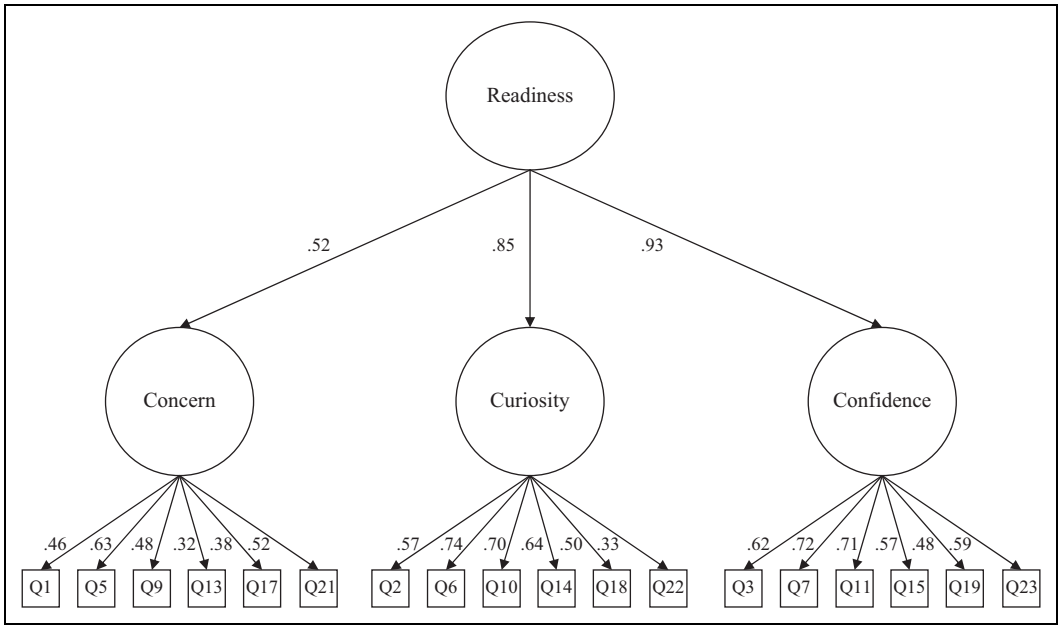

Figure 2. Measurement model of concern, curiosity, and confidence.

The response frequencies for each item appear in Table 1. With a dichotomous variable based on agree versus disagree, we did not expect normal distributions for the items. We did expect greater disproportions for items earlier in the developmental continuum from concern through confidence. This did occur as five on the six concern scale items had disproportionate splits between responses of agree and disagree. All students, even those in lower grades, are expected to score high on concern; students in middle grades should score high on concern and curiosity; and, students in the higher grades should score high on concern, curiosity, and confidence. Two of the consultation items also showed disproportionate splits between agree and disagree. For Item 8, 90% of students disagreed with the statement "If you have doubts about what you want to do, ask your parents or friends for advice." For Item 16, 76% of students disagreed with the statement "I will choose my career without paying attention to the feelings of other people."

The mean scores for the scales and their items by sex, grade, and total group appear in Table 2. An examination of the item and scale characteristics revealed sex differences for curiosity and confidence but not concern and control. The total score for males was about one point higher than for females, a difference statistically significant at the .01 level. Substantively this means females and males did not differ on concern and control, yet males seemed more likely to be curious and confident. The effect size of the difference for curiosity was about .30 and for confidence about .25. How to interpret this finding psychometrically and consequentially should be the focus of further research.

The scores did not show the increasing monotonic function that we had expected. However, based on the relatively small number of participants and the variability of the number of participants at each grade level, no firm conclusions can be drawn about the lack of a developmental gradient in the scale scores. Developmentally appropriate items for junior high students should be too easy for Grade 12 students.

Table 3 reports the coefficient alphas, means, standard deviations, and correlation coefficients for all scales used in the study. Coefficient alpha for the CMI Form C total score based on 18 items was .86. It also correlated .75 to the CMI Form A-1 total score for 50 items. More importantly, it

Table 1. Item Response Frequencies

	Items					
Concern	1	5	9	13	17	21
Agree	10.2	26.9	22.7	9.7	51.4	19.2
Disagree	89.8	73.1	77.3	90.3	48.6	80.8
Curiosity	2	6	10	14	18	22
Agree	50.3	56.3	50.1	58.7	52.5	59.8
Disagree	49.7	43.7	49.9	41.3	47.5	40.2
Confidence	3	7	11	15	19	23
Agree	62.3	43	44.4	59.4	85.4	49.4
Disagree	37.7	57	55.6	40.6	14.6	50.6
Consultation	4	8	12	16	20	24
Agree	54.3	9.9	35.8	23.8	46.8	35.3
Disagree	45.7	90.1	64.2	76.2	53.2	64.7

Table 2. Item and Scale Means and Standard Deviations for Males, Females, Grades, and Total Group

			Constructs				
			Concern	Curiosity	Confidence	Consultation	Total 3C
Grade	9th	*M*	4.46	2.66	2.57	5.23	9.69
		N	173	173	173	173	173
		SD	1.47	1.97	2	1.62	4.34
	10th	*M*	4.72	2.59	2.57	4.98	9.88
		N	138	138	138	138	138
		SD	1.34	2	1.93	1.69	4.36
	11th	*M*	4.66	2.30	2.36	4.85	9.31
		N	61	61	61	61	61
		SD	1.42	1.76	1.97	1.57	3.58
	12th	*M*	4.64	3.41	2.67	4.33	10.72
		N	81	81	81	81	81
		SD	1.37	1.96	2	1.81	4.3
	ANOVA	*F* value	0.93	4.59	0.29	5.32	1.5
		p value	.43	.00	.83	.00	.21
Sex	Male	*M*	4.54	3.05	2.82	4.87	10.4
		N	237	237	237	237	237
		SD	1.46	1.94	1.99	1.65	4.36
	Female	*M*	4.67	2.37	2.28	5.02	9.31
		N	216	216	216	216	216
		SD	1.35	1.95	1.91	1.74	4.13
	ANOVA	*F* value	0.98	13.82	8.66	0.87	7.44
		p value	.32	.00	.00	.35	.007
Sample		*M*	4.60	2.72	2.56	4.94	9.88
		N	453	453	453	453	453
		SD	1.41	1.97	1.97	1.7	4.28

correlated as expected with the five rational, content scales in Form B-1, offering some evidence of convergent validity. Concern correlated most highly with orientation (.51) and involvement (.51). Curiosity correlated most highly with decisiveness (.65) and compromise (.55). Confidence correlated with decisiveness (.83). Consultation correlated −.53 with independence.

Table 3. Scale Means, Standard Deviations, Correlations, and Coefficient Alphas

		M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	CMI-Form CCC (18 items)	9.88	4.28	.84	.63**	.86**	.86**	-.17**	.94**	.75**	.88**	.27**	.84**	.54**	.04	.84**
2.	Concern	4.60	1.41		.62	.32**	.34**	.03	.42**	.68**	.51**	.51**	.48**	.26**	.07	.40**
3.	Curiosity	2.72	1.97			.74	.64**	-.18**	.87**	.60**	.86**	.14**	.65**	.55**	.02	.73**
4.	Confidence	2.56	1.97				.78	-.20**	.88**	.55**	.69**	.10*	.83**	.44**	.01	.74**
5.	Consultation	4.94	1.7					.69	-.19**	0.02	-.14**	.18**	-.22**	-0.07	-.53**	-.19**
6.	CMI-Form CCS (10-item screen)	4.84	2.99						.83	.65**	.90**	.14**	.76**	.44**	.01	.79**
7.	CMI 50 items	31.46	5.17							.69	.70**	.62**	.65**	.48**	.21**	.61**
8.	Orientation	5.93	2.85								.81	.21**	.64**	.43**	.04	.78**
9.	Involvement	8.58	1.49									.52	.21**	.28**	.05	.21**
10.	Decisiveness	5.16	2.25										.64	.53**	.16**	.72**
11.	Compromise	3.43	1.46											.47	.10*	.50**
12.	Independence	6.82	1.74												.57	.06
13.	VIS	8.96	4.93													.87

Notes: CMI = Career Maturity Inventory.
** Correlation is significant at the .01 level (two-tailed).
* Correlation is significant at the .05 level (two-tailed).

Interpretation and Intervention

Whether a student defines self collectively or individually, he or she must still show career adaptability in displaying attitudes of concern, curiosity, and confidence regarding career decision making and occupational choice. For students scoring low on any of these dimensions, there are specific career development interventions that may be useful to them. With regard to concern, interventions that foster future time perspective or increase awareness of imminent and intermediate developmental tasks increase involvement and participation in the career decision-making process. For curiosity, the relevant interventions are those that arouse interest in exploring the future, learning information-seeking behaviors, or investigating appealing occupations. With regard to confidence, salient interventions build general self-esteem, increase decisional self-efficacy, and connect present behavior to future goals.

For the Concern, Curiosity, and Confidence scales, higher scores reflect more advanced development. To interpret the consultation scale score, we suggest using the cultural formulation model (Leong, 2010) in which counselors consider clients' cultural identity, cultural conception of career choice, cultural context, and cultural dynamics in the counseling relationship. This model helps counselors to formulate career interventions that integrate culture in meaningful ways, including sensitivity to acculturation (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). One important dimension of cultural conceptions of career choice, namely, tightness versus looseness, follows from socialization practices in a culture (Gelfand, Nishii, & Raver, 2006). Looser cultures allow adolescents more self-expression and individual distinctiveness in making career choices. Tighter cultures impose more restraint, monitoring, and sanctioning on adolescents' career choices. They permit less flexibility, with adolescents' career choices more closely linked to ethnic belongingness and family wishes. The consultation scale score reflects a continuum of family career conversations from "do as we advise" to "it is up to you." These conversations and accompanying scores must be assessed in cultural context. Assessment differs from measurement in giving broader meaning to the scores. For example, a student raised in a family with looser cultural conceptions who scores high on consultation might be viewed as dependent or foreclosed. In comparison, a student socialized in a family with a tighter cultural conception who obtains the same score may be viewed as using an effective and harmonious interdependent style. In other words, interpretation of consultation scale scores depends on cultural identity and formulation of how to make adaptive career choices, with tightness suggesting that the family chooses together and looseness suggesting the adolescent choose alone.

Teaching the Test

A general intervention to increase readiness and foster adaptability consists of "teaching the test." Unlike intelligence and personality tests, teachers and counselors want students to know the more adaptive attitudes so counselors may teach them directly. Counselors may use the CMI Form C item rationales to teach the test once a student completes it. The counselor or educator may begin the process with a general introduction about career choice readiness dealing with the process of career decision making, not the content of occupational choices. The content answers the question of "Which occupation have you chosen?" In comparison, the process answers the question of "How did you make that choice?" Many students quickly comprehend the metaphor of the assembly line. The decisional process resembles the assembly line while the content of the occupational choice resembles the product.

After introducing the idea of adaptability and the decision-making process, the career counselor or educator directs the student's attention to the importance of career concern in being oriented to, aware of, and involved in thinking about future career. Career educators, in working with classrooms or groups, proceed to discuss the rationale for each of the 6 concern items. The career counselor,

especially in working with individuals, may use a three-step cycle of non-directive exploration, directive shaping and active learning. They may begin by reading an item that the student responded to in the wrong direction and asking "What did you have in mind when you agreed with this item?" To draw out the student's attitude and probe the beliefs, feelings, and behavioral tendencies associated with it, the counselor may use non-directive responses such as open questions, restatement of relevant content, reflection of feeling, silence, and clarification of meaning. After exploring the student's outlook, the counselor actively uses responses that elicit and shape a more adaptive view. The counselor teaches the student the rationale for the item and uses values confrontation to create dissonance about less adaptive attitudes. During the ensuing discussion, the counselor may use responses such as instruction, persuasion, verbal modeling, storytelling, and reinforcement to help students reduce the felt discrepancy by reconceptualizing the beliefs and forming new attitudes. Counselors use their expertise, trustworthiness, and attractiveness to block unproductive paths to dissonance reduction. When the student orally expresses a new attitude, the counselor encourages the student to translate it into goal-directed vocational behavior. The counselor may use responses such as behavioral modeling, homework assignments, role-playing, and feedback to guide instrumental learning. This completes the three phases in the item discussion cycle. Accordingly, the counselor moves to the next item that the student answered in the less-advanced direction. In examining the new item, the counselor listens to hear if the student has integrated and generalized pertinent insights that were learned in discussing the previous item. If the earlier learning has not generalized to the new item, then the counselor proceeds to the directive shaping and active learning steps. After discussing the student's answer, the counselor explains the item's rationale in context of the ideas just expressed by the student. This process is repeated in turn for career curiosity, confidence, and consultation.

Of course there are other ways to use the item rationales to prompt discussion of career choice attitudes and increase their adaptability. A few counselors use the item discussion cycle without first administering the inventory. Other counselors have used the rationales in process-oriented career counseling groups. These groups do not address which occupational choice (content) is right for each group member, but instead deal with the approach to decision making (process) that is right for most everyone in the group. This approach works best when the counselor enlists group dynamics in the item discussion cycle. For example, those group members who have already developed a particular attitude receive reinforcement and serve as role models to other group members who are still developing that disposition.

In classroom settings, in addition to the already mentioned approaches, career educators teach the four Cs first and then administer the CMI as a method to evaluate the success of this approach to instructional counseling.

Screening Form

For researchers and career educators, we also constructed a Screening Form consisting of 10 items. We selected these items based on their correlations with the VIS, choosing the items from the original 75-item pool that correlated highest with the VIS total score. Coincidentally, these 10 items all appeared in the 18 items chosen empirically to represent readiness. The items and scoring key appear in Appendix B. The alpha for the Screening Form is .83. It correlates .94 with the CMI Form C (18 items, with 10 overlapping) and .69 with the CMI Form A-2 (50-item form, with 10 overlapping) and .79 with the VIS. The scale appears to be unidimensional based on a factor analysis of the 10 items. A single factor explained 42.8% of the variance and the second factor did not exceed an eigenvalue = 1. Item loadings on the single factor ranged from .46 to .68, with half of the items loading .62 or higher, four loading .52 or higher, and one loading. 46.

Because we hoped that the screening form could be use similarly to the VIS, we compared the CMI Screening Form to the VIS. The VIS, with a coefficient alpha of .87, correlated .84 with the 18 items in Form C and .79 with the 10-item Screening Form. This finding provides some external validity evidence. To examine overlap in content coverage between the CMI Screening Form and the VIS, we computed an exploratory factor analysis of the 18 items of the VIS together with the 10 items of the Screening Form. This analysis produced six factors with eigenvalues greater than one. For the first factor, CMI Items 5, 6, and 8 (3 confidence items) loaded with VIS Items 8 and 10. This first factor taps being undecided, meaning that it is difficult to choose and I am unsure what to do about it. For the second factor, VIS Item 11 loaded with CMI Items 2, 3, 9, and 10 (curiosity items). This factor involves the need for occupational information. For the third factor VIS, Items 12 and 13 loaded with CMI Item 4. The factor suggests that no occupation appeals to the individual. The fourth factor was composed solely by VIS items—2, 4, 15, and 16. The factor indicates a lack of self-knowledge, especially about abilities and interests. For the fifth factor, VIS Items 1 and 18 loaded with CMI Item 1 (a confidence item). The factor suggests a desire for reassurance that the right choice has been made. And finally, the sixth factor consisted of VIS Items 7 and 14 along with CMI Item 7. It represents procrastination. Thus, the comparison between the VIS and the CMI Screening Form shows strong overlap with the exception that the VIS includes 3 items that deal with self-knowledge questions about strengths and weaknesses. All 10 of the CMI screening items loaded significantly on some factor. VIS items not loading on any of the six factors were 5, 6, 9, and 17. They deal with confusion about the choice process and having an unstable choice. In sum, the CMI Screening Form as compared to the VIS deals primarily with indecision and lack of information and secondarily with procrastination and needing reassurance. Its deficit is not dealing explicitly with self-appraisal regarding occupational abilities and interests. Nevertheless, the Screening Form provides a good indicator of readiness for making career decisions and occupational choices.

The Screening Form obviously differs from the Counseling Form in being much shorter. It may be used by researchers who want a single indicator of career choice readiness, with high scores suggesting decidedness and vocational identity commitment. Estimating VIS scores from the CMI screening scores, based on a regression model computed in this study, may be done by multiplying the CMI Screening Form score by 1.3 (slope) plus a constant (intercept) of 2.6. The Screening Form has a mean of 5 and a standard deviation of 3. Our analysis suggests that CMI Screening Form scores of 9 and 10 indicate a readiness to engage effectively in making career decisions and occupational choices as well the attitudes needed to benefit from the results of interest inventories and aptitude tests. Scores of 4–8 reflect the need to foster greater readiness for making career choices and suggest that useful intervention might concentrate on systematic exploration, occupational information, and training in decision making. Scores of 3 and below suggest strong indecision and identity confusion, possibly indicating the need for personal counseling. School counselors, career educators, and college orientation instructors, may use the screening form, with these score guidelines, to group students according to their readiness to benefit from different career interventions.

Discussion

The present research revised the CMI by applying the theory of career construction to the 75 items in Form B-1. The revision concentrated on using attitude items and eliminated the use of belief items. The new Form C was produced by combining rational organization of item content with factor analysis to group items. In the end, CMI Form C provides a total score for career choice readiness, three scale scores reflecting adaptability dimensions of concern, curiosity, and confidences, and a single score reflecting relational style in forming occupational choices. The meaning of the scales, as simple sums, indicative of attitudes toward career choice was a priority because we wanted

meaningful, reliable scales that were clear and understandable. The initial validity study suggests that the scores from these scales appear to be interpretable, reliable, and valid.

In providing two Forms, the Counseling Form and the Screening Form, we aimed to serve two audiences. The Counseling Form is intended for use by counselors and educators who wish to tailor career interventions to the specific needs of their clients and students. Particular interventions may concentrate on career concern, curiosity, or confidence. The Screening Form is intended for researchers and academic/career orientation directors who may administer this shorter form to large numbers of students to determine general level of career choice readiness and decisional adaptability. Students with higher scores may be guided to occupational exploration in depth, especially using interest inventories interpretations and experiential education. Students with lower scores may be guided to exploration in-breadth, especially using values clarification and identity development interventions (Porfeli & Skorikov, 2010). In terms of vocational assessment, the CMI, whether the Counseling Form or the Screening Form, indicates a client's career choice readiness, including readiness for different types of interest inventories. Low scores suggest the need for exploration-in-breadth so counselors might consider administering inventories such as the Self-Directed Search, which teaches students how the world of work is organized and where they might fit into it. High scores suggest the need for exploration-in-depth so counselors might consider administering inventories such as the Strong Interest Inventory, which indicates degree of resemblance to workers in specific occupations.

Appendix A

Career Maturity Inventory—Counseling Form C

John O. Crites and Mark L. Savickas

1. There is no point in deciding on a job when the future is so uncertain.
2. I know very little about the requirements of jobs.
3. I have so many interests that it is hard to choose just one occupation.
4. Choosing a job is something that you do on your own.
5. I can't seem to become very concerned about my future occupation.
6. I don't know how to go about getting into the kind of work I want to do.
7. Everyone seems to tell me something different; as a result I don't know what kind of work to choose.
8. If you have doubts about what you want to do, ask your parents or friends for advice.
9. I seldom think about the job that I want to enter.
10. I am having difficulty in preparing my self for the work that I want to do.
11. I keep changing my occupational choice.
12. When it comes to choosing a career, I will ask other people to help me.
13. I'm not going to worry about choosing an occupation until I am out of school.
14. I don't know what courses I should take in school.
15. I often daydream about what I want to be, but I really have not chosen an occupation yet.
16. I will choose my career without paying attention to the feelings of other people.
17. As far as choosing an occupation is concerned, something will come along sooner or later.
18. I don't know whether my occupational plans are realistic.
19. There are so many things to consider in choosing an occupation, it is hard to make a decision.
20. It is important to consult close friends and get their ideas before making an occupational choice.

21. I really can't find any work that has much appeal to me.
22. I keep wondering how I can reconcile the kind of person I am with the kind of person I want to be in my occupation.
23. I can't understand how some people can be so certain about what they want to do.
24. In making career choices, one should pay attention to the thoughts and feelings of family members.

Response format = Agree—Disagree
Scoring key
Concern = 1 (D), 5 (D), 9(D), 13(D), 17(D), 21(D)
Curiosity = 2(D), 6(D), 10(D), 14(D), 18(D), 22(D)
Confidence = 3(D), 7(D), 11(D), 15(D), 19(D), 23(D)
Consultation = 4(D), 8(A), 12(A), 16(D), 20(A), 24(A)

Appendix B

Career Maturity Inventory—Screening Form S

1. I can't understand how some people can be so certain about what they want to do.
2. I don't know what courses I should take in school.
3. I know very little about the requirements of jobs.
4. I really can't find any work that has much appeal to me.
5. I often daydream about what I want to be, but I really have not chosen an occupation yet.
6. Everyone seems to tell me something different; as a result I don't know what kind of work to choose.
7. There are so many things to consider in choosing an occupation, it is hard to make a decision.
8. I keep changing my occupational choice.
9. I don't know how to go about getting into the kind of work I want to do.
10. I am having difficulty in preparing myself for the work that I want to do.

Response format = Agree—Disagree
All items keyed as Disagree

Appendix C

Career Maturity Inventory Item Rationales for "Teaching the Test"

John O. Crites and Mark L. Savickas.

Concern—extent to which an individual is oriented to and involved in the process of making career decisions. The first step in the career decision-making process is to become aware of the choices that you must make in the immediate and intermediate future. Anticipating the decisions that you will make should prompt you to become involved in preparing to make the choices. This foresight includes becoming familiar with how people choose occupations and develop careers. Then you can get involved and actively participate in the process of preparing to make occupational choices. You might begin by envisioning yourself in the work world and imagining yourself in various occupations.

The CMI included six questions to measure your degree of concern. The questions and their rationales follow.

1. There is no point in deciding on a job when the future is so uncertain.

The more career adaptive response to this statement is disagree. While it is true that you cannot be absolutely certain about what tomorrow will bring, most of us have at least some control over the future. Thus it is important to plan ahead and take an active role in shaping the future. You should be actively involved in determining what your future will be like.

5. I can't seem to become very concerned about my future occupation.

The more career adaptive response to this statement is disagree. It is important to become aware of and concerned about career choices which you have to make in the future so that when the time comes will be prepared to make these decision competently and confidently.

9. I seldom think about the job that I want to enter.

The more career adaptive response to this statement is disagree. You cannot make a wise decision without giving the process some serious thought. Most of us do not fall into an occupation by chance, but rather plan and prepare for our entry into the work world.

13. I'm not going to worry about choosing an occupation until I am out of school

The more career adaptive response to this statement is disagree. Although it is unwise to choose an occupation too early, you should begin to seriously consider your occupational goals while still in school, so that you can pursue a course of study that will prepare you for entering an occupation.

17. As far as choosing an occupation is concerned, something will come along sooner or later.

The more career adaptive response to this statement is disagree. Occupations do not usually "come along." Most people choose an occupation and then take an active role in planning and preparing to enter it. You should commit yourself to preparing for the future.

21. I really can't find any work that has much appeal to me.

The more career adaptive response to this statement is disagree. Most people can find some kind of work that they would like to do. If you cannot find any kind of work that you would like, you have probably not taken the opportunity to learn about the many occupational opportunities that exist. You need to get involved in exploring occupations and possible futures.

Curiosity—extent to which an individual is exploring the work world and seeking information about occupations and their requirements. You can reduce confusion concerning the career decision-making process by exploring your own abilities and interests along with occupations that fit your personality and talents. Jobs differ significantly in requirements, routines, and rewards. In addition, you will find great variety in the life-styles of workers in different occupations. You may wish to begin the information-seeking process by consulting a guidance counselor or advisor for assistance in self-assessment and occupational exploration. Or, you may begin to explore occupations right now by opening an internet browser to http://online.onetcenter.org.

The CMI included six questions to measure your degree of curiosity. The questions and their rationales follow.

2. I know very little about the requirements of jobs.

The more career adaptive response to this statement is disagree. It is probably impossible and unnecessary for you to know the requirements for all jobs, yet you should know the requirements for

occupations that you are considering. In fact, you should gather quite a bit of information about three or four occupations that appeal to you. You may easily acquire this information from literature published by various professional organizations and governmental agencies, talking with people in various occupations, and the internet (http://online.onetcenter.org).

6. I don't know how to go about getting into the kind of work I want to do

The more career adaptive response to this statement is disagree. There are many sources of information available which will tell you how to go about entering an occupation. You should consult these sources, so that you can take the necessary steps to enter the occupation you want. As a first step, look for job requirements online at http://online.onetcenter.org.

10. I am having difficulty in preparing my self for the work that I want to do

The more career adaptive response to this statement is disagree. If you have chosen an occupation that is compatible with your abilities and interests, you should not be experiencing great difficulty in preparing yourself for that occupation. If you are, perhaps you should reconsider your choice or even talk with a school counselor or academic advisor.

14. I don't know what courses I should take in school

The more career adaptive response to this statement is disagree. You may have doubts about course requirements, but you should be able to find out what courses to take from your school counselor or academic advisor.

18. I don't know whether my occupational plans are realistic.

The more career adaptive response to this statement is disagree. If you wonder whether your plans are realistic, you might need to assertively investigate their feasibility. It is wise to stretch yourself and choose an occupation that will challenge you. However, if you are overambitious you will experience frequent frustration. Try to choose a job that is compatible with the person you are or can become, not one suited for the person you wish you could be. Plans that prove to be overambitious may benefit from revision.

22. I keep wondering how I can reconcile the kind of person I am with the kind of person I want to be in my occupation.

The more career adaptive response to this statement is disagree. If you are bothered by this doubt, you should deal with it head on rather than just wondering. Identify the aspects of potential conflict which concern you and then attempt to work out a reasonable plan to resolve the potential problem.

Confidence—extent to which an individual has faith in her or his ability to make wise career decisions and realistic occupation choices. Career confidence means that you anticipate success in solving the problems and overcoming the challenges involved in career decision making and occupational choice. You must trust in your ability to handle the complex challenges that you might face as you choose an occupation and develop your career. You also may need assurance and reassurance to stick with and act on an occupational choice that you have made.

The CMI included six questions to measure your degree of confidence. The questions and their rationales follow.

3. I have so many interests that it is hard to choose just one occupation.

The more career adaptive response to this statement is disagree. Even if you have several interests, you can decide to consider your abilities, values, and job opportunities as a means of narrowing your choices to a manageable number.

7. Everyone seems to tell me something different; as a result I don't know what kind of work to choose.

The more career adaptive response to this statement is disagree. Regardless of the different things that people may tell you, you should choose an occupation which you think you might like and in which you think you can find success.

11. I keep changing my occupational choice.

The more career adaptive response to this statement is disagree. While you should not stick to an occupational choice which you feel is no longer appropriate, it is costly and inefficient in terms of time, effort, and money to keep changing your vocational goals.

15. I often daydream about what I want to be, but I really have not chosen an occupation yet.

The more career adaptive response to this statement is disagree. People sometimes have dreams about what they would most like to do if they could do anything they wanted, but you should begin to seriously consider occupations which you have a good chance of entering on the basis of your interests, abilities, and available opportunities.

19. There are so many things to consider in choosing an occupation, it is hard to make a decision.

The more career adaptive response to this statement is disagree. Although interests, abilities, values, and occupational opportunities all should be considered in choosing an occupation, a person committed to making a choice can handle these factors. If you don't already have the necessary information, you may benefit from talking with a school counselor or academic advisor.

23. I can't understand how some people can be so certain about what they want to do.

The more career adaptive response to this statement is disagree. If you choose a job wisely—one that you are really interested and one that you can do—you should be fairly certain about your choice and enthusiastic about entering the occupation.

Consultation—extent to which an individual seeks advice from others in making career decisions and occupational choices. The most important advice to seek from other people is information about how to make wise and realistic choices, not what specific occupation you should choose. When it comes to actually choosing a specific occupation, each of us needs to find a balance between choosing occupations by ourselves and with our parents. Some people prefer to consult significant people in their lives while other people prefer to make choices on their own. There is no one correct way to involve relatives and friends in your career decision making. The balance between choosing with them or by yourself is up to you. You will feel best, in the long run, if you make career decisions based upon the way things look to you.

The CMI included six questions to measure your preferences about consulting family and friends about your occupational future. The questions and their rationales follow.

4. Choosing a job is something that you do on your own.

The more consultative response to this statement is disagree. It may be helpful to have advice, especially from counselors and advisors, about making wise decisions and choosing realistic occupations before you make the final decision.

8. If you have doubts about what you want to do, ask your parents or friends for advice.

The more consultative response to this statement is agree. Your parents and friends can offer helpful suggestions, yet they may be unaware of many occupations which exist and for which you may be equally well-suited. Even with the very best intentions, some parents may occasionally make inaccurate estimates of their children's abilities or existing occupational opportunities. If you seek assistance in choosing an occupation, then you should also consult a school counselor or academic advisor.

12. When it comes to choosing a career, I will ask other people to help me.

The more consultative response to this item is agree. Their suggestions may provide useful information for you to consider. They may be able to offer suggestions or provide opportunities that you can use to shape your future.

16. I will choose my career without paying attention to the feelings of other people.

The more consultative response to this item is disagree. Parents and friends are usually willing to assist you in the process of making career decisions. In seeking their suggestions you might emphasize your need for guidance on how to go about choosing an occupation. This will help them to understand that you are not asking them to choose for you.

20. It is important to consult close friends and get their ideas before making an occupational choice.

The more consultative response to this item is agree. Parents can often provide you with helpful information concerning occupations. You should take this information under consideration as you make you occupational choices. Occasionally, family members may suggest a line of work for which you are not best suited.

24. In making career choices, one should pay attention to the thoughts and feelings of family members.

The more consultative response to this item is agree. Regardless of the different things that people may tell you, you should choose an occupation which you think you might like and in which you think you will find success.

Appendix D

High School Norms

High School Norms

CMI-C		Concern		Curiousity		Confidence		Consultation	
Total_Score	Percentile	Score	Percentile	Score	Percentile	Score	Percentile	Score	Percentile
1	2	1	1	1	19	1	22	1	2
2	3	2	3	2	36	2	39	2	5
3	5	3	13	3	56	3	61	3	8
4	9	4	35	4	74	4	77	4	29
5	13	5	61	5	88	5	93	5	52
6	18	6	85	6	95	6	96	6	75
7	25								
8	33	Mean	4.6	Mean	2.72	Mean	2.56	Mean	4.94
9	42	SD	1.4	SD	1.97	SD	1.97	SD	1.7
10	52								
11	59								
12	72								
13	78								
14	82								
15	90								
16	93								
17	95								
18	99								
Mean	9.88								
SD	1.28								

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