Developmental Issues in Career Maturity and Career Decision Status

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There is considerable diversity in the literature regarding age and gender differences on career maturity and career decision status. There is also a dearth of data on high school samples. The present study reports cross-sectional data from 1,971 Australian adolescents, ages 12.51–17.99 years, who completed the Career Decision Scale (S. H. Osipow, C. G. Carney, J. Winer, B. Yanico, & M. Koschier, 1976) and the Career Development Inventory (Australian; J. Lokan, 1984). Results illustrated a developmental progression in career maturity, although a less uniform pattern emerged with gender differences. Findings regarding career indecision also presented a complex picture and highlight the need to focus on other demographic and contextual factors.

Career maturity is central to a developmental approach to understanding career behavior and involves an assessment of an individual's level of career progress in relation to his or her career-relevant development tasks (Crites, 1976). It refers, broadly, to the individual's readiness to make informed, age-appropriate career decisions and cope with career development tasks (Savickas, 1984). Definitions include the individual's ability to make appropriate career choices, including awareness of what is required to make a career decision and the degree to which one's choices are both realistic and consistent over time (Levinson, Ohler, Caswell, & Kiewra, 1998). Crites's (1971) model of career maturity proposed that it consists of affective and cognitive dimensions. The cognitive dimension is composed of decision-making skills; the affective dimension includes attitudes toward the career decision-making process.

Theoretically derived from Super's (1990) career development theory, the construct of career maturity has undergone recent criticism. Vondracek and Reitzle (1998) have criticized the construct's focus on the individual, its ties to developmental stage models, and its lack of inclusion of contexts of time and culture. These authors suggested that the assumption of identifiable age-related maturational regularities in career maturity might be affected by other variables (e.g., his-

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torical time, cultural and economic context) and the individualization of educational pathways. However, despite this theoretical critique and a more far-reaching theoretical debate (Savickas, 1994), Vondracek and Reitzle emphasized the practical utility of career maturity data, particularly for work with adolescents, a view echoed by Raskin (1998). In addition, Ohler and Levinson (1994) supported the relevance of assessing career maturity in preparation for developing and improving both counseling and education programs for adolescents.

Research into career maturity has investigated various aspects of the construct (see Patton & Lokan, 2001; Savickas, 1994; Westbrook, 1984 for reviews). Work investigating the correlates of career maturity has focused on several variables, including age, gender, socioeconomic status, ethnicity, and intelligence or grade point average. Because our study focused on age and gender, we reviewed studies with these variables.

Career Maturity and Age

The literature is far from united on the presence of differences on scores of career maturity based on age and gender. Regarding age, although theoretical assumptions suggest uniform development in career maturity, practical considerations such as the planning activities needed for immediate decisions at transition points imposed by the education system suggest uneven development. Early work with the Career Development Inventory (CDI; Super, Thompson, Lindeman, Jordaan, & Myers, 1981) found significant differences in career maturity scores between Grades 9 and 10, and between Grades 9 and 11 and 9 and 12 (Thompson & Lindeman, 1981). Early work with the Career Maturity Inventory (CMI; Crites, 1973) showed an incremental increase in career maturity from Grade 9 to Grade 12 (Herr & Enderlein, 1976). Other work has also shown that students in higher grades have higher career maturity scores than those in lower grades (Neice & Bradley, 1979; Post-Kammer, 1987; Wallace-Broschius, Serafica, & Osipow, 1994).

In contrast, in research reported by Fouad (1988) for a U.S. sample, 9th graders did not score lower than 12th graders. In this same study, Fouad reported an increase across grades in an Israeli sample, findings that have been reported in studies in Australia (Lokan, 1984), Canada (Alvi & Khan, 1983), South Africa (Watson & Van Aarde, 1986), Nigeria (Achebe, 1982), and Lebanon (Moracco, 1976).

Some researchers have commented that career maturity may be more usefully differentiated by grade rather than age because of the influence of the educational milieu as the primary agent of the development of career behavior and the grade-related career decisions students are required to make (Watson & Van Aarde, 1986). More recently, however, Powell and Luzzo (1998) demonstrated no relationship between age or grade of participants and their levels of career maturity. These authors suggested that this may have been due to a uniform program of career development activities at the school or to contextual factors, such as perceived occupational opportunity and exposure to occupational alternatives that may be more influential in career development than age or class. It is probable that the educational milieu is becoming a less significant factor in the development of career maturity.

Career Maturity and Gender

Research findings exploring the **impact of gender on career maturity** are also far from equivocal. Most studies conducted over two decades have found that females in several age groups have higher scores on career maturity measures than males (Alvi & Khan, 1983; Herr & Enderlein, 1976; King, 1989; Lokan, 1984; Luzzo, 1995 Westbrook, 1984). In other studies (Fouad, 1988), females were higher on some subscales only. However, Achebe's (1982) study in Nigeria reported that males scored higher than females.

Career Decision Status

A more specific aspect of career maturity is **career decision status**, defined by the Career Decision Scale as certainty or indecision (CDS; Osipow, Carney, Winer, Yanico, & Koschier, 1976). Considerable attention has been focused on the individual's acquisition of mature career decision-making attitudes and competencies; however, there has also been focus on individuals who have not yet mastered one of the major career decision-making tasks, that is, making a career decision (Walsh & Betz, 1990). In essence, career maturity is a measure of readiness to make career decisions on the bases of attitudes toward and knowledge of career decision making (Powell & Luzzo, 1998). The assessment of career indecision provides information about the specific issues that might inhibit individuals in making career decisions. The extent and nature of career indecision is a relevant aspect of career development maturity and is a useful theoretical construct for providing a criterion index for the development and evaluation of career interventions.

Career Decision Status and Age

Cross-sectional research has shown no consistent monotonic pattern across age and school grade levels (Neice & Bradley, 1979; Stead, 1989) regarding **certainty or indecision, the two aspects of career decision status**. It is not necessarily expected that career indecision and certainty would illustrate a developmental pattern because scores on these variables are affected by school- and work-related transition points. However, as discussed, age-related data are important because the construct is used to provide a criterion index for the development of career interventions. Longitudinal research by Watson and Stead (1994) in South Africa highlighted transition points in career certainty, particularly during school-based subject and course selection.

Career Decision Status and Gender

Research into the influence of gender on career decision status has also produced mixed results (Kelly & Cobb, 1991; Kelly & Colangelo, 1990). In some studies, boys reported greater certainty than girls about career choices (Kishor, 1981; Richardson, 1974). In other studies the reverse

was true (Lokan, Boss, & Patsula, 1982; Vondracek, Hostetler, Schulenberg, & Shimizu, 1990; Wallace-Brosious et al., 1994). In other studies, however, no significant gender difference was found (Neice & Bradley, 1979; Stead, 1989). Thus, as with age, it is possible that gender plays a negligible role in the processes of career development or that its role is determined largely by contextual factors (e.g., equality of opportunity and access to alternative career options).

The Present Study

It is apparent that the literature on adolescent career maturity is complex. However, even without supporting a stage-based development perspective, the construction of adolescent schooling in Western society highlights the critical importance of career decision making during the secondary school years. Knowing more about adolescents' career maturity and readiness for career planning can assist curriculum developers to plan and measure the effect of programs designed to enhance career development. In addition to its equivocal state, there are a number of limitations in the current literature. There is very little work that has focused on high school samples (Powell & Luzzo, 1998), and even less has examined adolescents in Australia. In relation to career maturity, the only previous data published (Lokan, 1984) included only 14-year-olds and Year 11 students.

Our goal was to explore age and gender differences in career maturity and career decision status in an Australian sample of secondary students. Developmental explanations suggest that career maturity and career decision status vary with age. More recent contextual explanations for career (Lent, Brown, & Hackett, 1996) have suggested more complex explanations. In addition, theoretical explanations for gender issues in career development are far from adequately developed (Fitzgerald & Weitzman, 1992). Because of this divergence in the theoretical and empirical literature, we did not formulate specific hypotheses. However, in general terms, we expected that career maturity scores would increase with age and that career certainty and career indecision would vary at particular ages that are related to school decision points. In Australia, these decision points are Years 8, 10, and 12. Although we expected to find gender differences, we did not expect the differences to be uniform.

Method

Participants

Participants were 1,971 secondary school students enrolled in Grades 8–12 across three secondary schools in southeastern Australia. The schools were chosen to reflect the socioeconomic structure of Australian society. There were no ethnic groupings of significant size in the three schools. All students present on the day of testing in each school participated. Eight hundred and eighty-two (45%) of the students were boys, and 1,089 (55%) were girls. Students ranged in age from 12.51 to 17.99 years and had a mean age of 15.14 ($SD = 1.44$).

Instruments

The Career Decision Scale (CDS; Osipow et al., 1976; Osipow, 1987) was used to measure career certainty and indecision. The scale contains 19 items and consists of the CDS-Indecision scale, which provides a measure of career indecision, and the CDS-Certainty scale, which indicates the respondent's degree of certainty about having made a career decision. The CDS-Indecision scale has 16 items, the CDS-Certainty scale has two items, and there is an open-ended question that allows respondents to present their concerns in their own words. Responses on the Indecision and the Certainty subscales are reported in this study. Participants responded to items by indicating on a 4-point Likert-type scale whether the item was *not at all like me* to *exactly like me*. Higher scores on the CDS-Indecision subscale indicate greater indecision; higher scores on CDS-Certainty indicate greater certainty. Internal consistency coefficients have been consistently reported in the .80 range (Hartman, Fuqua, & Hartman, 1983). Test-retest reliabilities have been reported in the range .61-.90 (Hartman, Utz, & Farnum, 1979). Internal reliability coefficients in our study were .89 for CDS-Indecision and .73 for CDS-Certainty. Concurrent validity (Hartman & Hartman, 1982), construct validity (Hartman et al., 1983) and predictive validity (Hartman, Fuqua, Blum, & Hartman, 1985) have all been adequately demonstrated.

We used the Australian version of the Career Development Inventory (CDI-A; Lokan, 1984) to measure this construct. The CDI-A has 72 items and is designed for students in Years 8-12. It measures several aspects of career development, including career planning orientation, awareness and use of resources, knowledge of the career development process, knowledge of the world of work, and knowledge and use of decision-making principles. Four subscales, two composite scales, and a total scale score can be calculated for the CDI-A. The four subscales are Career Planning (CP; 20 items), Career Exploration (CE; 16 items), World of Work Information (WW; 24 items), and Career Decision Making (DM; 12 items). The two composite scales are Career Development Attitude (CDA; CP and CE combined) and Career Development Knowledge (CDK; WW and DM combined). The Career Orientation Total (COT; CDA and CDK combined) represents the total CDI-A scale score. Total COT reliability coefficients reported in the manual (Lokan, 1984) ranged from .73 to .90 for a sample of 14-year-olds, and from .65 to .90 for a Year 11 sample, which represent similar reliabilities to those reported for the U.S. inventory (Pinkney & Bozik, 1994). Internal reliability coefficients calculated in our study were .91 (CP), .78 (CE), .77 (WW), .67 (DM), .91 (CDA), .84 (CDK), and .91 (COT). Validity evidence for the CDI-A is reported in the manual (Lokan, 1984). Construct validity was indicated by appropriate age differences in scores. Inter-scale correlations were between .50 and .70, and a factor analysis yielded the expected two factors.

Procedure

Survey forms that contained the two scales (CDS and CDI-A) and elicited information on age and gender were administered to all students in

Grades 8–12 across the three secondary schools that participated in the study. The classroom teachers who had been provided with instructions regarding the administration protocol administered the survey forms. The study used informed consent procedures, and university ethical clearance was obtained.

Results

Analysis: Career Decision Scale by Gender and Age

A between-subjects multifactor multivariate analysis of variance (MANOVA) was conducted using the two subscales of the Career Decision Scale (CDS–Indecision and CDS–Certainty) as the dependent measures. Independent variables were gender and age (six levels, 12–17 years). Age, rather than grade, was chosen as the independent variable because many students in postcompulsory secondary education participate in a variety of activities, for example, apprenticeships, schooling, and vocational education programs. The traditional notion of grade was seen to be irrelevant. The correlation between age and grade was calculated as 0.95. Such a high correlation indicates that the grade analysis would be a replication of the age analysis, thus making the grade analysis redundant. Summary data for this age analysis are presented in Table 1. Significant multivariate results were obtained for the main effects of gender, $F(2, 1768) = 32.73, p < .001$, age, $F(10, 3536) = 4.02, p < .001$, and for the Gender $\times$ Age interaction effect, $F(10, 3536) = 2.75, p < .01$.

The significant multivariate effects were interpreted at the univariate level. For CDS–Indecision, significant univariate main effects were obtained for gender, $F(1, 1769) = 48.85, p < .001$, and age, $F(5, 1769) = 3.83, p < .01$. The CDS–Indecision scale provides a measure of indecision about choosing a career. When the main effect for gender was examined, female means for CDS–Indecision were significantly higher than those for males at all age levels. See Table 1 for t values and levels of significance. When the main effect for age was examined, mean CDS–Indecision for 12-year-olds was significantly higher than the mean for 14-year-olds ($p < .05$). The mean CDS–Indecision for 14-year-olds was lower than the mean for 17-year-olds ($p < .01$).

For CDS–Certainty, significant results were obtained for the univariate main effects of gender, $F(1, 1769) = 8.36, p < .01$, and age, $F(5, 1769) = 5.38, p < .001$, and for the univariate Gender $\times$ Age interaction effect, $F(5, 1769) = 5.28, p < .001$. The CDS–Certainty scale provides a measure of certainty about a career decision. Females scored significantly higher on CDS–Certainty than males at age levels 13 and 14. At age 17, males scored significantly higher than females. See Table 1 for t values and levels of significance. When the main effect for age was examined, 13-year-olds were significantly more certain than 17-year-olds ($p < .05$), 14-year-olds were more certain than 15-year-olds ($p < .01$) and 17-year-olds ($p < .001$), and 16-year-olds were more certain than 17-year-olds ($p < .05$).

Analysis: CDI-A Career Orientation Total by Age and Gender

The first CDI-A analysis examined the effect of age and gender on the Career Orientation Total (COT) score, independent of the CDI-A subscales. An analysis of variance (ANOVA) was conducted with the COT as the dependent variable and with gender and age (12–17 years) as the independent variables. Summary data for this analysis are presented in Table 2. The results of the ANOVA produced significant results for the main effect of gender, $F(1, 1959) = 103.20, p < .001$; and age, $F(5, 1959) = 56.90, p < .001$; and for the Gender $\times$ Age interaction effect, $F(5, 1959) = 2.98, p < .05$. The COT total scale represents the total score for career maturity as measured by the CDI-A. When the main effect for gender was examined, female means for COT were significantly larger than those for boys at all year levels except for the 12-year-olds. See Table 2 for t values and levels of significance. When the main effect for age was examined, mean COT scores for 12-year-olds were significantly lower than the mean for 15-, 16-, and 17-year-olds ($p < .001$). Thirteen-year-olds were significantly lower than the 15-, 16-, and 17-year-olds ($p < .001$). Fourteen-year-olds were significantly lower than 15-, 16-, and 17-year-olds ($p < .001$). Fifteen-year-olds were significantly lower than 17-year-olds ($p < .001$).

Analysis: CDI-A Composite Subscales by Age and Gender

This analysis examined the effect of age and gender on the two CDI-A composite subscales of Career Development Attitude (CDA; CP and CE combined) and Career Development Knowledge (CDK; WW and DM combined). Independent variables were gender (male and female) and age (six levels, 12–17 years). Summary data for this analysis are presented in Table 3. Significant multivariate results were obtained for the main effects of gender, $F(2, 1958) = 94.50, p < .001$; and age, $F(10, 3916) = 29.46, p < .001$; and for the Gender $\times$ Age interaction effect, $F(10, 3916) = 3.47, p < .001$.

TABLE 2

Summary Data for the Career Orientation Total (COT) for Boys, Girls, and Total Sample Combined for Ages 12–17 Years

Age in Years	Boys			Girls			Total			<i>t</i>
	<i>n</i>	<i>M^a</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	
12	40	-.72	1.40	49	-.17	1.54	89	-.42	1.50	1.73
13	224	-.61	1.35	234	-.33	1.29	458	-.47	1.33	2.26*
14	176	-.62	1.40	219	-.06	1.35	395	-.31	1.40	4.03***
15	186	-.09	1.42	225	.80	1.33	411	.40	1.44	6.50***
16	140	.28	1.47	202	.91	1.16	342	.66	1.33	4.24***
17	116	.36	1.48	160	1.30	1.33	276	.90	1.47	5.48***
Total	882	-.24	1.47	1,089	.44	1.44	1,971	.13	1.49	10.20***

Note. See Table 1 Note.

^a*M* and *SD* reported as standardized scores.

* $p < .05$. ** $p < .01$. *** $p < .001$.

The significant multivariate effects were interpreted at the univariate level. For CDI-A CDA, significant univariate results were obtained for the main effects of gender, $F(1, 1959) = 5.81, p < .05$, and age, $F(5, 1959) < 37.39, p < .001$; and for the Gender $\times$ Age interaction effect, $F(5, 1959) = 6.23, p < .001$. When the main effect for gender was examined, means for CDA were significantly lower for female participants than for male participants at age 13 years, and significantly higher at ages 15 and 17 years. (See Table 3 for t values and levels of significance.) When the main effect for age was examined, mean CDA did not significantly differ among 12-, 13-, and 14-year-olds, but the means for 12-, 13-, and 14-year-olds were significantly lower than the means for 15-, 16-, and 17-year-olds ($p < .001$). The mean for 15-year-olds was significantly lower than the mean for 17-year-olds ($p < .01$); and the mean for 16-year-olds was significantly lower than the mean for 17-year-olds ($p < .01$).

For CDI-A CDK, significant univariate main effects were obtained for gender, $F(1, 1959) = 189.10, p < .001$; and for age, $F(5, 1959) = 32.69, p < .001$. Female participants scored significantly higher on the CDK than male participants at all age levels, except for 12-year-olds, where the mean for female participants was higher, but not significantly so. (See Table 3 for t values and levels of significance.) When the main effect for age was examined, the mean for CDK did not significantly differ among 12-, 13-, and 14-year-olds, but the means for 12-, 13-, and 14-year-olds were significantly lower than the means for 15-, 16-, and 17-year-olds ($p < .001$). The mean for 15-year-olds was significantly lower than the mean for 16-year-olds ($p < .001$) and 17-year-olds ($p > .01$).

Analysis: CDI-A Subscales by Gender and Age

This analysis examined the effect of gender and age on the four CDI-A subscales. A factorial MANOVA was performed with four dependent measures of CP, CE, WW, and DM; the independent variables were gender and age (six levels, 12–17 years). Summary data for this analysis are presented in Table 4. Significant MANOVA results were identified for the main effects of gender, $F(4, 1956) = 63.21, p < .001$; and age, $F(20, 6488) = 15.65, p < .001$; and for the Gender $\times$ Age interaction effect, $F(20, 6488) = 2.16, p < .01$. At the univariate level, significant Gender $\times$ Age interaction effects were identified for CP, $F(5, 1959) = 6.27, p < .001$; and CE, $F(5, 1959) = 3.17, p < .01$. Significant univariate main effects for gender were identified for CE, $F(1, 1959) = 35.05, p < .001$; WW, $F(1, 1959) = 141.34, p < .001$; and DM, $F(1, 1959) = 168.56, p < .001$. Significant univariate main effects for age were identified for CP, $F(5, 1959) = 29.88, p < .001$; CE, $F(5, 1959) = 30.06, p < .001$; WW, $F(5, 1959) = 32.42, p < .001$; and DM, $F(5, 1959) = 18.26, p < .001$.

For CP, girls scored significantly lower than boys at the 13-year-old level and significantly higher than boys at the 15- and 17-year-old levels. For CE, girls scored significantly higher than boys at the 15-, 16-, and 17-year-old levels. For DM, girls scored significantly higher than boys at all age levels except for age 12 years. For WW, female participants scored significantly higher than male participants at all age levels. (See Table 4 for t values and levels of significance.)

In relation to age, for CP, 12-year-olds scored significantly lower than 15- ($p < .01$) and 17-year-olds ($p < .001$). Thirteen-year-olds scored significantly lower than 15-, 16-, and 17-year-olds ($p < .001$). Fourteen-

TABLE 3

Summary Data for the Career Decision Inventory–Australian (CDI–A) Composite Subscales of Career Development Attitude and Career Development Knowledge for Boys, Girls, and Total Sample Combined for Ages 12–17 Years

Age in Years	CDI–A Career Development Attitude						CDI–A Career Development Knowledge					
	Boys			Girls			Total			Boys		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
12	40	95.05	19.35	49	96.63	19.82	89	95.02	19.58	40	18.67	6.09
13	224	96.21	18.42	234	91.85	17.38	458	93.99	18.01	224	18.27	5.95
14	176	95.19	19.03	219	94.83	17.59	395	94.99	18.22	176	18.60	6.07
15	186	100.65	16.99	225	106.28	16.94	411	103.73	17.17	186	20.27	6.30
16	140	101.51	18.46	202	104.33	15.85	342	103.18	16.99	140	22.55	6.12
17	116	103.62	17.96	160	112.27	15.84	276	108.63	17.27	116	22.32	6.55
Total	882	98.62	18.48	1,089	100.96	18.42	1,971	99.91	18.48	882	19.99	6.38
										1,089	23.81	5.83
										1,971	22.10	6.37
												13.72

Note. See Table 1 Note.

** $p < .01$. *** $p < .001$.

TABLE 4

Summary Data for CDI-A Subscales of Career Planning, Career Exploration, Career Decision Making and World of Work Information for Boys, Girls, and Total Sample Combined for Ages 12-17 Years

Age in Years	Boys			Girls			Total			t
	n	M	SD	n	M	SD	n	M	SD	
Career Planning										
12	40	58.45	13.62	49	58.90	14.06	89	58.70	13.79	0.15
13	224	59.61	13.21	234	55.15	12.12	458	57.33	12.85	-3.76**
14	176	58.85	12.93	219	57.31	12.72	395	57.99	12.82	-1.18
15	186	62.54	11.97	225	64.95	12.15	411	63.86	12.12	2.01*
16	140	62.49	13.05	202	63.06	11.48	342	62.83	12.13	0.42
17	116	63.57	12.37	160	68.59	10.93	276	66.48	11.80	3.56***
Total	882	61.00	12.88	1,089	61.22	12.94	1,971	61.12	12.91	0.37
Career Exploration										
12	40	34.60	7.94	49	37.73	7.50	89	36.33	7.82	1.91
13	224	36.61	7.31	234	36.70	7.40	458	36.66	7.35	0.14
14	176	36.34	8.20	219	37.52	6.91	395	36.99	7.52	1.52
15	186	38.11	7.09	225	41.33	6.68	411	39.87	7.05	4.73***
16	140	39.02	7.89	202	41.27	6.73	342	40.35	7.30	2.75**
17	116	40.05	7.95	160	43.68	7.12	276	42.16	7.68	3.98***
Total	882	37.62	7.77	1,089	39.74	7.43	1,971	38.79	7.66	6.19***
Career Decision Making										
12	40	5.48	2.68	49	6.14	2.63	89	5.84	2.66	1.18
13	224	5.10	2.40	234	6.50	2.33	458	5.81	2.46	6.33***
14	176	5.02	2.37	219	6.71	2.50	395	5.96	2.58	6.83***
15	186	5.61	2.71	225	7.12	2.52	411	6.43	2.71	5.84***
16	140	6.39	2.63	202	7.90	2.20	342	7.28	2.50	5.57***
17	116	6.18	3.19	160	7.81	2.82	276	7.12	3.08	4.39***
Total	882	5.55	2.67	1,089	7.10	2.54	1,971	6.41	2.71	13.11***
World of Work Information										
12	40	13.20	4.17	49	15.02	3.93	89	14.20	4.12	2.12*
13	224	13.17	4.23	234	15.33	3.54	458	14.28	4.04	5.91***
14	176	13.58	4.28	219	15.93	3.89	395	14.88	4.23	5.65***
15	186	14.67	4.38	225	17.26	3.95	411	16.09	4.34	6.25***
16	140	16.16	4.24	202	18.01	3.28	342	17.25	3.80	4.33***
17	116	16.14	4.28	160	17.84	4.12	276	17.12	4.26	3.33**
Total	882	14.44	4.44	1,089	16.70	3.91	1,971	15.69	4.30	11.89***

Note. See Table 1 Note. CDI-A = Career Decision Inventory-Australian.

* $p < .05$. ** $p < .01$. *** $p < .001$.

year-olds scored significantly lower than 15-, 16-, and 17-year-olds ($p < .001$). Sixteen-year-olds scored significantly lower than 17-year-olds ($p < .05$).

For CE, 12-year-olds scored significantly lower than 15- ($p < .01$), 16-, and 17-year-olds ($p < .001$). Thirteen-year-olds scored significantly lower than 15-, 16-, and 17-year-olds ($p < .001$). Fourteen-year-olds scored significantly lower than 15-, 16-, and 17-year-olds ($p < .001$). Fifteen-year-olds scored significantly lower than 17-year-olds ($p < .01$). Sixteen-year-olds scored significantly lower than 17-year-olds ($p < .05$).

For DM, 12-year-olds scored significantly lower than 16- ($p < .001$) and 17-year olds ($p < .01$). Thirteen-year olds scored lower than 15- ($p < .05$).

.01), 16-, and 17-year-olds ($p < .001$). Fourteen-year-olds scored significantly lower than 16- and 17-year-olds ($p < .001$). Fifteen-year-olds scored significantly lower than 16- ($p < .001$) and 17-year-olds ($p < .01$).

For WW, 12-year-olds scored significantly lower than 15- ($p < .01$), 16-, and 17-year-olds ($p < .001$). Thirteen-year-olds scored lower than 15-, 16-, and 17-year-olds ($p < .001$). Fourteen-year-olds scored significantly lower than 15-, ($p < .01$), 16-, and 17-year-olds ($p < .001$). Finally, 15-year-olds scored significantly lower than 16- ($p < .01$) and 17-year-olds ($p < .001$).

Discussion

As expected, the results of our study illustrate developmental differences in career maturity. Young people aged 15, 16, and 17 years had higher attitude and knowledge scores than 12-, 13-, and 14-year-old participants. This pattern remained for each of the subscales of the CDI-A. That is, in CP, CE, WW and DM, and older students were more career mature than younger students were.

These findings reflect the developmental explanation for career maturity as measured by the CDS. In addition, the findings support the majority of other research findings across many countries that show monotonic progression of career maturity scores of adolescents (Achebe, 1982; Alvi & Khan, 1983; Fouad, 1988; Herr & Enderlein, 1976; Lokan, 1984; Moracco, 1976; Neice & Bradley, 1979; Post-Kammer, 1987; Wallace-Broschious et al., 1994; Watson & Van Aarde, 1986). However, these findings differ from more recent findings of Powell and Luzzo (1998) who studied a sample of 15 to 19-year-old participants. In relation to other Australian data (Lokan, 1984) with a sample of 14-year-olds and Year 11 students.

Again, as expected, gender differences were also evident in career maturity, but the pattern was far from uniform. In the attitude score, female participants had lower scores than male participants at age 13 years and higher scores at ages 15 and 17 years. In the knowledge score, female participants had higher scores than male participants at all age levels. These data generally reflected the findings in other surveys, in which female participants reported higher scores on career maturity measures (Alvi & Khan, 1983; Herr & Enderlein, 1976; King, 1989; Lokan, 1984; Luzzo, 1995; Westbrook, 1984). Lokan suggested that the higher knowledge scores might reflect the gender differences often found in academic achievement in secondary school. It is clear that in our study the pattern for differences between female and male participants on scores for knowledge was quite consistent, whereas it varied considerably for attitude.

The findings on career indecision might be useful in explaining the differences between gender scores on knowledge and attitude. Although girls showed greater maturity with respect to career development knowledge, as measured by the knowledge score of the CDI-A, they also had higher indecision scores across all ages. These findings might reflect the perceived greater complexity of young women's career choice—a complexity of which they are keenly aware. Young men are introduced to, and have expectations of, the world of work from a young age; young women still reflect on the dilemma of having to choose between career and motherhood.

Certainty scores also provide some support for this thesis. Young women reported significantly higher certainty scores at ages 13 and 14 and significantly lower scores at age 17, a time when the school system requires career decision making in relation to post-school choices. At other ages, there was no significant difference between young women and young men in relation to career certainty.

Regarding age and career indecision, our findings were very complex. The pattern of scores showed that indecision decreased from ages 12 to 14 years and then increased up to age 17 years, the latter for female participants only. There was a significant difference in the indecision scores of 12- and 14-year-olds and in 14- and 17-year-olds. It may be that 12-year-olds are uncertain in their first year of high school. Fourteen-year-olds are in the hiatus period before decisions about postcompulsory education and post-school choices need to be made. It seems that 17-year-olds should be reaching greater certainty in relation to career; however, it may be that the reality of school leaving creates higher uncertainty.

Age-based certainty scores also presented a very complex pattern. Adolescents reported higher certainty at ages 13 and 14 years, with female participants being significantly higher than male participants on this construct. However, at age 15 years, there was a drop in certainty for both female and male participants; there was a rise at age 16, and then by age 17 years, male participants had continued to rise. Female participants had dropped significantly. Again, school transition points may explain these results. Adolescents may feel more certain when the reality of decision making is distant (ages 13-14), with girls feeling confident because they have good knowledge and attitude, as evidenced by the career maturity scores. Both boys and girls experience the uncertainty of making postcompulsory education decisions at age 15. By age 17, the reality for girls about the pressures of career and work may be significantly affecting their decision certainty.

Although much of the indecision literature has previously been negative toward the state of career indecision, more recent conceptualizations (Krumboltz, 1992; Savickas, 1994) have commented on the necessity for indecision as part of the ongoing decision-making process, "as a sign of transformation in progress" (Savickas, 1994, p. 54). Krumboltz identified the many pressures of making a decision and suggested that "open-mindedness can be viewed as a greater virtue than decisiveness" (p. 239). In our study, it is clear that decisiveness was affected by external pressures within the school system. Although a thesis has been proposed about the gender differences, this is an area for further study.

Data have largely supported a developmental pattern of career maturity, age and gender variations have been found, and it has been suggested that school transition points might account for this. It is clear that other demographic factors (e.g., socioeconomic level, ethnicity) and contextual factors (e.g., historical time, cultural context, school differences) (Schmitt-Rodermund & Silbereisen, 1998; Vondracek & Reitzle, 1998) need further exploration. The theoretical career literature (e.g., Lent et al., 1996; Vondracek & Reitzle, 1998) increasingly focuses on the relevance of contextual factors, and further empirical work with these variables needs to include these factors to increase researchers' understanding of the career maturity of adolescents.

Conclusion

Our study is limited in that it only provides cross-sectional data; therefore, only a report of age-related differences can be asserted. Longitudinal studies of one cohort of adolescents experiencing different facets of the school experience are necessary to provide data on rates of development in career maturity and relationship with different educational contexts.

Regarding career guidance practice, our study has identified transition points in relation to each of the constructs. Australia has had a very uneven approach to curriculum-based career education and to career counseling (McCowan & Hyndman, 1998), and there was no formal career program in the schools. Current literature (see Patton, 2000, for a review) asserts that there is a need for a developmental career intervention. These data provide a useful baseline for determining the benefits of such interventions. In addition, it is clear that boys may benefit from increased attention to career knowledge and girls from attention to the appropriateness of career planning for them.

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