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The Impact of Career Exploration on Career Development Among Hong Kong Chinese University Students

Raysen Cheung John Arnold

Career exploration is widely believed to produce positive career development outcomes among college and university students. Some research has supported this belief, but there is little information about exactly which outcomes it affects and whether any benefits of career exploration can be observed beyond individualistic western cultures. We report findings from cross-sectional (N=271) and longitudinal (N=101) data provided by university students in Hong Kong. The amount of career exploration was associated with career decision self-efficacy and amount of information, but not with self-clarity or career decidedness. All the outcome variables except decidedness increased significantly over time. Career support, especially from teachers, was also associated with the outcome variables. The results and their practical implications are discussed in light of Hong Kong culture and the characteristics of its student population, as well as career development theory.

Career exploration is an important line of research in the 21st century (Flum & Blustein, 2000; Zikic & Hall, 2009) especially with globalization and unprecedented changes in the workplace. *Career exploration* is defined as “encompassing those activities directed toward enhancing the knowledge of the

self and the external environment that an individual engages in to foster progress in career development” (Blustein, 1992; p. 261). According to Flum and Blustein (2000), career exploration involves “the appraisal of internal attributes and exploration of external options and constraints from relevant educational, vocational, and relational contexts” (p. 381). Greenhaus, Callanan, and Godshalk (2010) proposed a model of career management in which career exploration leads first to awareness of self and opportunities, and then to career goal setting and formulation of career strategies. In their studies of college students, Blustein and his colleagues (Blustein, 1997; Flum & Blustein, 2000) emphasized that career exploration does not result in the acquisition of information only, but also involves the process of how a person makes sense of his or her life and career. Career exploration was found to be related to career decision-making progress in terms of self-concept crystallization and vocational commitment (Blustein, 1989; Blustein, Pauling, DeMania, & Faye, 1994).

While the link between career exploration and progress in career development has been explored a little in research in the West, there is no major work focusing on it with reference

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to university students in Hong Kong. Hong Kong is in a time of rapid and continuing social and cultural change since its transition from British to Chinese government in 1997, and research is very much needed to guide career exploration interventions. The 1990s also saw a rapid expansion of higher education in Hong Kong with the percentage of 17-to-20-year-olds entering university increasing from 8.6% in 1990 to 18.8% in 1996 (University Grants Committee, 1996), and the percentage has been maintained at about 18.0% since then. Armour, Cheng, and Taplin (1999) found from a large scale survey of Hong Kong government-funded universities that over 90% of respondents had neither parent graduating from a university and concluded that Hong Kong was populated by first-generation university students (see also Chan & Yue, 1997). This is likely to change in a few years when the children of this new generation of university graduates reach university age; but for the time being, the first generation effect is still present. The group consists primarily of local Chinese secondary school graduates of similar background in terms of age and ethnicity. Services have been targeted to their learning experience (e.g., Geall, 2000; Yau, Sun, & Cheng, 2012) and career development (Chan & Yue, 1997; Leung, 2002). This targeting is consistent with research in the United States, where first-generation college students tend to have more adjustment issues (Hertel, 2002) and are on average less academically prepared and more prone to drop out than others (Tym, McMillion, Barone, & Webster, 2004). The anecdotal experience of local Hong Kong career practitioners, as reported to the authors, confirms that first-generation university students need considerable support in their university adjustment and career exploration.

As compared with the United States, there is a lack of both research and supportive

services focused on first-generation college students in Hong Kong with the exception of a few local scholarships for first-in-family university students. More generally, there is a lack of local literature to inform career guidance in Hong Kong (Leung, 2002). Practically, career exploration research can enhance career intervention and inform professional practice in Hong Kong and other Chinese societies. It may also help to overcome some of the negative views held by many Hong Kong employers about the quality of university graduates with the emergence of mass university education (Education and Manpower Bureau, 2006).

In accounting for outcomes of career awareness and self-understanding, we may look beyond individual behavior and examine the cultural context. From Hofstede's (1984) study of work values of over 50 countries, Hong Kong, Taiwan, and China are high in the cultural dimensions of collectivism and power distance. His dimension of power distance was conceptualized as the extent inequalities in power between members of a society are accepted. Hierarchical power is more respected in high power distance cultures, like Chinese ones, than in low power distance countries like the US. In a collectivistic society priority is given to social expectations and obligations over individual preferences. Leung (2002) observed that in Chinese societies like Hong Kong and China, people tend to adopt collectivistic work values like obligation, tradition, and conformity; and expectations of parents and family have always been significant in the career choice process.

In this article, we introduce and discuss the results of a study conducted among Hong Kong Chinese university students, focusing on the impact of career exploration and some other culturally relevant variables in progressing career development using both cross-sectional and longitudinal analyses. In

Hong Kong, both career centers and academic departments are increasingly providing students opportunities for career exploration in the forms of career assessment, individual guidance, career seminars, career courses, and work internships. Career seminars and work internships are common in the Hong Kong higher education context to promote the career exploration of students.

We conceptualize career exploration as an evolving process over time in its specific contexts (e.g., Flum & Blustein, 2000; Vondracek, Lerner, & Schulenberg, 1986). We have earlier published results from this study testing relevant contextual and developmental predictors of career exploration (Cheung & Arnold, 2010). Here, the focus is on outcomes of career exploration.

POTENTIAL OUTCOMES OF CAREER EXPLORATION

Outcomes of career exploration have been described by Kidd and Killeen (1992) as attitudes, skills, and knowledge facilitating educational and career decisions and their implementation. Intuitively, one would expect exploration of one's own skills and interests to reinforce an existing self-concept or redefine it somewhat. Either way, it might be expected to increase clarity of self-concept through the accumulation of new knowledge and its integration into personal identity. Exploration is also likely to lead a person to new discoveries about the activities, structures, and practices associated with a specific job or an occupation; hence, it should increase the amount of information a person has about the world of work. Armed with clarity of self-concept and information about the world of work, a person should feel a greater sense of self-efficacy for tackling career development tasks. He or she may also feel more ready to make career decisions, or more sure about

decisions previously made. Consistent with these lines of reasoning, meta-analyses (Oliver & Spokane, 1988; Whiston, Sexton, & Lasoff, 1998) have reported significant changes in career maturity, career certainty, and career-related skills as a result of career interventions; however, clear evidence that engaging in career exploration activity really does lead to career development is thin. It is more common to examine the antecedents of exploration (e.g., Cheung & Arnold, 2010; Creed, Patton, & Prideaux, 2007; Nauta, 2007). There is a little evidence that career exploration activity is associated with re-employment among unemployed managers (Zikic & Klehe, 2006) and with lower career indecision among high school students (Baker, 2002); however, the overall strength of the evidence for beneficial outcomes of career exploration is less than one might expect given the frequency with which exploration is recommended to students. Accordingly, we examined the outcomes of career exploration in three aspects, namely (a) knowledge of self, (b) knowledge of environment, and (c) progress in career development. Certain constructs within the three aspects were identified, and their relations with career exploration were tested.

Regarding knowledge of self, in this study we tested how far career exploration is related to self-clarity (Jones, 1989). Barrett (cited in Quint & Kopelman, 1995) regarded *clarity* as "the sharpness or degree of awareness of an attribute" (p. 90) which is an essential component in the process of self-concept crystallization. The construct of *self-clarity* is defined by Jones (1989) as how far one understands his or her interests, personality, and abilities and the extent to which one can fit these characteristics into relevant occupations. He postulated that self-clarity facilitates career decidedness. In other words, self-clarity involves not only the understanding of one's characteristics, but also the formation

of a clear self-perception from it. For testing the relationship between career exploration and knowledge of environment, the latter was operationalized as amount of information, a construct from the career exploration framework of Stumpf, Colarelli, and Hartman (1983) in which *amount of information* is defined as information obtained about career, jobs, and organizations.

Regarding progress in career decision-making, we examine career decidedness and career decision self-efficacy. *Career decidedness* is defined as how decided one is about career or occupational choice (Jones, 1989). Jones (1989) demonstrated that it was positively correlated with career salience, while Wanberg and Muchinsky (1992) also showed that confident and decided students had higher career identity and self-esteem. In this study, we were interested in the question of whether career exploration will help to increase decidedness. Career decision self-efficacy (CDSE; Taylor & Betz, 1983) is a construct from the social cognitive model of career development for assessment and interventions (Lent, Brown, & Hackett, 1994; Lent, 2005; Lent & Brown, 2006). It focuses on the motivational aspect of self to complete specific career-related tasks (Lent & Fouad, 2011). Specifically, CDSE (Betz, Klein, & Taylor, 1996; Betz, Hammond, & Multon, 2005) concerns how far a person believes that he or she is able to complete successfully the tasks necessary for career decision-making, including accurate self-appraisal, gathering information, goal selection, making plans for the future and problem solving.

ADDITIONAL VARIABLES THAT REFLECT THE HONG KONG CONTEXT

In general terms, all vocational behaviors occur in their contexts (Herr, 2008). We therefore

took into account Chinese *achievement motivation*, which can be defined as the tendency to strive for achievement of personal goals as well as goals socially defined by significant others (Yu & Yang, 1987; Tao & Hong, 2000). Achievement motivation is extensively studied in Chinese societies (Yu, 1996) and has been found to be related to learning behavior and the pursuit of academic achievements (e.g., Gow, Balla, Kember, & Hau, 1996). Yu and Yang (1987) proposed the constructs of individual-oriented achievement motivation (IOAM) and social-orientated achievement motivation (SOAM) to account for Chinese motivation. IOAM concerns seeking achievement to fulfill one's own goals, while SOAM is an indigenous construct involving achievement goals and requirements set socially by significant others. IOAM and SOAM are both correlated with learning behavior in Hong Kong (Tao & Hong, 2000). As two enduring motivational factors, IOAM and SOAM are likely to influence the vocational behavior of university students in addition to affecting their learning behavior.

Relational support was found related to career development in a prior study (Felsman & Blustein, 1999). In a collectivistic and hierarchical Chinese society, social support from teachers, peers, and family is likely to play an important part in career development, as young people value the advice of their elders and solidarity with peers. Social support may also facilitate the development of self-efficacy and self-generalizations of individuals, as well as occupational decision making (e.g., Lent, Pixão, Silva, & Leitão, 2010; Mitchell & Krumboltz, 1990).

It is necessary to think carefully about the role of these motivational and support variables. They can operate in one or both of two ways. First, it is possible that they influence outcome variables independently of career exploration. So, for example, a

supportive teacher might boost the confidence of a student so that he or she feels greater CDSE. The supportive teacher might also tell the student facts about the labor market. In both cases, the teacher's actions would affect outcome variables without the student doing any exploration. Second, the variable might influence the career exploration the student undertakes, which in turn influences outcomes. For example, a supportive teacher might encourage a student to engage in exploration or might suggest where he or she could find out more about a particular occupation, which the student then does. In this study we investigated outcomes of career exploration, not inputs into it. Removing the effects of these variables before examining the effects of career exploration could, so to speak, throw the baby out with the bathwater; therefore we tested for effects of motivation and support variables after career exploration, not before. This enabled us to see whether these variables add anything to the prediction of outcomes.

RESEARCH QUESTIONS

Our research questions follow naturally from the discussion above. We asked whether, after controlling for other relevant variables, career exploration in the past 3 months explains significant variance in: self-clarity (RQ1a), amount of occupational information (RQ1b), career decidedness (RQ1c), and career decision self-efficacy (RQ1d). We also posed two additional research questions:

- RQ2: Do motivational variables predict outcomes after career exploration has been taken into account?
- RQ3: Does support from significant others predict outcomes after career exploration has been taken into account?

These research questions were examined with both cross-sectional and longitudinal data.

The latter allowed us to test whether career exploration is linked with *change over time* in the outcome variable.

METHOD

Procedure and Sample

To address the research questions, we selected students who were voluntarily engaging in career development activities offered by a university in Hong Kong. Time 1 data were collected using questionnaires from participants in two career development programs in one of the seven government-funded universities at different times in the academic year. One was a career education program consisting of five seminars over 2 months. The other was a 2-month summer internship. The career seminars were organized by the career center, and participants were from different disciplines and years of study. The work internships were organized by the career center and the Business school faculty of the university. The majority of participants were from the Business faculty in their second year of study. Participation was voluntary for both programs. Time 1 data were collected from 173 out of 190 career education program participants at the start of the first seminar, and from 124 out of 127 internship participants at the pre-internship briefing session. Twenty-six students joined both the career program and the internship and were counted only once for their participation in the former, because it happened first; hence there was a sample of 271 students at Time 1. In this sample, 61.6 % were female and 35.1 % male (3.3% missing data). By field of study, 75.6% were from Business (88.8% in the career program), 8.9% from Humanities and Social Sciences, 5.9% from Science and Engineering, and 7.4% from others with 2.2% unspecified. Of the participants 81.9% were in their second year of study, 13.7% in their first year, and 1.8%

in their third year with 2.6% unspecified. Those who participated in the work internship made up 36.2%, and those in the career education program 63.8%.

Participants were informed at Time 1 that participation in the research was voluntary and that it was intended both as an academic study and an evaluation of the career development program or internship. They were also informed that they would be contacted again for further data collection at a later date and that data would be reported in such a way that no individual could be identified. Those who agreed to participate signed a consent form acknowledging that they had been informed of all this and understood it.

Longitudinal data were also collected. An academic semester in local universities lasts 3 to 4 months, and students are expected to achieve learning outcomes during that time. Therefore we decided that the gap between Time 1 and Time 2 should be at least that period. This fits fairly well with the Stumpf et al. (1983) measure of career exploration, which refers to exploration over the last 3 months. Participants were requested to complete a Time 2 questionnaire about 4 months after Time 1 data were collected. Out of 207 students traced, 101 responded, some after a reminder and therefore up to 6 months after Time 1, for a response rate of 49.0% (37.4% of the original 271). Respondents and nonrespondents at Time 2 were compared on demographic, motivational, and relational factors. No significant differences were found except on SOAM ($p < .01$) with respondents scoring higher. In this longitudinal sample, 68.3% were female and 30.7% male. By field of study, 81.2% were from Business, 9.9% from Humanities and Social Sciences, and 2.0% from Science and Engineering; 88.1% of participants were in their second year of study and 9.9% in their first year; 59.4% participated in a work internship and 40.6%

in a career education program. In summary, we have a cross-sectional sample of 271 and a longitudinal sample of 101 with a period of 4 to 6 months between Time 1 and Time 2.

Measures

The following predictor and outcome measures were taken at both Time 1 and Time 2, unless stated otherwise. Reliability coefficients are for the cross-sectional sample at Time 1. All items are available from the contact author on request.

Career Exploration Variables. *Self-exploration* (Stumpf et al., 1983) is defined as exploration activities related to self-assessment and introspection for the past 3 months. *Environment exploration* (Stumpf et al., 1983) is defined as activities directed to exploration activities related to jobs, occupations, and organization for the past 3 months. The self-exploration scale (5 items) and environment exploration scale (6 items) of the Career Exploration Survey (CES; Stumpf et al., 1983) were used as measures of career exploration. Stumpf and colleagues (1983) reported extensive evidence for the construct validity and reliability of the CES. The respondents were requested to indicate on a 5-point scale the frequency they had engaged in activities related to self-exploration or environment exploration over the past 3 months. An example self-exploration item is "Reflected on how your past integrates with your future career"; and an example environment exploration item is "Obtained information about specific jobs or companies." We obtained a reliability coefficient $\alpha = .81$ for the self-exploration scale, and $\alpha = .86$ for the environment exploration scale.

Outcome Variables. *Self-clarity* ($\alpha = .77$) was measured by the two items of the 3-item self-clarity scale of the Career Decision Profile (CDP; Jones, 1989; Jones & Lohmann, 1998). Jones (1989) found correlations between self-clarity and vocational identity measures

that supported the validity of this measure. A 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*) was adopted. Due to reliability considerations, one item was dropped from the scale. An example item is “I need to have a clearer idea of what my interests are” (reverse scored). Amount of information ($\alpha = .79$) was measured using the amount of information scale of the CES. It consists of 3 items about information on career, jobs, and organizations. Respondents were asked to rate on a 5-point scale ranging from 1 (*little amount of information*) to 5 (*tremendous amount of information*). An example item is “How much information do you have on what one does in the career area(s) you have investigated?” Career decidedness ($\alpha = .76$) was measured by the 2-item decidedness scale of the CDP, which is defined as how decided a person is about his or her career or occupational choice. Jones reported that this measure correlated strongly negatively with measures of career indecision and positively with measures of career salience. A 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for this measure. An example item is “I have decided on the occupation I want to enter.” Career decision self-efficacy (CDSE; $\alpha = .91$) was measured by the short form of the Career Decision Scale (CDS-SF; Betz et al., 1996). These authors reported validity information in the form of (among other things) strong negative correlations with indecision measures. CDS-SF has 25 items, 5 on each of the competence areas of career decision-making. We also adopted a 5-point scale for CDS-SF. Respondents were asked to indicate how much confidence they had in their ability to accomplish each of 25 tasks, for example “Determine what your ideal job would be.”

Other Variables. The motivation and support variables were measured at Time 1 only. Chinese achievement motivation was measured by scales of IOAM and SOAM

(Yu & Yang, 1987; Tao & Hong, 2000). We adapted the English version from Tao and Hong (2000), who provided evidence for the two factors and found expected correlations between IOAM and SOAM scores and respondents’ achievement goals. We selected 9 items from each 30-item subscale, which were chosen because they are general statements about achievement motivation and not confined to the school and study setting as many other items were. An example IOAM item is “I set high expectations and standards for myself”; and an example SOAM item is “I try my best to meet my parents’ expectations so as not to disappoint them.” Respondents indicated their motivation on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). We obtained a coefficient $\alpha = .82$ for SOAM, and $\alpha = .65$ for IOAM. To measure relational support, 3 items were developed. Respondents were asked to indicate on a 5-point scale the level of career support they have from their teachers in the university, from friends and classmates (i.e., peers), and from family, from 1 (*no support*) to 5 (*maximum support*).

Two additional variables were used, as controls. Year of study was included because as students approach the completion of their university studies, they may experience an increased sense of urgency from themselves and others, for example, to reach a career decision, even without any further career exploration (Arnold, 1989). Gender was also used as a control variable because men and women may have different career decision and self-efficacy origins and processes (Lease & Dahlbeck, 2009). Students were requested to indicate the above information on the Time 1 questionnaire.

RESULTS

The means, standard deviations, intercorrelations, and correlations over time for the

main study variables are presented in Table 1. For the career exploration variables at Time 1, the mean of self-exploration ($M = 3.02$) marginally exceeded the midpoint of the 5-point scale, while that of environment exploration ($M = 2.82$) was a little below. For the outcome variables, means of decidedness ($M = 3.60$), and career decision self-efficacy ($M = 3.25$) exceeded the midpoint of 3 while those of self-clarity ($M = 1.95$) and amount of information ($M = 2.56$) were considerably below. Self-exploration and environmental exploration were fairly strongly correlated with each other ($\alpha = .49$), and with amount of information and CDSE ($\alpha = .32$ to $\alpha = .47$). The intercorrelations at Time 2 are similar to those at Time 1. The mean scores on all outcome variables, except career decidedness, increased significantly between Time 1 and Time 2, usually by around 0.30. IOAM scores were higher than SOAM, and more highly correlated with outcome measures. Teacher support scores were lower than support from peers and family, but were the most strongly correlated of the three support variables with the exploration and outcome measures.

Multiple regression analyses were used to provide a robust test of the research questions. For the cross-sectional analyses of the Time 1 data, for each outcome variable in turn, the two control variables were entered into the regression equation at Step 1. Then self-exploration and environmental exploration were entered together at Step 2. Then at Step 3 the motivation and support variables were submitted for entry into the equation, if they added significantly to the explained variance. Results of these analyses are shown in Table 2. For the longitudinal analyses, the outcome variable at Time 2 was the dependent variable; the outcome variable at Time 1 was entered into the equation at Step 1, so that the subsequent analysis examined change in the outcome variable between Time 1 and Time

2. At Step 2 the two control variables were entered into the equation, and at Step 3 the two exploration variables (assessed at Time 2) were entered into the equation. Then, as with the cross-sectional analyses, the motivation and support variables were submitted for inclusion in the equation, if they added significantly to explained variance. Results of these analyses are shown in Table 3.

Research Question 1a asked whether exploration would explain significant variance in self-clarity: the findings indicate not. In neither the cross-sectional nor the longitudinal regressions did self-exploration or environmental exploration (separately or together) explain significant amounts of variance in self-clarity. Also, only one of the four raw correlations between exploration and self-clarity (environmental exploration at Time 1) was significant.

Research Question 1b was concerned with whether exploration would explain significant variance in amount of information: there was quite a lot of evidence that it did. Three of the four correlations were significant and positive. In the cross-sectional regressions, the two exploration variables together explained significant variance in amount of information, with environmental exploration the dominant form of exploration. In the longitudinal regressions the two exploration variables together explained a modest but significant proportion of variance in amount of information, though neither had a significant beta weight.

Research Question 1c asked whether exploration would explain significant variance in career decidedness: as with self-clarity, the answer to this research question is negative. None of the four correlations were significant, and in neither regression analysis did either of the exploration variables add significantly to the explained variance in career decidedness.

Research Question 1d focused on whether

TABLE 1.
Descriptive statistics and correlations of the key variables

	Time 1		Time 2							
	M	SD	M	SD	1	2	3	4	5	6
1. Self-Exploration	3.02	0.66	3.36	0.59	.39**	.57**	-.19	.26**	.20	.42**
2. Environmental Exploration	2.82	0.77	3.19	0.73	.49**	.46**	-.14	.31**	.19	.41**
3. Self-Clarity	1.95	0.77	2.37	0.84	.08	.16**	.12	.17	-.13	.16
4. Amount of Information	2.56	0.79	2.94	0.67	.32**	.47**	.17**	.31**	.11	.35**
5. Career Decidedness	3.60	0.92	3.72	0.89	.11	.12	-.06	.10	.43**	.32**
6. Career Decision Self-Efficacy	3.25	0.50	3.42	0.47	.40**	.38**	.00	.33**	.21**	.46**
7. Individual-Oriented Achievement Motivation	3.71	0.42	—	—	.17**	.09	-.11	-.07	.21**	.19**
8. Social-Oriented Achievement Motivation	3.00	0.62	—	—	.06	.13*	.04	.04	.00	.03
9. Teacher Career Support	3.10	1.02	—	—	.17**	.25***	-.01	.37***	.14*	.24***
10. Peer Career Support	3.42	0.93	—	—	.10	.14*	-.11	.23***	.22***	.19**
11. Family Career Support	3.46	1.13	—	—	.06	.01	-.07	.10	.20**	.07

Notes. Time 1 correlations appear below the diagonal; Time 2 above, in the shaded area. Correlations over time are on the diagonal. Time 1 *ns* range from 249 to 271; Time 2 *ns* range from 89 to 101. Time 1 means and standard deviations for those who responded at Time 2 only were almost identical to those shown above: Self-Exploration 2.98 (0.73); Environmental Exploration 2.86 (0.74); Self-Clarity 1.99 (0.78); Amount of Information 2.68 (0.75); Career Decidedness 3.58 (0.97); CDSE 3.31 (0.53). Scores on all these variables increased significantly ($p < .01$) between Time 1 and Time 2, except for Career Decidedness (*ns*).

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

TABLE 2.
Hierarchical Multiple Regressions of Career Outcomes at Time 1

	Self Clarity			AIF			Career Decidedness			CDSE		
	R ²	ΔR ²	β	R ²	ΔR ²	β	R ²	ΔR ²	β	R ²	ΔR ²	β
Step 1 – Control Variables	.011	.011		.030	.030		.007	.007		.016	.016	
Gender			-.09			-.09			.04			-.11
Year of Study			-.06			.10			-.04			-.03
Step 2 – Exploration Variables	.046	.035		.267	.237**		.029	.022		.207	.191**	
Self Exploration			-.11			.10			.02			.25***
Environmental Exploration			.11			.36***			.07			.24**
Step(s) 3+				.323	.056**		.069	.040**		.223	.016*	
Motivation/Support Variable(s)	N/A			Teacher Career Support	.27**	Peer Career Support	.20**	Teacher Career Support	.13*			
				.344	.021**	.100	.031**					
	N/A			IOAM	-.15**	IOAM	.18**	N/A				

Notes. ns vary from 233 to 245 due to missing data. IOAM = Individual-Oriented Achievement Motivation; AIF = Amount of Information; CDSE = Career Decision Self-Efficacy. Beta weights shown are those in final equation after all steps. N/A means that none of the motivation/support variables met the inclusion criteria.
* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

TABLE 3.
Hierarchical Multiple Regressions of Career Outcomes at Time 2

	Self Clarity			AIF			Career Decidedness			CDSE		
	R ²	ΔR ²	β	R ²	ΔR ²	β	R ²	ΔR ²	β	R ²	ΔR ²	β
Step 1—Outcome Variables at Time 1	.025	.025		.084**	.084**		.167	.167**		.202	.202**	
			.13			.23*			.40**			.35**
Step 2—Control Variables	.035	.010		.087	.003		.181	.014		.224	.022	
Gender			-.02			-.01			-.02			-.10
Year of Study			.12			-.04			-.12			-.05
Step 3—Exploration Variables	.067	.032		.160	.073*		.222	.041		.329	.105**	
Self-Exploration			-.10			.16			.18			.18
Environmental Exploration			-.22			.15			.04			.23*
Step(s) 4+	.150	.083**										
Motivation/Support Variable(s)	Teacher Career Support	.310**	N/A			N/A			N/A			

Notes. *ns* vary from 79 to 91 (due to missing data). AIF = Amount of Information; CDSE = Career Decision Self-Efficacy. Beta weights shown are those in final equation after all steps. N/A means that none of the motivation/support variables met the inclusion criteria.

* *p* < .05, two-tailed. ** *p* < .01, two-tailed.

exploration would explain significant variance in career decision self-efficacy: there was strong evidence that it did. All four correlations were highly significantly positive. Both exploration variables had highly significant beta weights in the cross-sectional regression. The exploration variables as a pair added significantly to the variance explained in CDSE in the longitudinal regression, though only environmental exploration had a significant beta weight.

Regarding Research Questions 2 and 3, the motivation and support variables explained a little extra variance in the outcomes. Teacher career support was a significant predictor in three of the eight regressions, IOAM in two, and peer career support in one. In no case did addition to the regression equation of a motivation or support variable render a previously significant beta weight of an exploration variable nonsignificant. Therefore in answer to Research Question 2, we conclude that the motivational variables did not play a major part in affecting the outcome variables over and above career exploration; but to the extent that they did, it was the individualized measure, not the more socially focused one, that mattered. In answer to Research Question 3, we can say that the support variables were somewhat associated with the outcomes, especially the support of teachers as opposed to peers and (especially) family.

DISCUSSION AND CONCLUSIONS

We found consistent evidence that career exploration is linked with amount of career information and career decision self-efficacy (CDSE) in both cross-sectional and longitudinal analyses. Environmental exploration was more strongly associated than self-exploration with amount of information. Both forms of exploration were associated with CDSE; however, there was little evidence that exploration was associated with self-clarity

or career decidedness. Support from others (especially teachers) and individual-oriented achievement motivation explained some variance in career development outcomes over and above exploration, which suggests that not all progress in career decision-making happens through exploration. Progress does happen though, because for all outcomes except self-clarity there was a significant increase in mean score over 4 to 6 months. Whether the student took part in the seminars or in the internship had no significant relationship with the extent of these changes over time.

Betz (1994) emphasized that self-efficacy is an attribute of self-concepts; however, CDSE (Taylor & Betz, 1983; Betz et al., 1996) is not only an attribute of self, it is also a construct of career decision-making. In this study, the relation between career exploration and CDSE is clearly established, which is consistent with previous studies that link career exploration with progress in career decision-making (e.g., Blustein et al., 1994). The strength of CDSE is that it is task-specific and related to a sense of competence. It is a very focused and precise construct to tap change in perceived competence after career exploration and intervention.

It is plausible that CDSE stimulates exploration rather than, or as well as, the other way round. Statistically, this cannot be ruled out by our data. We conducted additional cross-sectional and longitudinal regressions where exploration was the outcome and CDSE the predictor and found evidence for CDSE as a predictor of exploration that was about the same strength as the reverse causal direction shown in Tables 2 and 3. On the face of it, exploration should increase a person's confidence that he or she can tackle career development tasks, because what has been found out through exploration should help him or her do so. This is the basis of our Research Question 1d. Alternatively or

additionally, having a sense of CDSE may be what is needed to trigger the exploration process in the first place. We accept that there might well be a recurring causal loop between CDSE and exploration, with research data lending support to both parts of it.

Career exploration explained significant variance in amount of information. This reaffirms the proposition made by Greenhaus et al. (2010) that career exploration will contribute to awareness of the environment. Like CDSE, it can be enhanced through active, voluntary exploration behavior. As one might expect, the effect of environmental exploration appears to be stronger than that of self-exploration; this may, however, partly be a measurement issue. Of the 25 CDSE items, 7 refer explicitly to environmental aspects of career, but none refer explicitly to self-development (though a number refer to activities that might lead to self-development).

The failure of career exploration to explain significant variance in self-clarity is in contrast to the study by Blustein et al. (1994) in which career exploration resulted in self-concept crystallization. Students might need a longer period of time to achieve self-clarity. Moreover, career decidedness (Jones, 1989) was not found to be explained by career exploration. In the Greenhaus et al. (2010) model, career exploration will result in goal setting, and not necessarily reaching a career decision at a specific point of time. Perhaps the time period of 4 to 6 months (and 3 months at Time 1, because the career exploration measures refer to the last 3 months) is not long enough for any effects of career exploration to filter through to decidedness. Decidedness may not be entirely desirable or indeed the main career development issue (Krumboltz, 2009); nevertheless, reaching a career decision appears to be an important developmental task for university students, and career decidedness has been found to be related to positive well-

being for them (Uthayakumar, Schimmack, Hartung, & Rogers, 2010).

Even where it had a significant effect, career exploration did not explain a high proportion of the variance in outcome measures. In the cross-sectional regressions it peaked at about 24% (for amount of information) and in the longitudinal regressions at about 11% (for CDSE). Furthermore, significant increases in mean levels on three of the four outcome measures between Time 1 and Time 2 suggest that development of a kind may be happening, but not much of it is a result of exploration. Alternative explanations include (a) exploration does help career development but the measures used (which are typical of those used in many studies) fail to capture this properly, and (b) exploration does help career development but only over longer time periods than were investigated here. A third possible explanation is that the CES measure of career exploration does not distinguish sufficiently well between narrow focus (specific) and broad focus (diversive) exploration. Diverisive exploration has been found to decrease certainty while specific exploration increases it (Porfeli & Skorikov, 2010). Perhaps these two partially canceled each other out in this study.

Social support may substitute to some extent for career exploration. We found that social support added significantly to variance explained in all four outcomes (three in the cross-sectional analyses, and one in the longitudinal analyses). In three cases this was teacher support, and in one case peer support. The absence of effects of family support is perhaps due to the notion of support not doing justice to the complexities of college students' relationships with, and separation from, parents (Schwartz & Buboltz, 2004). It seems that these students' teachers, and to a lesser extent peers, but not family, may be playing a significant role, especially perhaps in providing occupational information and

feedback that enhances clarity of self-concept. This supports the general view that in a collectivistic culture like Hong Kong, social influences on career development process are significant, particularly since teachers are to some extent authority figures. However, social-oriented motivation did not contribute to the explanation of variance in outcome variables, while individual-oriented motivation (IOAM) did a little; so the picture is perhaps not entirely consistent with a collectivistic culture. It may perhaps reflect continuing Western influences in Hong Kong. IOAM was associated with more career decidedness and less occupational information, perhaps indicating a tendency towards foreclosure and an inflexible approach to their studies (cf. Boyd, Hunt, Kandell, & Lucas, 2003).

In Table 1, the mean scores for self-clarity were below the midpoint and relatively low compared with the other career exploration outcomes. Either forming a clear self-perception was too much for the students within this period of time (despite the increase between Time 1 and Time 2), or they were not focusing enough attention on forming the perception. Moreover, the students generally perceived lower occupational information, as compared to CDSE and career decidedness. Again, this was despite an increase between Time 1 and Time 2. The Time 1 mean for career decidedness was relatively high, which might partly explain why there was no significant increase in it subsequently. If the students had been on average fairly decided for some time, then exploration during the most recent 3 months might not have much effect. Still, it has been argued that career exploration is beneficial for many students who profess themselves already decided (Corkin, Arbona, Coleman, & Ramirez, 2008), so we might have expected exploration still to have had more consistent relationships with outcomes than it did.

Implications for College Career Counselors and Administrators

This research was conducted in 2002–03 while Hong Kong was still moving from an elite to a mass university education system. Although data collection occurred some time ago, Hong Kong's transition from British to Chinese ways is still ongoing today, and the rapid expansion of higher education is still reverberating through the system. The data reflect career exploration behavior in mass university education facing economic uncertainties in the 2000s, and this is still the case now. University students are seeking career exploration opportunities to better prepare for their careers, and universities are still investing in career programs and internships. In this context, our findings will inform universities in Hong Kong and beyond to foster career exploration and its desirable outcomes through interventions on the campus.

Due to the rapid increase of university students and increasing graduate employment difficulties with economic uncertainties since 1997, university career services in Hong Kong have been working increasingly to enhance career exploration of students through education programs, internships, and individual counseling. In this context we can see three implications of our research for vocational counselors and administrators in colleges and universities. First, it is important to recognize that career exploration does not necessarily lead to quick results in all areas. It may well be necessary to help clients reflect on what they can learn from their exploration, particularly regarding their vocational self-concepts and their progress towards occupational decision-making. Exploration without guided reflection may be a rather empty activity (Brown, 2004; Chesbrough, 2011). Administrators and coordinators of career intervention programs can usefully build

opportunities for guided reflection into those programs. Second, at least in the Hong Kong environment where teachers traditionally enjoy high status and recognition in society, it may be useful for counselors to explore with student clients the role of teachers in their career development. Helping clients elicit support from their teachers could perhaps be a fruitful activity. Of course, counselors may also want to check that what teachers are saying to student clients is not unintentionally misleading. Administrators in academic departments and career services, in turn, will encourage teachers to give career support to students informally or through participation in career interventions. Third, given that we found increases over time in three of the four outcome variables and that much of this cannot be attributed to career exploration, counselors may wish to explore with clients how and why they feel they have progressed their career. It may transpire that they have, for example, adopted a clearer view of self because of something a teacher said; the counselor may wish to discuss the likely validity of this perhaps passively received information. The implicit assumption here is that exploration would be a more suitable basis for progress in career development.

LIMITATIONS

This research was quantitative in nature, using established career development measures in the West to facilitate understanding and comparison with prior studies; however, there are also possible limitations to the design. The three single-item measures of support are of unknown validity and reliability, although the presence of teacher support and peer support as significant predictors in the regression analyses suggests that they were doing an acceptable job of tapping the construct. Despite the proven reliability and validity of the other

measures across countries, they may not be able to address the unique career experience as perceived by students in the local context. Qualitative research to understand how students make sense of their own experience would be valuable.

The data for this study were collected in 2002–03, coinciding with the outbreak of severe acute respiratory syndrome (SARS) in Hong Kong and China. This reduced the scope of both the career education program and internships and restricted their activities locally in Hong Kong. Moreover, it led to the suspension of university activities and the reduction of face-to-face opportunities for data collection, which increased the difficulties of the second data collection and reduced the Time 2 response rate. In turn, this meant that the sample size in the longitudinal regressions when using listwise deletion of missing data was at or slightly below the recommended minimum when seeking to detect medium effect sizes at $p < .05$ with statistical power of 0.80. Boosting the sample size so that it exceeded the minimum by using mean substitution for missing data in the predictor variables did not, however, change the findings.

The sample consisted of students who were motivated to participate voluntarily in a career intervention in the university setting. Respondents at Time 2, as compared to with nonrespondents, were more motivated to meet others' expectations as indicated by higher SOAM. Therefore relative to the student population as a whole, our respondents may have been somewhat more focused on career exploration and more motivated to comply with the expectations of others. Also, despite the likely career-related needs of first-generation university students, we do not know for sure what proportion of our sample were first-generation. Still, all indications from university statistics are that many of them fit this description.

CONCLUDING REMARKS

Our findings partly support the prior literature and model of career exploration outcomes (Greenhaus et al., 2010; Flum & Blustein, 2000), and we have contextualized the role of exploration behavior alongside other relational and motivational variables on the outcomes. As for future study, we suggest further testing of different constructs of career exploration outcomes and a longitudinal study extended to examine the variables over a longer period at multiple time points. Overall, we believe that the study of career exploration will continue to contribute

significantly to theory building across borders and cultures. Research will inform practice and address the tremendous needs and concerns of career exploration interventions in Chinese societies. With the rapid expansion of higher education in Hong Kong and Mainland China, this agenda will undoubtedly continue to increase in importance.

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