

## **Family Influences on Career Decision-Making Self-Efficacy of Chinese Secondary Vocational Students**

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### **Abstract**

Career decision-making self-efficacy is a pivotal construct in understanding individuals' career behaviors (Betz, 2007). Family, as a primary source of social support, exerts a substantial influence on adolescents' career development and decision-making process (Whiston & Keller, 2004). This study examined the role of selected family variables in predicting 587 Chinese secondary vocational students' career decision-making self-efficacy. Family *structural* variables that reflected family members' socioeconomic status and family *process-oriented* variables, especially, parental career-related behaviors, were examined. Results showed that parental general psychosocial support was a statistically significant factor in predicting career decision-making self-efficacy, explaining 38.3% of the variance of this construct for Chinese secondary vocational students.

### **Introduction**

In Chinese culture where social norms value affiliation, interdependence, and respect for elders, individuals rely strongly on family for support throughout their lifetime. Influenced by the Confucian concept of *xiao* (filial piety), Chinese are more likely to consider family expectations and obligations when choosing a career, especially a career that enhances the social status and brings glory to their family (Hannum, An, & Cherng, 2011; Liu, McMahon, & Watson, 2015). Parents are also a primary influence in encouraging adolescents to explore their career interests and goals. Chinese parents transmit their career-related values, sometimes implicitly, and gear their children's future towards what they consider to be the right path (Liu et al., 2015). Even though Chinese parents may not plan a specific career for their children, they foster children's career-related intrapersonal characteristics (e.g., interest and skills), values, and beliefs; and they contribute to the formation of their children's image as future adults.

Career decision-making self-efficacy is a pivotal influence that guides individuals through the navigation of career decision-making process and affects individuals' further career development, pursuits, and job satisfaction (Betz, 2007; Klassen & Chiu, 2010). Career decision-making self-efficacy refers to individuals' degree of confidence in their abilities to engage in and accomplish tasks associated with making and committing to a career choice (Taylor & Betz, 1983). High levels of career decision-making self-efficacy are usually associated with positive career attitudes, high self-esteem, and clear vocational identity (Choi et al., 2012). Individuals with high levels of career decision-making self-efficacy are more likely to engage in career exploration and planning activities, identify their career interests, persistently work toward career goals, and have greater achievement (Hou, Wu, & Liu, 2014; Rogers & Creed, 2011). Low levels of career decision-making self-efficacy are usually associated with vulnerability to stress and depression (Bandura,

Barbaranelli, Caprara, & Pastorelli, 2001), as well as certain career decision-making difficulties, which often lead to career indecision (Gati et al., 2011).

Understanding the influence of family on career decision-making self-efficacy is important for Chinese secondary vocational students. In China, education beyond middle school diverges into two tracks: general and vocational education. General education is academic and college in focus. Vocational education, on the other hand, emphasizes specific field(s) of work. Secondary vocational education, in particular, enrolls about 46% of middle school graduates and provides specialized technical personnel for the country (China Statistical Yearbook, 2014). Secondary vocational students undergo important transitions from school to work and often face a multitude of challenges. In contrast to the traditional learning environment in general high school, secondary vocational students are exposed to actual or simulated working scenarios (Wang, 2013). They are thrown to new but crucial tasks—such as exploring the world of work, developing a career plan, or making a career choice—at a young age, and are required to master skills that could advance their career development. Career planning and decision-making become prominent for these vocational students.

Despite of the importance of career development for vocational students, a limited number of studies examined career decision-making issues of vocational students in China, even fewer studies focused on secondary vocational students (e.g., Chu, Li, Yan, Han, & Fan, 2015; Zhang, Yuen, & Chen, 2015). Family is the most important contextual feature in individuals' career development as well as the most convenience resource where individuals seek help (e.g., Lent, 2005; Zhang et al., 2015). Yet research on family support for Chinese vocational students is scarce. Therefore, an examination of family variables on career decision-making self-efficacy can contribute to the discussion of how family influences adolescents' career decision-making and provide implications for Chinese secondary vocational students' career development.

## **Review of Literature**

### **Career Decision-Making Self-Efficacy**

Derived from Bandura's (1986) social cognitive theory, career decision-making self-efficacy has been demonstrated to be a salient construct in individuals' career development (Betz, 2007). From a social cognitive perspective, individuals are agents of their lives. They intentionally exercise influence on their functioning and life circumstances instead of simply being witnesses (Bandura, 2001). Self-efficacy beliefs are considered to be the foundation and the most influential predictor of exercising control over one's behavior, thought, learning, and decisional processes (Chong, 2007). Self-efficacy refers to an individual's convictions about (or confidence in) his/her ability to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context (Stajkovic & Luthans, 1998). Unless individuals believe they have the ability to achieve certain goals, they have little motivation to act or to persevere in the face of obstacles (Bandura et al., 2001). Self-efficacy gained through engagement in activities also builds self-knowledge and overall self-perception, and helps individuals positively cope with stress and depression to remain emotionally stable and healthy (Taylor & Betz, 1983). Individuals with a high level of self-efficacy are likely to objectively analyze situations, including success and failure, and be able to explain their successes and failures by self-reflection and an examination of external factors. Even when the worst situation occurs, individuals with a high level of self-efficacy can still maintain a positive attitude and take initiatives.

Social cognitive career theory (SCCT) (Lent, Brown, & Hackett, 1994, 2000) expands the social cognitive theory in career domains and further explains the career decision-making self-efficacy as a core construct in career development. SCCT views career decision-making as an unfolding process with multiple influences and choice points, where the formation of interests and goals, choice making, and performance attainment are involved in this cycling interactive decision-making processes (Lent et al., 2000). Career decision-making self-efficacy effectively predicts the development of *interests* in career-relevant activities and occupations, the formation of career *goals* (i.e., intentions, plans, or aspirations to engage in a particular career direction), as well as the level of engagement in career-relevant activities (*actions*). Choice actions lead to certain performance or achievement experiences (success or failure), which either strengthens or weakens the original self-efficacy beliefs and leads to adjusted career choices (or goals) in the next instance of decision-making. This explains why individuals who have completed previous career-relevant tasks and achieved career goals are found to be more decisive because successful experiences of accomplishment enhance their self-efficacy beliefs (Lent, Paixao, da Silva, & Leita, 2010).

SCCT also proposes a number of factors that could influence individuals' career decision-making self-efficacy, such as personal variables (e.g., age and gender), contextual variables (e.g., perceived support and barriers from family, peers, and society) and experiential variables (e.g., learning sources) (Lent et al., 1994). Lent (2005) pointed out that personal and contextual factors would influence career decision-making self-efficacy and other career development constructs (e.g., interests, goals) in a complexly interactive way. They may act as the distal and background influence (e.g., culture, types of available career role models, skill development opportunities) that helps to shape self-efficacy; they may also act as the environmental influence during the active phases of choice-making (e.g., emotional or financial support for pursuing a particular option, job availability in the individual's preferred field, and sociostructural barriers) (Lent, 2005, p. 110). For example, race and gender usually transcend their biological properties and are more likely to be viewed as socially constructed statuses reflecting selective exposure to career-relevant experiences. Choi et al. (2012) conducted a meta-analysis from 34 studies and found that there was no significant direct relationships among gender, race, and career decision-making self-efficacy; however, they implied that those relationships might likely be shaped by individuals' various learning experiences. Contextual variables such as support and barriers (related to gender, race/ethnicity, age, socioeconomic status, or family constraints), despite their objective features of the environment, are perceived and interpreted differently among people (Sheu et al., 2010).

### **Family Influence on Adolescents' Career Decision-Making Self-Efficacy**

Perceived support from the most influential people is likely to have more direct influence on career decision-making self-efficacy than other contextual factors (Wright, Perrone-McGovern, Boo, & White, 2014). This influence is more prominent during the period of adolescence where young individuals are forming a sense of self and clarifying their vocational identity (Rodríguez, Inda, & Fernández, 2015). Research indicates that the influence of family on individuals' career development displays in two interdependent dimensions: *structural* and *process-oriented* features (e.g., Keller & Whiston, 2008; Lindstrom, Doren, Metheny, Johnson, & Zane, 2007). Family structural features represent relatively stable characteristics of the family, such as family socioeconomic status. Family process-oriented features represent certain family dynamic processes, such as parental support and family members' interactions, which influence the development of career aspirations, career exploration, and perceived self-efficacy of adolescents (Metheny & McWhirter, 2013; Rogers & Creed, 2011).

Family socioeconomic status (SES) is an important indicator of the family structure, featuring social position, power, and resources (Conger, Conger, & Martin, 2010). Family SES usually reflects parents' educational and occupational attainment, as well as educational, financial, relational, and social networking resources that youth can access. As a result, family SES exerts considerable influence on adolescents' career decision-making and occupational status attainment (Rojewski, 1997; Whiston & Keller, 2004). Parents in higher SES families are more likely to be supportive and encouraging of a child's career exploration, and are likely to provide information and resources for the child's career planning and decision-making (Hsieh & Huang, 2014). Youth from higher SES families often hold expectations of higher levels of education attainment and aspire to more prestigious occupations (Rojewski & Kim, 2003). They are also more likely to express greater interest in work as a source of personal satisfaction, to have greater access to external resources, and to engage in systematic career exploration and career planning activities (Blustein et al., 2002). In contrast, youth from lower SES families often experience pressure to contribute to the family financially and express motivations to achieve greater financial stability and status than their family of origin (Lindstrom et al., 2007). Therefore, they usually perceive more barriers and less family support in the career development process than their higher SES counterparts (Metheny & McWhirter, 2013).

Family process-oriented variables, such as perceived parental support, influence adolescents' self-efficacy when coping with tasks of identifying goals, seeking out information, and making choices (Ginevra, Nota, & Ferrari, 2015). Restubog, Florentino, & Garcia (2010) found that parental support facilitated the development of career decision-making self-efficacy and a sense of autonomy, thereby affecting individuals' career decidedness (i.e., the level of certainty of a particular career decision) and persistence. When examining family process-oriented features on adolescent career development, a majority of studies focused on the "broad" impact of parent-child relationship or general parenting behaviors. Keller and Whiston (2008) suggested that the investigation of specific parental behaviors on adolescents' career development (e.g., providing information about specific careers and encouraging children to participate in career exploration activities) could help reveal the complex nature of family influences. Parental career-related behaviors refer to concrete actions that include parental general psychosocial support behaviors (e.g., emotional support, encouragement, expectation, and general guidance) as well as parental career-specific behaviors, such as providing individuals with written information about careers (Keller & Whiston, 2008).

Ferry, Fouad, & Smith (2000) examined the role of family contextual variables in a social cognitive model for career-related choice behavior in the math and science domains. Several family factors that were known to influence career behaviors were included, such as parental role modeling, parental expectations, parental encouragement, parenting style, family SES, and parent-child relationship. They found that parental encouragement (i.e., verbal encouragement or behavioral support from parents on the domain-related activities) enhanced individuals' self-efficacy by persuading individuals to believe that they could deal successfully with what had overwhelmed them in the past, thus, influencing their learning experience. Research showed that parental general psychosocial support (e.g., showing general interest in their children) was more prominent in affecting adolescents' career decision-making compared to parental career-specific behaviors (Keller & Whiston, 2008; Paloş & Drobot, 2010).

Given the "one child policy," Chinese parents usually possess high expectations regarding their children's future and tend to invest great efforts in supporting their children's career paths (Zhang et al., 2015). They encourage their children's career aspirations by nurturing the children's career

interests and intentionally provide opportunities and resources for their children to explore these interests (Liu et al., 2015). Successful middle-class mothers, in particular, are keen to invest in their children's education to ensure that their children maintain or surpass their current social position and lifestyle (Sheng, 2012). However, research showed that family SES for secondary vocational students in China was significantly lower than general high school students in household income, prestige of parental occupations, and levels of parental education (Chu et al., 2015; Wang, Man, & Chen, 2013). Most parents of secondary vocational students were agricultural laborers or rural migrant workers in cities; whereas parents of general high school students held more diverse and prestigious occupations, such as officials, enterprise administrators, technicians, and businessmen (Wang et al., 2013; Yu, 2010). Low family SES encountered by secondary vocational students is likely to be associated with certain family process-oriented features; and they, together, influence adolescents' career decision-making self-efficacy. For example, parents who are agricultural laborers or rural migrant workers usually have relatively low career expectations of their children and can only provide limited support to their children's career development (Chu et al., 2015; Deng, He, & Zhao, 2013). Due to a lack of resources and support, adolescents will likely to perceive low levels of self-efficacy.

### **Purpose of the Study**

In Chinese culture, family is the core unit from which individuals seek advice. The influence of family may be more prominent for adolescents (Rodríguez et al., 2015). Despite the cultural norms of high parent-child interdependence in China, the literature on parental influence on Chinese adolescents' career decision-making self-efficacy is still limited. Even fewer studies focus on Chinese secondary vocational students who are at an important stage of making career decisions and transit to workforce. The purpose of this study was to examine the influence of family variables on the career decision-making self-efficacy of secondary vocational students in China. Family variables were categorized as structural variables reflecting family members' socioeconomic status, and process-oriented variables referring to family members' interaction and support (Lindstrom et al., 2007). Family affluence level and family residence (rural or urban) represented family structural variables. Parental career-related behaviors, including general psychosocial support and parental career-specific behaviors, represented family process-oriented variables.

Two research questions were answered in this study:

1. What is the career decision-making self-efficacy of Chinese secondary vocational students?
2. What is the best set of selected variables to explain the variance found in the career decision-making self-efficacy of Chinese secondary vocational students?

### **Method**

#### **Participants**

A cross-sectional survey was conducted for this study. Five hundred and eighty seven first-year students enrolled in a key national vocational high school located in a capital city in northwestern China constituted the convenience sample for this study. The capital city in this study has a population of 3.6 million and its GDP ranking about 100th among 355 cities nationwide. The vocational high school prepares graduates in the field of construction materials with eight specialties including a) silicate process and industrial control, b) mechanical and electrical equipment installation and maintenance, c) electric operation and automation, d) application of

electronic techniques, e) environmental protection and monitoring, f) industrial analysis and testing, g) construction and engineering materials, and h) mechatronics. This vocational high school enrolls over 3,000 students and employs 162 lecturers and staff members. First-year students were selected because they needed to declare their focused area (or sub area) of specialty as the vocational curriculum becomes more specialized.

Among all first-year students ( $n=639$ ) enrolled in this vocational high school, a total of 636 students returned signed parental consent and minor assent forms, and thus participated in the survey. The questionnaire was administered during students' self-studying time under the supervision of the program coordinator with no identifiable information collected. Cases that had complete blanks for a whole section of the questionnaire ( $n=6$ ) and certain response patterns ( $n=43$ , e.g., repeated response patterns to all items, A, B, C, D, A, B, C, D, A..., or same response to a sequence of items, B, B, B, B, B,...) were identified and excluded from further analysis. The final sample size was 587, and the actual participation rate was 92.3%.

Three hundred and ninety-eight (67.8%) responding students were boys, while 189 (32.2%) were girls. Adolescent boys represented the majority of students because the vocational high school specializes in the field of construction materials, which has been viewed as a traditionally male occupation in China. Participants' ages ranged from 15 to 17, with an average of 15.80 ( $SD=.63$ ). Five hundred and sixteen (87.9%) students indicated that their families' official residence was in a rural area, and 71 (12.1%) in an urban area. Among these students, 83% ( $n=488$ ) came from a low affluence family background, 14% ( $n=83$ ) reported a medium affluence family background, and 3% ( $n=16$ ) came from a high affluence family background.

## Instruments

**Career decision-making self-efficacy.** Career decision-making self-efficacy was measured by the Career Decision Self-Efficacy scale-Short Form (CDSE-SF) (Betz, Klein, & Taylor, 1996). The CDSE-SF contains 25 items measuring respondents' confidence associated with tasks from five career choice competencies: self-appraisal (i.e., confidence in the ability to identify resources, constraints, and personal characteristics that might influence individuals' career choices), information gathering, goal selection, planning, and problem-solving. The scale asks respondents to rate their confidence using a 5-point Likert scale (1=No Confidence At All to 5=Complete Confidence). Examples of the items are "How much confidence do you have that you could... 'accurately assess your abilities?,' 'find information in the library about occupations that you are interested in?,' and 'make a plan of your goals for the next five years?.'" The CDSE-SF has been applied in multicultural contexts such as France (e.g., Gaudron, 2011), Italy (e.g., Presti et al., 2013), Greece (e.g., Koumoundourou, Kounenou, & Siavara, 2011), Korea (e.g., Nam, Yang, Lee, Lee, & Seol, 2011), China (e.g., Hampton, 2006; Creed, Wong, & Hood, 2009), and the Philippines (e.g., Garcia, Restubog, Toledano, Tolentino, & Rafferty, 2012), suggesting construct validity of the career decision-making self-efficacy and content validity of the CDSE-SF instrument across nationalities and cultures. A composite score summing all items provides a general level of confidence in career decision-making with higher scores representing higher levels of self-efficacy. Creed et al. (2009) reported a Cronbach's  $\alpha$  of .88 for the total score of the CDSE-SF for Chinese high school students. Cronbach's  $\alpha$  was .89 for the total scores of the CDSE-SF for our sample.

**Parental career-related behaviors.** Parental career-related behaviors, which refer to parental concrete actions associated with adolescents' career development, were measured by the Parent Career Behavior Checklist (PCBC) (Keller & Whiston, 2008). The PCBC consists of 23 items assessing respondents' perceptions of parental general psychosocial support behaviors (Support

scale) and parental career-specific behaviors (Action scale). Participants are asked to select the parent/guardian most concerned about their career issues and then to indicate the degree that each item applies to that guardian using a 5-point Likert scale (1=Never to 5=Very Often). Examples of the items are “My parent encourages me to choose whatever career I want” (Support), and “My parent has helped me understand the results from career tests or interest assessments I have taken” (Action). Keller & Whiston (2008) reported Cronbach’s  $\alpha$  was .93 for the whole instrument, .90 for the Support scale, and .89 for the Action scale with American adolescents. Paloş and Drobot (2010) reported Cronbach’s  $\alpha$  was .95 for the whole instrument, .93 for the Support scale, and .93 for the Action scale with Romanian adolescents.

Due to a lack of application of the PCBC to the Chinese population, we conducted both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to explore and validate the factor structure of the PCBC. Specifically, we conducted a pilot study with a group of random selected second-year students in the same vocational high school ( $n=197$ ) and performed the EFA. The PCBC items are presented in descending order according to the size of their EFA factor loadings (see Table 1). Results indicated that two factors should be retained from the EFA. Seventeen items loaded saliently (i.e., loadings  $\geq .40$ ) on the first factor (parental general psychosocial support) and five items loaded saliently (i.e., loadings  $\geq .40$ ) on the second factor (parental career-specific behaviors). Item 12 “My parent has talked to me about the steps involved in making difficult decisions” cross-loaded saliently (i.e., loading  $\geq .30$ ) on both factors, and was deleted. Then, we performed CFA with the sample of our main study ( $n=587$ ). CFA supported the two-factor structure from EFA (see Table 1 for CFA factor loadings in parentheses). Goodness of fit indices revealed that the CFA model adequately represented the data ( $\chi^2=454.7$ ,  $df=208$ , RMSEA=.045, SRMR=.042, NNFI=.927, and CFI=.934). Therefore, a composite score summing items ( $n=17$ ) from the subscale PCBC-Support and a composite score summing items ( $n=5$ ) from the subscale PCBC-Action were used for further analysis. The Cronbach’s  $\alpha$  was .91 for the total scores of the PCBC, .88 for the Support scale, and .81 for the Action scale for our sample ( $n=587$ ).

**Table 1.** Factor Loadings for the Parent Career Behavior Checklist

Parent Career Behavior Checklist Items		Support	Action
<b>Psychosocial Support Items</b>			
20	My parent asks what careers I am considering for my future.	<b>.73</b> (.52)	-.19
18	My parent encourages me to try new things.	<b>.71</b> (.64)	-.01
16	My parent tells me he/she loves me.	<b>.71</b> (.45)	-.09
14	My parent has encouraged me to be involved in extra-curricular activities	<b>.64</b> (.60)	-.13
21	My parent encourages me to choose whatever career I want.	<b>.62</b> (.56)	-.04
23	My parent has supported me when I have told him/her that I am interested in a specific career.	<b>.57</b> (.56)	.04
4	My parent encourages me to make my own decisions.	<b>.54</b> (.52)	.03
6	My parent has encouraged me to consider many different educational and career options.	<b>.52</b> (.52)	.09
1	My parent expresses interest in various teenage issues that are important to me.	<b>.52</b> (.48)	-.05
19	My parent encourages me to talk to him/her about my career plans.	<b>.50</b> (.65)	.20
22	My parent tells me he/she is proud of me.	<b>.47</b> (.59)	.20
5	My parent tells me he/she has high expectations for my career.	<b>.47</b> (.45)	.10
7	My parent tells me about specific careers.	<b>.46</b> (.49)	.03
3	My parent has encouraged me to take interest assessments or career tests offered by my school.	<b>.46</b> (.46)	.05

Parent Career Behavior Checklist Items (continued)		Support	Action
<b>Psychosocial Support Items (continued)</b>			
8	My parent helps me feel better when I tell him/her I am worried or concerned about choosing a career.	<b>.45</b> (.54)	.13
9	My parent really tries to understand my thoughts, feelings and opinions about various topics.	<b>.43</b> (.49)	.08
15	My parent encourages me to ask questions about different jobs.	<b>.42</b> (.57)	.21
<b>Career Action Items</b>			
11	My parent has given me written material about specific colleges.	-.21	<b>.94</b> (.73)
10	My parent has given me written material about specific careers.	-.09	<b>.77</b> (.68)
13	My parent has participated with me in a structured career development workshop offered by my school, church, etc.	.08	<b>.60</b> (.69)
17	My parent has helped me understand results from career tests interest assessments I have taken.	.15	<b>.57</b> (.63)
2	My parent has shown me where to find information about colleges or careers in the library or bookstore.	.13	<b>.52</b> (.62)

Note. Factor loadings > .40 for the exploratory factor analysis (EFA) are in boldface. Standardized loadings for the confirmatory factor analysis (CFA) are in parentheses.

**Family socioeconomic status.** Family SES was measured by the Family Affluence Scale II (FAS II) (Currie et al., 2004) and residence status. FAS was specifically developed for use by adolescents, because adolescents usually lack an accurate understanding of their parents' occupational, educational, and income levels, which are common indicators for family SES (Currie, Elton, Todd, & Platt, 1997). Instead of using those common indicators, FAS II contains four items that ask respondents to indicate the number of vehicles the family owns (0, 1, 2+), whether or not the child has his or her own bedroom (yes, no), the number of family trips (travel) per year (0, 1, 2+), and family computer ownership (0, 1, 2+). A composite score indicates the general family affluence status with higher scores representing higher levels of family affluence. FAS II is widely used around the world in the context of international studies of adolescents' health and turns out to be a more accurate and reliable instrument for child-reported family SES (Currie et al., 2008). FAS II has also been shown to be a valid and reliable measure of family SES for Chinese adolescents, with the Cronbach's  $\alpha$  of .58 and substantial test-retest reliability (Intra Class Correlations > .75) (Liu et al., 2012). The Cronbach's  $\alpha$  was .65 for the total scores of the FAS II for our sample.

According to China's household registration or *hukou* system, residence (urban or rural) indicates not only a geographical location but, more importantly, socioeconomic status and social benefits and resources (Afridi, Li, & Ren, 2015). Therefore, residence status (0=Urban, 1=Rural) was also used to measure family SES. Respondents' demographics, such as gender and age, were collected as well.

## Procedure

Institutional Review Board (IRB) approval to collect data and the permission to use and translate the instruments were obtained. The questionnaire was translated from English to simplified Chinese by four Chinese graduate students with professional English reading and writing skills. Three students independently translated the questionnaire from English to Chinese, translated it back to English, and modified their translations in Chinese. A fourth student compared



the three different Chinese versions with the original English version, resolved any discrepancies, and concluded the best translated version. In addition, four random selected second-year students in the same vocational high school were interviewed regarding difficulties in understanding each question and opinions on alternative ways to phrase questions in a more understandable manner. Some item wording and the questionnaire format were revised, and the final version of the questionnaire was determined. A pilot study was conducted with 197 randomly selected second-year students in the same school to detect potential problems with survey procedures as well as to explore the factor structure of the PCBC on Chinese students. Validity and factor structure of the PCBC were further supported by CFA before PCBC scores were used in subsequent analysis.

## Analysis

Descriptive statistics (e.g., mean, standard deviation, and range) were calculated using SPSS Statistics 17.0. Multiple linear regression was conducted to examine the relationship between multiple independent variables and a dependent variable. In this study, the dependent variable was the career decision-making self-efficacy. And independent variables were multiple family variables and demographics (i.e., age, gender). All independent variables were treated as one set and entered into the regression equation at once. Because this procedure allows researchers to assess how well the dependent variable is predicted from each independent variable, from an independent variable above and beyond a group of independent variables, and from all independent variables (Green & Salkind, 2008). Major assumptions of multiple linear regression (Williams, Grajales, & Kurkiewicz, 2013) were checked to be satisfactory throughout analysis. A pre-determined criterion of a .05 significance level was used, which is common in educational/psychological research. A multiple regression with two or more collinear variables will produce errant results. Therefore, a collinearity test was conducted to show if two or more independent variables contained strongly redundant information (Sweet & Grace-Martin, 2008). A series of tests of statistical significance were also conducted: a) test of significance of  $R^2$  and b) test of partial coefficients  $B$  (Cohen, Cohen, West, & Aiken, 2003).

## Results

**Research Question 1.** What is the career decision-making self-efficacy of Chinese secondary vocational students?

The scores on the CDSE-SF indicated more than a moderate to nearly a high level of career decision-making self-efficacy among Chinese secondary vocational students. The total scores of the CDSE-SF ranged from 60 to 119, with the mean score of 93.09 ( $SD=11.56$ ) and the item mean score of 3.73 ( $SD=.47$ ). Approximately 95% of the CDSE-SF scores fell between the range of 70 and 116, indicating the distribution of scores was concentrated. In other words, variations between levels of career decision-making self-efficacy were small among these students. The highest score for the five career choice competencies was self-appraisal ( $M=3.80$ ,  $SD=.58$ ), followed by career planning ( $M=3.78$ ,  $SD=.58$ ), goal selection ( $M=3.73$ ,  $SD=.55$ ), gathering occupational information ( $M=3.70$ ,  $SD=.54$ ), and problem solving ( $M=3.60$ ,  $SD=.57$ ).

The scores on the 22-item PCBC showed that there were relatively large variations among students' perceived parental career-related behaviors. The total scores ranged from 32 to 110, with the mean score of 79.79 ( $SD=12.23$ ) and the item mean score of 3.63. Approximately 95% of the PCBC scores fell between the range of 56 and 104. Meantime, there were also a few students reported they barely perceived any type of parental career-related behaviors that had occurred. The subscale PCBC-Support consisted of 17 items with total scores ranging from 25 to 85 with a scale

mean score of 63.04 ( $SD=9.41$ ) and an item mean score of 3.71 ( $SD=.55$ ), indicating that parental general psychosocial support behaviors occurred, on average, more than *sometimes* and nearly *often* according to students' perceptions. The subscale PCBC-Action consisted of five items with total scores ranging from 5 to 25, with a scale mean score of 16.74 ( $SD=3.91$ ), and an item mean score of 3.35 ( $SD=.78$ ), indicating that parental career-specific behaviors occurred, on average, between *sometimes* and *often* according to students' perceptions.

The correlations indicated that the score of Chinese vocational students' career decision-making self-efficacy had significant correlations with parental general psychosocial support ( $r=.61$ ,  $p<.05$ , 36% of variance explained), and parental career-specific behaviors ( $r=.42$ ,  $p<.05$ , 16% of variance explained), but not with other independent variables. Parental general psychosocial support had significant correlations with parental career-specific behaviors ( $r=.64$ ,  $p<.05$ , 41% of variance explained). Family affluence held small, yet significant, correlations with family residence status (6.8% variance explained), parental general psychosocial support (3% variance explained), parental career-specific behaviors (3% variance explained), and gender (1% variance explained). Age had a small, yet significant, correlation with gender but not with other variables. Means, standard deviations, and variable correlations were shown in Table 2.

**Table 2.** Descriptive Statistics and Correlations of Study Variables

Variable	2	3	4	5	6	7	Mean	SD
1. CDSE-SF	.61*	.42*	.01	-.02	.00	.07	93.09	11.56
2. PCBC-Support	-	.64*	.04	-.08*	-.05	.17*	63.04	9.41
3. PCBC-Action		-	-.00	-.07	-.06	.16*	16.74	3.91
4. Age			-	.09*	.04	.08	15.80	.63
5. Gender				-	-.12*	.10*	.32	.47
6. Residence					-	-.26*	.88	.33
7. FAS II						-	1.80	1.63

Note. CDSE-SF=Career Decision Self-Efficacy scale-Short Form. PCBC-Support=Parent Career Behavior Checklist-Support Scale. PCBC-Action=Parent Career Behavior Checklist-Action Scale. FAS II=Family Affluence Scale II.

\* $p < .05$

**Research Question 2.** What is the best set of selected variables to explain the variance found in the career decision-making self-efficacy of Chinese secondary vocational students?

$F$  statistics showed that multiple linear regression represented the data well ( $F=59.96$ ,  $p<.05$ ), denoting a significant improvement in explaining the dependent variable, career decision-making self-efficacy, with selected independent variables. The squared multiple correlation,  $R^2$ , was .383, which indicates that 38.3% of the variance of students' career decision-making self-efficacy was explained by selected independent variables in this study. The adjusted  $R^2$  value, which considers sample size, was calculated to be .376. Test of partial coefficients revealed that only one independent variable was statistically significant in explaining students' career decision-making self-efficacy, viz., parental general psychosocial support (see Table 3). Family residence and affluence, as well as student age and gender, did not have significant influence on Chinese vocational students' career decision-making self-efficacy. When controlling for all other variables, one unit of change in the score on PCBC-Support resulted in .72 unit of change on the score of students' career decision-making self-efficacy. This indicated that parental general psychosocial

support (e.g., expression of interests and love, and verbal encouragement) had substantial influence on Chinese vocational students' career decision-making self-efficacy.

**Table 3.** *Regression Coefficients and Collinearity Statistics of Regression Analysis*

				Collinearity Statistics	
	<i>B</i>	<i>SE B</i>	$\beta$	Tolerance	VIF
(Constant)	51.61*	9.80			
PCBC-Support	.72*	.05	.59	.61	1.65
PCBC-Action	.19	.12	.07	.61	1.64
Age	-.48	.61	-.03	.98	1.02
Gender	1.04	.82	.04	.96	1.04
Residence	.80	1.21	.02	.92	1.10
FAS II	-.32	.25	-.04	.89	1.12

*Note.* PCBC-Support=Parent Career Behavior Checklist-Support scale. PCBC-Action=Parent Career Behavior Checklist-Action scale. FAS II=Family Affluence Scale II.

\*  $p < .05$

It is interesting to notice that parental career-specific behaviors had significant correlations with the career decision-making self-efficacy but was not a significant predictor for career decision-making self-efficacy in my sample. This might be due to the 41% of the variance that parental career-specific behaviors shared with parental general psychosocial support. Because in multiple regression, the second most significant independent variable explains the incremental variance of the dependent variable above and beyond the variance explained by the first most significant independent variable (Green & Salkind, 2008). With the 41% of the shared variance that had contributed to explaining the career decision-making self-efficacy, it seems that parental career-specific behaviors had no more unique incremental contribution to the variance of the career decision-making self-efficacy of this group of Chinese vocational students. Despite the substantial variance shared, no multicollinearity was found between all independent variables in our study (see Table 3), viz., all correlation coefficients were below .80 (Sweet & Grace-Martin, 2008) and the collinearity tolerance was larger than .10 (Dormann et al., 2013). In other words, parental general psychosocial support and parental career-specific behaviors can serve as two independent variables in one regression model to predict students' career decision-making self-efficacy.

## Discussion

Due to the inferior perception of vocational education and low academic performance of vocational students on high-stake exams in China, vocational students usually perceive lower levels of general self-efficacy and less social support than their high school counterparts (Chu, et al., 2015). In this study, Chinese secondary vocational students displayed a high level of career decision-making self-efficacy, indicating that they felt decent confidence when coping with career decision-making-related tasks, especially on identifying influential resources (self-appraisal) and making career plans (planning). For the first-year secondary vocational students, declaring the area of specialty is perhaps one of the first important career choices they make in their lives. Areas of specialty align with the specific nature and working environment of targeted occupations. Choosing a focused area of specialty determines the curriculum and learning experiences that students will commit to during their programs of study, and furthermore, determines their future

career. Maintaining a high level of career decision-making self-efficacy is a positive indicator that these adolescents were taking initiatives in career exploration and planning activities (*action*) to identify and further refine their career *interests* and career *goals* (Lent et al., 2000). Self-efficacy gained through those activities will build on their knowledge about the self and the work, and help them positively cope with challenges and obstacles during the career decision-making process (Bandura et al., 2001; Rogers & Creed, 2011). This finding expands our understanding of rich learning experiences that these vocational students were engaged in. These experiences will likely enhance students' career decision-making self-efficacy, which challenges deficit views of vocational education and rural students. This study also provides additional evidence for the validity and reliability of the CDSE-SF on Chinese adolescents.

Consistent with previous research (Wang et al., 2013; Yu 2010), family SES was low for this group of vocational students. Based on the Family Affluence Scale II, the majority (83%) of our participants came from low affluence families, 14% from medium affluence families, and only 3% from a high affluence family background. For family residence, 88% of participants resided in a rural area. According to the household registration system in China, rural or urban indicates whether the household owns farmlands or not (Afridi et al., 2015). It is likely that most parents of secondary vocational students in our study were agricultural laborers. Research found that parents in low SES families are less likely to display supportive and encouraging behaviors (Hsieh & Huang, 2014) and hold lower educational and career expectations for their children (Deng et al., 2013; Sheng, 2012). Despite limited educational and financial resources indicated by family SES, secondary vocational students in our study reported adequate parental career-related support. Supporting behaviors occurred, on average, between *sometimes* and *often*, indicating that most parents displayed moderate caring, encouraging, and supportive behaviors toward career-related issues according to students' perception. And those supporting behaviors explained substantial variance (38.3%) of the career decision-making self-efficacy of this group of Chinese secondary vocational students. This finding advances our knowledge on specific parental behaviors related to vocational students' career development and the influence of those behaviors on their career decision-making self-efficacy.

Both family structural and process-oriented variables were examined, but only parental general psychosocial support (a process-oriented variable) revealed significant influence on the career decision-making self-efficacy of this group of students. This indicates that the mechanism behind how family influences career constructs and adolescents' career development is complex. As Lent (2005) stated, family influences may shape self-efficacy in a direct way and may also serve as environmental factors that act indirectly on self-efficacy. The statement is also supported by observations from previous studies: when family structural variables (e.g., socioeconomic status) and process-oriented variables were both accounted for, the influence of family structural variables on career development constructs was likely to diminish (Metheny & McWhirter, 2013; Whiston & Keller, 2004). It is probably because the influence of family structural features could display in an indirect way or through parent-child interacting behaviors. Dimensions of structural and process-oriented features of the family influence are rather interdependent than orthogonal (e.g., Lindstrom, et al., 2007). And it seems that family process-oriented features will likely have a more direct influence on career decision-making self-efficacy.

Parental general psychosocial support explained substantial variance in the career decision-making self-efficacy of Chinese secondary vocational students, but the other family process-oriented variable, parental career-specific behaviors, did not. This finding does not completely align with the literature. Previous studies on U.S. and Romanian adolescents using the PCBC found

that both parental general psychosocial support and career-specific behaviors explained variations in career decision-making constructs, although they also addressed that general psychosocial support was a more salient factor than career-specific behaviors in facilitating adolescents' career decision-making (Keller & Whiston, 2008; Paloş & Drobot, 2010). In the results section, we provided an explanation why parental career-specific behaviors was not significant from a statistical perspective. General psychosocial support might be a more salient factor than career-specific parent-child interactions (e.g., offering explicit information about a career) on Chinese adolescents' career development. But the non-significance of parental career-specific behaviors could also be due to the application of the PCBC in a new context.

Unlike the CDSE-SF that has been widely applied in different countries and cultural contexts, the PCBC is still young in its applications. When an instrument is applied in a different context for the first time, it is important to ensure instrument validity, i.e., the instrument measures the same construct as it does in the context where it was developed. Therefore, we examined the validity of the PCBC before regression analysis. Results indicated that the 22-item PCBC revealed two latent factors, parental general psychosocial support and parental career-specific behaviors, for Chinese adolescents, which is consistent with previous research (Keller & Whiston, 2008; Paloş & Drobot, 2010). However, four items that measured career-specific behaviors (Action subscale) with U.S. adolescents shifted to measure general psychosocial support (Support subscale) for Chinese adolescents. These four items were Item 3: "My parent has encouraged me to take interest assessments or career tests offered by my school;" Item 7: "My parent tells me about specific careers;" Item 15: "My parent encourages me to ask questions about different jobs," and Item 19: "My parent encourages me to talk to him/her about my career plans." Less items loading on the Action subscale may be a reason for why parental career-specific behaviors was not a significant factor in explaining Chinese adolescents' career decision-making self-efficacy.

This shift in the factor structure of the PCBC may be due to different interpretation of factor loadings. Ideally, researchers want to retain items that load strongly on one factor with small to nil loadings on other factors (Matsunaga, 2010). In reality, items often do not "load clearly" on one factor. Therefore, researchers make, in part, subjective decisions in terms of the cutoff score, which may cause changes in the factor structure, especially when a recently developed instrument does not have many applications. In the U.S. sample, Keller and Whiston (2008) chose a Kaiser criterion of loadings greater than .40 as the cutoff score to determine salient- and cross-loading items. Paloş & Drobot (2010) did not report on factor loadings of PCBC on Romanian adolescents. We used .40 as the cutoff score for salient loadings and .30 for cross loadings. In addition to the choice of cutoff score, the shift in the factor structure also brings up the question: is PCBC sensitive to cultural differences? We do not have an answer. We suggest further investigation of the PCBC in multicultural contexts to provide more evidence for the construct validity of the scale.

### **Implications for Practice**

Secondary vocational students are at a critical stage of forming work values and interests, exploring career options, and transiting from youth to adulthood and from school to work (Rodríguez et al., 2015; Wang, 2013). Most of these students enter the workforce directly after graduation. Current research and practice in career guidance and counseling in China, however, mainly focus on college and graduate students (Sun & Yuen, 2012). It is critical to establish an effective system of career guidance and support at the secondary level that can accommodate characteristics of adolescents and their learning environment. This system shall not only include career service centers that distribute career guidance materials and organize workshops for resume

critique and mock interviews; but also fund and supervise students' field trips, internship, and other career exploration and planning activities (e.g., participation in event organization and technical competitions). Successful experience in such activities can build students' career decision-making self-efficacy and lead to success in obtaining a job and future career development. Furthermore, career scholars and practitioners need to collaborate and take advantage of the special connections between vocational schools and enterprises to develop integrated curricula targeting career development for vocational students and advocate for government implementing policies guiding career research and counseling practice.

This study demonstrates that career decision-making is not only an intrapersonal but also a contextually constructed process (Blustein, 2011; Ginevra et al., 2015; Lent et al., 2000). Vocational high schools may seek parental cooperation to assist students in developing career plans, making career decisions, and adapting to the change of roles during school-to-work transition. Specifically, a school's career service center may initiate meetings with parents to inform them of their children's recent progress, explain the role of parents in students' career development, and encourage parents to involve in their children's school and extracurricular activities. For parents who are agricultural laborers and receive limited education themselves, career counselors may provide parents with information about career planning and guidance to help them effectively communicate with their children in terms of career development. Expression of love and pride, displaying interest in their children's career-related activities, and verbal encouragement are all important sources of parental support, which might influence students' career decision-making self-efficacy. In addition, a school's career guidance center may hold career guidance workshops and invite parents to participate and interact with their children.

### **Limitations and Recommendations for Future Research**

The examination of the relationships between family variables and the career decision-making self-efficacy contributes to the understanding of adolescent career decision-making process, and, in particular, of Chinese secondary vocational students. The findings demonstrate the influence of family on career decision-making self-efficacy, which are consistent with the literature and theories that stress the importance of career decision-making self-efficacy in adolescents' career development and family influence during this process (e.g., Betz, 2007; Whiston & Keller, 2004). One limitation of this study was the use of a convenience sample, meaning that results do not generalize to all Chinese secondary vocational students. The second limitation was that this study used the Family Affluence Scale II (Currie et al., 2004) as a major measure to represent family socioeconomic status; therefore, limited information about students' family background was accessed. Despite the fact that the Family Affluence Scale II is a valid measure for family socioeconomic status, some traditional indicators, such as parents' levels of education and parental occupations, provide important insight for researchers to understand the background of a family. In future research, these traditional indicators and the Family Affluence Scale II shall be used together to understand family's socioeconomic status when participants are adolescents.

Literature on career development issues of Chinese vocational students, especially secondary vocational students, is still limited. Future research needs to continue focus on this underrepresented student population. The Parent Career Behavior Checklist needs more applications on diverse populations in multiple cultural contexts to provide more evidence for the construct validity of the scale. Furthermore, the influence of Chinese culture and Chinese parents' unique career-related behaviors, needs to be examined in the future to facilitate an understanding of Chinese family dynamics and how they influence vocational students' career development and

decision-making. The lack of variability in the family background of participants may have caused the family socioeconomic status a nonsignificant factor in our study. Future research may further investigate the influence of family structural and process-oriented features on career decision-making self-efficacy of Chinese students from a more diverse background.

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