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Factors Influencing High School Students' Career Aspirations

This article explores the factors influencing high school students' career aspirations with a study analyzing 141 high school students. The Social Cognitive Career Development Model was utilized to examine the interactive relationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choices. The results of a structural equation modeling analysis supported the mediating role of career self-efficacy in the career decision-making process, but the specific paths among the predicting variables to career aspirations were found to be different for female and male high school students. Implications for school counselors to provide more effective career intervention programs are discussed.

One of the tasks of high school students is to explore and plan for their postsecondary career options. According to Super's (1990) developmental theory of career development, high school students are at the exploration stage of career development, which involves crystallizing and specifying their occupational preferences, while also making preliminary decisions about their career choice. To assist students' career development, the national standards of the American School Counselor Association (ASCA, 1997) thus require that students have competence in career decision-making. School counselors play a vital role in facilitating students' career development in K-12 settings, particularly at the high school level, because high school students are more actively engaged in planning and implementing their postsecondary career options. To better accomplish the mission of helping students achieve their educational and career goals in today's social, economic, and cultural context, school counselors need to be adequately informed about what factors influence high school students' career choices and what approaches would best facilitate their career decision-making process.

SOCIAL COGNITIVE CAREER DEVELOPMENT THEORY

One comprehensive and dynamic career theory that incorporates many aspects of career development is the Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994). The SCCT was derived from Bandura's (1977, 1986, 1997) Social Cognitive Theory, which stressed the importance of self-efficacy in one's choice of behavior. According to Bandura (1986), individuals choose to engage in or avoid a specific task based on their self-judgment of their competency in accomplishing the task. Therefore, self-efficacy is task- or domain-specific confidence. Bandura also stated that four factors influence one's self-efficacy: verbal persuasion, vicarious learning, task performance, and physiological arousal. Among the four, task performance—actual trial of the task—is the most powerful influencing factor.

The SCCT (Lent et al., 1994) proposes that career choice behavior is shaped by outcome expectancies, career interests, and career self-efficacy, and that career self-efficacy plays a mediating role between one's background and interests and one's outcome expectancies. Moreover, career self-efficacy is influenced both by individual variants (i.e., predispositions, gender, race/ethnicity, health status) and by contextual factors such as family background and learning experiences. The theory emphasizes the interactive influence of contextual factors and cognitive person variables on individual career development (Lent, Brown, & Hackett, 2000). In this career development model, one's background (or contextual factors) and individual characteristics would influence one's learning experiences and, consequently, self-efficacy. Self-efficacy then would influence one's interests and outcome expectations, which eventually would influence one's career choice.

Lent et al. (2000) further asserted that objective and perceived aspects of the environment may have

By age 13 to 14, adolescents have developed two cognitive competencies related to career development: self-concept and perceptions about occupations.

direct and moderating effects on career decision-making. Examples of objective environmental factors are the quality of educational experiences and the financial support available to individuals, whereas an example of perceived environmental factors is individuals' reaction to and interpretation of their surrounding environment (i.e., whether they view their environment as a source of support or barriers).

The mediating role of self-efficacy among background and interests, outcome expectations, and career choices in relation to career development has been supported by previous research (Betz, 1993, 1999; Lent & Brown, 2002). Lent, Brown, Schmidt, et al. (2003) found that environmental factors influence career choice only through their impact on self-efficacy. Similarly, Lent, Brown, Nota, and Soresi (2003) found that perceived social support and barriers significantly affected self-efficacy and indirectly had an effect on career choice through changes in self-efficacy.

Regarding the impact of objective background factors on self-efficacy and career choice, Nauta and Epperson (2003) found in a longitudinal study that years in school and the number of science and math courses taken in high school were positively related to the choice of science and math as majors when entering college. Understanding college requirements and self-efficacy in math and science are found to be more positively related to remaining in the chosen field. Exposure to work experiences and learning environments also has been proven to measurably influence an individual's level of educational aspirations (Rottinghaus, Lindley, Green, & Borgen, 2002).

The tenets of the SCCT focusing on the interrelationship of one's personal characteristics, environmental support, and career interests and decisions have been found applicable to various populations by many studies (Bregman & Killen, 1999; Caldera, Robitschek, Frame, & Pannell, 2003; Flores & O'Brien, 2002; Fouad & Smith, 1996; Gainor & Lent, 1998; Gore & Leuwerke, 2000; Lent, Brown, Nota, et al., 2003; Rivera, 2002; Rottinghaus et al., 2002; Tang, Fouad, & Smith, 1999; Turner & Lapan, 2002). However, few studies have been conducted to examine possible gender differences in factors related to the SCCT model among the high school population. Nonetheless, Byars and Hackett (1998) suggested that gender influences may affect career self-efficacy and outcome expectations and also impact career choice and adjustment.

GENDER DIFFERENCES IN CAREER DEVELOPMENT

By age 13 to 14, adolescents have developed two cognitive competencies related to career develop-

ment: self-concept and perceptions about occupations (Gottfredson, 2005). During adolescence, students also have achieved an adult-level understanding of the sex type and prestige level of common occupations. Gottfredson argued that adolescents start to eliminate occupational choices based on sex types and prestige levels. For example, female students might avoid choosing occupations that are generally perceived as too masculine (e.g., a career as a miner) and also might consider eliminating choices that are perceived as low social prestige status (e.g., a career as a housemaid).

In their effort to explain why women were underrepresented in science and math fields, Betz and Hackett (1981) argued that women avoid male-dominated occupations due to a lack of self-confidence in such occupations, and that this lack of confidence is rooted in a lack of encouragement, role models, or similar experiences in the field—the resources for self-efficacy proposed by Bandura (1977). Several studies have found that career self-efficacy beliefs are critical in the choices made by and the persistence of females entering into mathematical, scientific, and technological careers (Church, Teresa, Rosebrook, & Szendre, 1992; Smith-Weber, 1999; Zeldin & Pajares, 2000).

Thus, career self-efficacy is a significant factor for female students' career aspirations, particularly for non-female traditional occupations (Mau, 2003; Post-Kammer & Smith, 1985; Rainey & Borders, 1997). Bonett (1994) found that females had lower self-efficacy than males for male-dominated occupations, while males had lower self-efficacy for traditionally female occupations. Similarly, high school male students demonstrated higher self-efficacy for male-dominated professions than their female counterparts (Wiljanen, 1996). In addition, Japanese female students in two studies (Matsui, 1994; Matsui, Ikeda, & Ohnishi, 1989) also showed higher self-efficacy in female-dominated occupations but lower self-efficacy in male-dominated occupations. Interestingly, Kelly (1993) found that gifted female high school students had higher self-efficacy in male-dominated careers but no difference in efficacy scores for sex-balanced occupations.

In regard to gender differences in other career development aspects, studies have shown that females have different career patterns than males (Krakauer & Chen, 2003), and females have been found to have higher scores on career commitment than men (Chung, 2002). Gender differences also have been found in six of John L. Holland's confidence levels (Betz & Gwilliam, 2002). Pertaining to interests, females and males were found to have differences on Holland's six interest types as well (Ryan, Tracey, & Rounds, 1996). Gender differences in interests also were found on another classi-

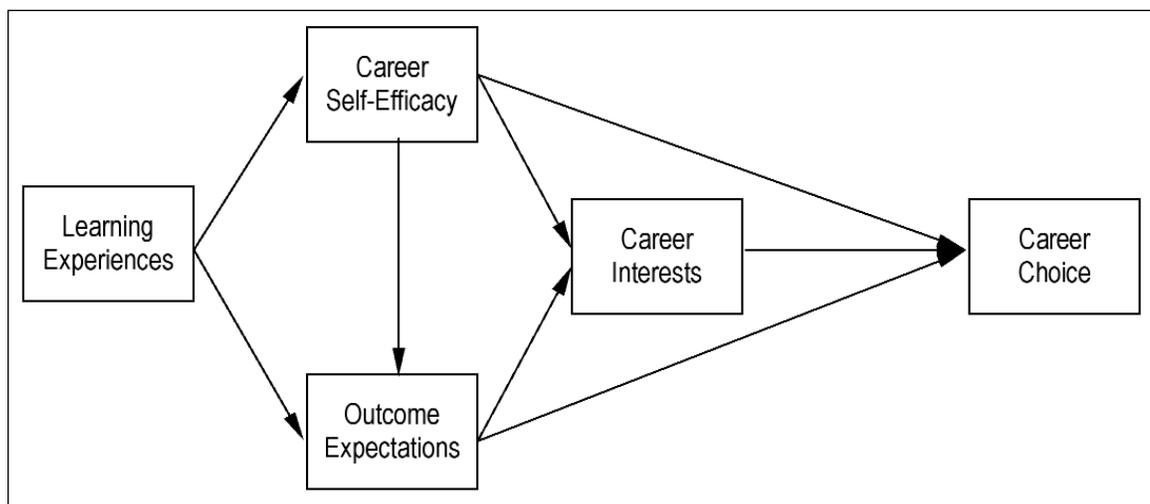


Figure 1. The conceptual model adapted from the SCCT.

fication system of interests, the “Data/Things” and “People/Ideas” dimensions, underlining Holland’s RIASEC (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) structure as proposed by Prediger (1982, 1999). Several studies have confirmed that there are gender differences on the Data/Things and People/Ideas dimensions and that females are inclined to fall on the people side of the People/Ideas dimension (Lippa, 1998; Tokar & Jome, 1998).

Thus far, the literature has recognized self-efficacy as a key factor in an individual’s career development process, affecting career choice behavior jointly with contextual factors as well as personal attributes (e.g., race/ethnicity, gender). However, few studies examined whether the SCCT model is an appropriate vehicle for understanding high school students’ career decision-making process or whether the interrelationships among the hypothesized SCCT factors differ across gender. Information about the SCCT’s applicability in explaining high school students’ career choice processes would be helpful for school counselors to design effective career intervention programs.

PURPOSE OF THE STUDY

This study aimed to investigate high school students’ career development processes by applying the SCCT model to examine the relationship among learning experience, gender, career self-efficacy, outcome expectation, vocational interests, and career aspiration (see the conceptual model in Figure 1). The specific research questions of the study were as follows: (a) Is the SCCT an appropriate model for explaining high school students’ career aspirations? (b) Do learning experiences impact career choices among adolescents through their influence on career self-efficacy, outcome expectations, and career

interests? (c) Are the interrelationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choice different across gender?

METHOD

Participants

High school students ($N = 141$) from a Midwest suburban public school voluntarily participated in the study. The average age of the participants was 15.6 years with a standard deviation of .63. Eighty-one female and 60 male students participated in the study. These students were freshmen and sophomores in a high school located in a middle-income to upper-middle-income neighborhood. The majority of the participants self-identified as Caucasian Americans (91.3%), with African Americans (4.3%), Asian Americans (2.2%), and biracial/multiracial individuals (2.2%) making up the rest of the participants.

Instruments and Measurement

The *demographic questionnaire* had three sections. The first section inquired about the participants’ age, gender, ethnicity, and grade, as well as their parents’ education and occupation. The other questions pertained to participants’ paid work experiences. The second section included questions about family activities related to career awareness and exploration. For instance, the questionnaire items collected information on the kind of household chores the participants had done, the frequency of discussing career plans with their parents, whether the participants had observed their parents at work, and whether their parents had taken them on any work-related trips. The third section included questions related to school experiences, particularly focusing on career guidance. The participants responded to questions

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such as “Have you ever participated in any career guidance programs?”; “Has your school counselor helped you take any vocational assessments?”; and “How often have you taken any field trips with career exploration themes?”

All the questions related to career exploration activities were factor analyzed, and the factor scores from the results were summed to represent the *learning experience* variable. The factor score is a standardized score with $M = 0$ and $SD = 1$ theoretically. Therefore, the score for the learning experience variable is a summary score indicating the degree to which the participant was engaged in various career exploration activities. Higher scores indicate more extensive learning experiences.

Career interests were measured by the Self-Directed Search (SDS; Holland, 1994). This widely used instrument is grounded in Holland’s (1985) typology theory. Frequently referred to as the RIASEC model, Holland’s theory maintains that there are six basic vocational types that correspond to six occupational environments: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). The split-half reliability of the SDS is from .85 to .95 and the test-retest reliability at a 4- to 12-week interval is from .76 to .89 (Ciechalski, 2002). Studies also indicated that the SDS possesses good predictive and concurrent validity, with an overall 54% hit rate between the SDS and most other interest inventories (Holland, Fritzsche, & Powell, 1997).

Each participant obtained scores indicating their preferences in each of the six RIASEC areas. An exploratory factor analysis was performed to determine if the two dimensions of Data/Things versus People/Ideas (as proposed by Prediger, 1982, 1999) underlie the six career interest types. Two factors were derived. The first factor explained 33.3% of the variance and was composed of four career interest types—Realistic, Investigative, Conventional, and Enterprising (RICE)—with adequate factor loadings (all $> .40$). The second factor explained an additional 22.6% of the variance and was composed of the remaining two career interest types—Artistic and Social (AS)—with large factor loadings (both $> .70$). The factor structure was confirmed by a confirmatory factor analysis. These two factor scores then were summarized to represent participants’ interest scores. The score from the first factor indicated interests in Data/Things (consisting of RICE), and the score from the second factor indicated interests in People/Ideas (consisting of AS). The higher score in each factor indicated greater interest.

Career self-efficacy was defined operationally in this study as individuals’ perception of their competence in career activities. It was measured by the sec-

tion of the SDS that asked the participants to circle “yes” to the tasks that they believe they perform competently and “no” to the tasks that they do not think they can do well. The tasks were classified by the RIASEC types.

An exploratory factor analysis was performed to determine the number of underlying dimensions of the six career self-efficacy types. Similar to the career interest types, two factors emerged. Realistic, Investigative, Conventional, and Enterprising made up the first factor, explaining 35.6% of the variance, with large factor loadings (all $> .60$). Artistic and Social made up the second factor, explaining an additional 19.0% of the variance, with adequate factor loadings (both $> .30$). The factor structure was confirmed by a confirmatory factor analysis. The factor scores then were summarized to represent participants’ career self-efficacy scores, with higher scores indicating greater career self-efficacy. To be consistent with the terminology used for the interests, the score from the first factor was named Self-Efficacy Data/Things (consisting of RICE), and the score from the second factor was named Self-Efficacy People/Ideas (consisting of AS).

Outcome expectation is the result that individuals expect their choice of occupation will bring them (Lent et al., 1994). For some individuals this expectation might mean fame or self-worth; for others it might mean financial support for the family. The measure of outcome expectation in this study was developed by the research team. The measure consisted of eight items (such as financial rewards and prestige) reflecting possible expected results for a given occupational choice. The participants needed to rate on a 3-point Likert scale whether they expect little or much of each of the eight outcomes for their current career choice. The eight items concerning outcome expectation were factor analyzed to yield two factors: internal expectation (self-independence, helping others) and external expectation (reputation, social status). The two scores computed from the average of factor scores in each category indicate a participant’s outcome expectation levels, with the higher score representing more expectation.

Career choice was measured by asking the participants to answer an open-ended question, “What is your current career choice?” Each of the occupations reported by the participants was converted into Holland’s (1994) occupational codes. Each career choice had a Holland code of three letters, for example, SAE for teachers. Then six dummy variables representing each of Holland’s types (RIASEC) were created. For each participant’s converted Holland’s code, a number of 3 was assigned to the first letter, 2 to the second letter, and 1 to the third letter; 0 was assigned to the other letters that were not part of the code. For instance, “Teacher,”

coded as SAE on Holland's codes, had the following dummy coding: R = 0, I = 0, A = 2, S = 3, E = 1, and C = 0. "Accountant," coded as CSI, had the dummy coding of R = 0, I = 1, A = 0, S = 2, E = 0, and C = 3.

To be consistent with the variables of career interests and career self-efficacy, a confirmatory factor analysis was performed on the six dummy variables to determine whether two dimensions (Data/Things and People/Ideas) existed. The factor analysis revealed a satisfactory result in regard to factor loadings. A Pearson correlation was performed to ensure that the relationships between the newly converted score for Data/Things and People/Ideas were negatively correlated. The correlation coefficient was $-.42$ ($p < .001$), which provides support that the two types of career choices were distinct from each other. Thus, two scores of career choices represented participants' level of inclination for choosing either People/Ideas-oriented occupations or Data/Things-oriented occupations.

Procedure

All the freshmen and sophomores in a Midwest suburban high school were informed of the study by their school counselor, who had been contacted by the researchers to help recruit participants. The counselor briefed the students on the purpose of the study and the importance of confidentiality. An informed consent form was signed by a parent or legal guardian if the student decided to participate. The students who agreed to participate were given a packet that included a cover letter, a consent form, and instructions for completing the instruments. The completed forms were returned to the school counselor in a sealed envelope. All the sealed envelopes then were mailed in one packet to the researchers.

Data Analysis

To answer the first research question, "Is the SCCT an appropriate model for explaining high school students' career aspirations?", the conceptual model in Figure 1 was tested by structural equation modeling (SEM; Kline, 2005) to see if it fit to the observed data. SEM is a multivariate statistical technique that hypothesizes causal relationships among variables and tests the causal models with a linear equation system. If the conceptual model fit to the observed data, there would be empirical support for the usefulness of the SCCT model in explaining high school students' career development processes.

To answer the second research question, "Do learning experiences impact career choices through their influence on career self-efficacy, outcome expectations, and career interests?", a SEM analysis was performed again to examine the interrelationships among learning experiences, career self-efficacy,

outcome expectations, career interests, and the career choices of the participants. To answer the third research question, "Are the interrelationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choice different across gender?", a multigroup invariance SEM was conducted to test whether the parameter estimates of the SEM model in the second research question vary across gender. The chi-square model fit indexes from the SEM models were compared. If the invariance model fits the data statistically more poorly than does the SEM model in the second research question, the interrelationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choice are different across gender.

RESULTS

Descriptive Statistics

Descriptive statistics of the variables and their correlations are presented for females and males separately in Table 1. Compared to male students, female students reported significantly higher internal outcome expectations ($p < .05$), lower self-efficacy and interest on the Data/Things dimension ($p < .01$), and higher self-efficacy, interest, and career choice on the People/Ideas dimension ($p < .01$). Furthermore, females and males responded in opposite directions on self-efficacy, interest, and career choice. Table 1 also demonstrates some medium (.30) to high (.50) correlations of the variables within and between the Data/Things and People/Ideas dimensions, which provide adequate evidence for conducting a SEM analysis.

Structural Equation Modeling

Question 1: Is the SCCT an appropriate model for explaining high school students' career aspirations? Figure 2 shows the final model with standardized estimates by gender after modifying the conceptual model (Figure 1), according to practical and theoretical considerations and model modification indexes provided by LISREL 8.54 (Jöreskog & Sörbom, 2003). The model fit indexes for the final model were $\chi^2(34) = 41.43$ ($p = .18$), normed fit index (NFI) = .91, non-normed fit index (NNFI) = .95, incremental fit index (IFI) = .98, comparative fit index (CFI) = .98, and root mean square error of approximation (RMSEA) = .06, which demonstrates that the final model fit the data very well. Therefore, the SCCT model does appear to explain the interrelationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choice, and therefore is useful in understanding high school students' career development processes.

Thus far, the literature has recognized self-efficacy as a key factor in an individual's career development process, affecting career choice behavior jointly with contextual factors as well as personal attributes.

Table 1. Correlations, Means, and Standard Deviations by Gender

		1	2	3	4	5	6	7	8	9	Girls	
											<i>M</i>	<i>SD</i>
1. Learning experiences	—	.017	.071	.358	.392	-.153	.423	.456	.070	.045	1.071	
<i>Outcome expectations</i>												
2. External	.142	—	.444	-.118	-.167	-.018	-.103	-.201	.029	2.264	.470	
3. Internal	.140	.556	—	-.030	-.024	-.110	.194	.052	.127	2.574*	.458	
<i>Data/Things</i>												
4. Self-efficacy	.251	.274	.240	—	.756	.146	.311	.393	-.196	-.289**	.946	
5. Interest	.186	.120	.115	.770	—	.150	.235	.411	-.073	-.306**	.894	
6. Career choice	-.138	-.182	.043	.119	.012	—	-.215	-.127	-.637	-.068	.907	
<i>People/Ideas</i>												
7. Self-efficacy	.123	.112	.255	.378	.294	-.037	—	.651	.329	.346**	.867	
8. Interest	.172	-.039	.143	.224	.434	-.204	.638	—	.235	.394**	.848	
9. Career choice	-.172	.019	.014	-.173	-.179	-.339	.240	.178	—	.348**	.982	
Boys												
	<i>M</i>	-.048	2.398	2.377	.306	.324	.072	-.367	-.417	-.368		
	<i>SD</i>	.924	.455	.501	.947	.980	1.092	.984	.977	.886		

Note. *n* = 72 girls (above diagonal); *n* = 68 boys (below diagonal).
p* < .05 for gender difference. *p* < .01 for gender difference

Question 2: Do learning experiences impact career choices through their influence on career self-efficacy, outcome expectations, and career interests?

For female students, the learning experience factor was significantly correlated to career self-efficacy in both the Data/Things and People/Ideas areas. Self-efficacy in the People/Ideas area had a positive significant path to internal outcome expectations, to career interests in People/Ideas, and to career choice in People/Ideas (see details in Figure 2). Career self-efficacy was negatively related to external outcome expectations, which was significantly correlated to career choice in the People/Ideas area in the positive direction.

Career interests in the People/Ideas area also was found to be negatively related to career choices in the Data/Things area. Career self-efficacy in the Data/Things area points to a significant path to career interests in both the Data/Things and People/Ideas areas, but denotes stronger path coefficients for the Data/Things area. Career interest in the Data/Things area was positively related to career choice in the same area. Career self-efficacy in the Data/Things area also was found to be negatively related to career choice in the People/Ideas area. Outcome expectation was found to significantly related to career choice in the People/Ideas area, but

had no relationship to career choice in the Data/Things area. Self-efficacy in the Data/Things area did not have a significant path with either of the expectations, or a direct path to career choice in the Data/Things area. However, it did have a significant negative path to career choice in the People/Ideas area.

For male high school students, learning experience had a significant path to career self-efficacy only in the Data/Things area. Career self-efficacy in both Data/Things and People/Ideas was significantly correlated to career interests in the same categories. However, only career self-efficacy in the People/Ideas area had a significant direct path to career choice in People/Ideas. Internal outcome expectation was influenced by career self-efficacy in the People/Ideas area, and external expectation was influenced by career self-efficacy in Data/Things. No significant path was found from outcome expectation to interests and career choices. The only significant path for outcome expectation was from self-efficacy in Data/Things to external expectations. Career interests in the Data/Things and People/Ideas areas were found to be significantly related to career choice in Data/Things, with the former relationship being positive and latter negative. Career interests in the People/Ideas area were negatively related to career choice in People/Ideas, and there

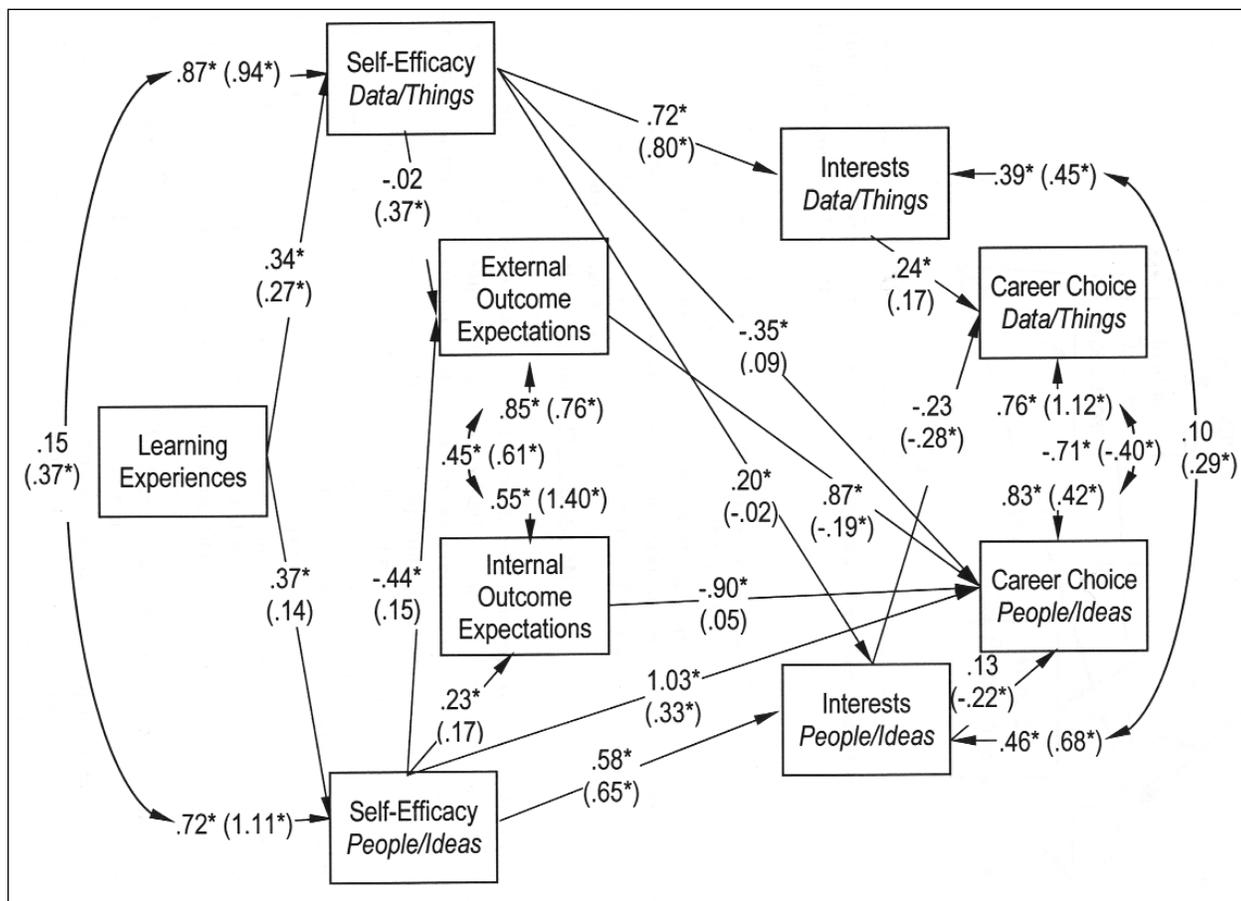


Figure 2. The final model with standardized estimates moderated by gender. The estimates for males are shown in the parentheses ($N = 140$). $*p < .05$.

was no relationship between career interests in Data/Things and career choice in People/Ideas.

For both female and males, there was no significant path found from outcome expectation to career interests. Nor was there a significant direct path from career self-efficacy in Data/Things to career choice in Data/Things. Furthermore, there was no significant path between internal outcome expectation and career choice in the Data/Things area.

Question 3: Are the interrelationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choice different across gender? To test whether the estimates of the final model parameters varied across gender, a multigroup invariance model was conducted with equality constraints on the path coefficients across gender. The model fit indexes for the invariance model with equal path coefficients were $\chi^2(49) = 131.82$ ($p < .001$), NFI = .58, NNFI = .46, IFI = .65, CFI = .63, and RMSEA = .16, which shows that the constrained model fit the data very poorly when compared to the unconstrained model (see the results for Question 1). Also, in terms of model fit, the two models are statistically different ($\Delta\chi^2[15] = 90.39$, $p < .001$). Thus, the

moderating effect of gender on the causal relationships existed. In other words, the interrelationships among learning experiences, career self-efficacy, outcome expectations, career interests, and career choice were different across gender.

DISCUSSION

The results of the descriptive analysis show that high school girls, compared with their male counterparts, were more interested in and had higher self-efficacy on occupations that involve working with people and ideas (i.e., the Artistic and Social types in Holland's theory). The high school girls also were found to more likely choose occupations that involve helping others and expressing oneself. In contrast, boys were more interested in, had higher self-efficacy for, and were more likely to choose occupations involving data and things (or Realistic, Investigative, Enterprising, and Conventional in Holland's code). Another gender difference was on the outcome expectations, with girls showing more desire for internal rewards (i.e., helping others, independence). This finding is consistent with the previous literature about gender differences in career self-effi-

The significant paths from self-efficacy to career interests for both high school girls and boys suggest that career self-efficacy is strongly related to career interests across genders.

cacy and choices (Betz & Gwilliam, 2002; Krakauer & Chen, 2003), in which females exhibit a greater attraction to non-science and technical occupations.

The applicability of the SCCT to explain career choice behavior of high school students was verified in this study. The significant paths from self-efficacy to career interests for both high school girls and boys suggest that career self-efficacy is strongly related to career interests across genders. This finding is similar to the previous study by Turner and Lapan (2002), who found that vocational self-efficacy and career exploration efficacy predicted middle school students' interests across Holland themes. The mediating role of self-efficacy is confirmed in this study as well. In other words, learning experiences significantly influence one's self-efficacy, which then influences one's career interests and choices, as posited by the SCCT (Lent et al., 1994). Another interesting finding of this study is the strong direct impact of career self-efficacy on career choices in the area of People/Ideas. It seems that high school students' confidence in occupations involving people interaction and ideas very possibly leads them to choose such occupations.

As found in Lent, Brown, Schmidt, et al. (2003), outcome expectation did not have a significant path to any of the interests. For female high school students, external outcome expectation was significantly and positively related to career choice in the People/Ideas area; for male students, this path, though significant, was negatively related. In other words, male high school students who intended to choose occupations in the People/Ideas area did not believe that these occupations would bring them prestige or financial rewards. Regarding occupational expectations, male high school students appear to place a greater value on prestige and external rewards than do females; while female students tend to be attracted more by the internal rewards.

The significant paths exclusive to females (self-efficacy to outcome expectations, and a strong relationship particularly between career self-efficacy in the Data/Things area and interests and career choices in both the Data/Things and People/Ideas areas) demonstrate the strong impact of self-efficacy. This finding confirms the literature on gender difference in career self-efficacy and its relationship to female- or male-dominated occupations (Bonett, 1994; Kelly, 1993; Mathieu, Sowa, & Niles, 1993; Matsui, 1994; Wiljanen, 1996). Additionally, the findings from this study suggest that learning experiences have a greater influence on the development of career self-efficacy for female students than for male students. Furthermore, female students' career choices are more strongly moderated by outcome expectations than by interests. Career self-efficacy is a strong predictor of and mediator between learning

experiences and expectation for career choices in the People/Ideas area.

For male high school students, two interesting findings are worthy of further discussion. First, the only significant path to career choice in the Data/Things area was from career interests in the People/Ideas area, and the path coefficient was negative. This may suggest that male students avoid People/Ideas types of occupations even though they have interests in those areas. Second, a significant strong and direct path was found from career self-efficacy in the People/Ideas area to career choice in the same area, in addition to its impact through outcome expectations and interests. This particular finding shows similarity with females choosing science- and technology-related occupations. The common theme is the strong role of self-efficacy for males and females when they choose occupations that are nontraditional for their gender. While the literature has focused on the role of socialization in the development of self-efficacy and career choices for females (Betz & Hackett, 1981; Hackett & Betz, 1992), this finding provides an interesting perspective for understanding men in their career decision-making process, particularly those who choose not to pursue typical male-dominated occupations. Like females, male students need strong self-efficacy to pursue nontraditional (for males) occupations.

Another noticeable finding for high school boys is the lack of a significant relationship between learning experiences and career self-efficacy in the People/Ideas area. This may indicate that male students' career-related learning experiences do not facilitate development of confidence in Social and Artistic occupations, though this question needs to be further investigated in the future.

Some limitations of this study require discussion. Because the sample size is relatively small, external generalization should be made with caution. Also, the sample consists of predominantly White students from a middle-class background; therefore, application of the findings to minority members or those from a different socioeconomic background is limited. In this study, the operational definition of learning experience was based on a summary score of individuals' school and family activities. In any future study, the measurement of background variables should include more constructs, such as distant and proximal environmental support, as discussed in Lent et al. (1994, 2000).

IMPLICATIONS FOR SCHOOL COUNSELORS

The findings of this study have several implications for school counselors in designing and developing career development programs. The major implica-

tion is to consider individual variants such as gender, self-efficacy, interests, and outcome expectations, and contextual factors such as socioeconomic background, when developing career intervention plans. School counselors have to be cognizant of the role of self-efficacy and learning experiences in shaping high school students' career interests and choices, as findings in this study illustrate that learning experiences and self-efficacy are the two critical factors influencing high school students' career development. We recommend that career development programs provide meaningful learning experiences that will facilitate the development of self-efficacy in students' aspired careers. School counselors also should work with community members to identify resources that would help students improve their career self-efficacy and career-related skills. Parents should be incorporated into intervention plans as well.

Specifically, school counselors may implement intervention strategies at various levels as described below. At the school-wide level, a systematic and comprehensive school counseling program with a career development component that aligns with the career domains in ASCA's (1997) national standards should be implemented. An example is a school-wide career fair that allows students to meet professionals in a variety of work fields. A career fair could increase students' awareness and basic understanding of a variety of occupations. Professionals invited to the career fair should be encouraged to come in their professional attire and speak about their duties and responsibilities on a typical workday. Along the same line, school counselors can coordinate field practice projects for students to actually learn specific aspects of a particular occupation. These types of activities provide learning experiences for students to better understand their unique career-related set of interests and skills. School counselors also should work with community agencies to identify resources that may supply speakers or serve as field-trip sites.

At the classroom level, school counselors are well positioned to collaborate with teachers in designing a curriculum that helps students apply subject content areas to career options. School counselors can help teachers create class projects that require students to research a selected occupation and apply the course content to that particular occupation. School counselors also can develop and deliver classroom guidance activities geared toward understanding oneself in relation to work. These activities can include discussion of students' interests, abilities, self-efficacy, and outcome expectations and can engage students in experiential activities to identify their current interests and self-efficacy in a variety of occupations.

When working with students directly, a school

counselor's task is to identify the resources and assets in the students' existing systems, in order to help them overcome barriers that prohibit them from pursuing their desired careers. The identification of resources and barriers can be done through analysis of students' individual perceptions of what constitutes barriers or resources for them. For instance, some students are less confident or not motivated to pursue any type of postsecondary option. The school counselor then needs to help these students discover what factors make it difficult for them to have confidence in this area. Is it because of a lack of role models? Is it because of practical reasons such as financial limitations or parental opposition? Could it be due to their misconception about careers and job opportunities? After identification of the potential barriers, the next step is to help students examine their personal assets, family resources, and any supportive factors from their school, church, or community that can help them overcome the barriers they perceive.

In summary, the findings of this study illustrate the importance of learning experiences, self-efficacy, interests, and outcome expectations in high school students' career development processes. The interrelationship of these factors is dynamic; therefore, successful intervention needs to consider the complexity of the interrelationships among these factors and incorporate a variety of interventions at multi-systematic levels. School counselors could be instrumental in developing and implementing a comprehensive career development program that helps students develop self-efficacy in their desired careers through practical learning activities. ■

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The findings of this study illustrate the importance of learning experiences, self-efficacy, interests, and outcome expectations in high school students' career development processes.

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