ISSN: 2688-8653

More Than Information: The Mediating Role of Professional Skill Development in Career Planning Competency

-- Evidence from Chinese Master's Students in a Collectivist Context

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Abstract

Effective career planning is essential for master's students' transition from academia to the labor market, yet many lack systematic planning skills. Grounded in Social Cognitive Career Theory (SCCT), this cross-sectional study surveyed 1223 full-time master's students from five universities in East China using a validated 24-item career planning competency scale and a theory-based predictor questionnaire. Multiple linear regression with bootstrapping showed that professional skill improvement was the strongest positive predictor (β = .518, p < .001), followed by family/friend support (β = .121, p < .001), career lectures (β = .082, p = .023), career expectations (β = .059, p = .021), and supervisor guidance (β = .051, p = .041). Five of the six predictors were significant, with professional skill improvement showing the strongest effect, and the model accounted for 48.6% of the variance. Small demographic differences were found by discipline, degree type (professional > academic), geographic origin (urban > rural), and parental education, but not by gender or grade. An exploratory mediation analysis revealed that the effect of vocational information access on career planning competency is not merely direct but fully mediated through professional skill improvement, highlighting the critical role of translating information into skill mastery. The findings highlight the primacy of mastery experiences and the culturally amplified role of family support in the Chinese context. Universities should prioritize skill-based interventions and targeted support for disadvantaged groups rather than relying solely on information dissemination.

Keywords

Graduate students; career planning; higher education in China; professional skill development; mediation analysis.

1. Introduction

1.1. Background

The unprecedented expansion of postgraduate education in China, exemplified by an increase in postgraduate graduates from 0.729 million in 2020 to 1.167 million in 2025, has intensified labor market competition for master's degree holders. Although a small proportion of graduates pursue doctoral studies, the vast majority of postgraduates enter the job market directly, seeking employment in companies or public institutions. Recent evidence indicates that many master's students lack systematic career planning skills, hindering their transition to the workplace[1]. Similar concerns have been raised in U.S. undergraduate planning education, where students also struggle to translate academic training into career preparation

ISSN: 2688-8653

[2] . However, the career development mechanism of undergraduates and postgraduates may be different, because postgraduates face more direct employment pressure, so more targeted and action-oriented interventions are needed[2]. Therefore, improving the ability of career planning has become a key goal of graduate education.

1.2. Theoretical Framework: Social Cognitive Career Theory (SCCT)

This paper is framed within the context of Social Cognitive Career Theory (SCCT)[3], which explicitly outlines that career-related behaviors result from the interaction of three fundamental mechanisms: self - efficacy beliefs, outcome expectations, and personal goals, all of which are in turn influenced by contextual factors (e. g., family support, educational environment) and background variables (e. g., gender, socioeconomic status). Therefore, SCCT has become a well-established framework for explaining students' career exploration, decision-making, and planning behaviors [4]. In the context of master's students, the author define career planning competency as a goal-directed set of behaviors that are supported by (a) contextual affordances (family encouragement, supervisor mentoring, career information access) , (b) learning experiences (career lectures, professional skill training), and (c) outcome expectations (anticipated career success). However, it is also explicitly acknowledged that SCCT has been mainly validated in Western educational settings, and therefore its applicability to the unique institutional and cultural context of Chinese postgraduate education—marked by strong parental involvement, intense academic competition, and a rapidly stratifying labor market—has not been adequately examined. Hence, the study aims to fill this important gap.

1.3. Research Questions and Hypotheses

This study addresses the following research questions.

RQ_1: What is the present level of career planning competency of Chinese master's students as measured by the three dimensions of career exploration, career decision-making, and career action & monitoring?

RQ_2: Is there a statistically significant difference between career planning competency and its dimensions as a function of the demographic variables (gender, grade, academic discipline, degree type, parental education, geographic origin)?

RQ_3: How much do the contextual factors (family support, supervisor guidance, career information, career lectures, professional skill improvement) and career expectations predict career planning competency?

From the standpoint of SCCT and the Chinese context, the author put forward several clear hypotheses.

H_1 (Contextual affordances): It is reasonable to hypothesize that professional master ' s students, who get more practical training, will report higher career planning competency than academic master ' s students.

H_2 (Contextual advantages): It is reasonable to expect that students from urban areas and students whose parents have higher levels of education will have higher career planning competency because they have greater access to career-related resources. (No directional hypothesis is therefore made for gender or grade.)

H_{3a} (Social cognitive resources): Greater family/friend support, supervisor guidance, and exposure to career lectures are positively associated with career planning competency, after controlling for other factors.

H_{3b}(Mastery experiences and outcome expectations)**:**A composite factor of career-related learning experiences, encompassing both the acquisition of occupational information and the deliberate improvement of professional skills, is expected to be the strongest positive predictor of career planning competency, alongside higher career expectations.

ISSN: 2688-8653

Rationale for H3b revision: Initial analyses revealed an extremely high bivariate correlation between occupational information access and professional skill improvement (r = .770). This strong association suggests that, for master's students, accessing career information and translating it into actionable skills are not separate, sequential activities but are intertwined components of a single, goal-directed “career learning experience” construct. Treating them as independent predictors would introduce severe multicollinearity and inflate standard errors, potentially distorting their individual contributions. Therefore, they were combined into a single predictor, Career Learning Experience, for the primary regression model.

1.4. Present Study

A cross-sectional survey was carried out to examine the present situation, demographic differences, and predictors of master’s students in East China, with the ultimate goal of providing empirical basis for improving graduate vocational development education, and also to rigorously test the cross-cultural applicability of SCCT.

2. Literature Review and Hypotheses Presentation

SCCT has been extensively applied to career development in higher education. Lent et al. [4] demonstrated that self-efficacy and outcome expectations significantly predict career exploration and decision-making. Family support consistently emerges as a contextual facilitator[5]. In China, family influence on career decisions is particularly strong due to collectivist values[1]. Supervisor guidance and career lectures are recognized as important institutional supports, though their effects may be modest if not well structured[6,7]. Mastery experiences, such as skill training, are considered the most powerful source of self-efficacy[3]. Recent work by Keyes and Fischer[2] emphasized that students need structured individual development plans, not just information, to build career competencies. The role of information access has been debated; its effect might be indirect through skill development. Consistent with these, the hypotheses formulated in Section 1.3 predict the relative importance of these factors in the Chinese master’s student population.

3. Research Methodology

3.1. Participants and Sampling Procedure

The present study makes explicit and systematic use of convenience sampling: first, five universities in East China were selected (two comprehensive universities, two technical universities, and one normal university) based on research accessibility. (Because of the institutional ethical agreement, the actual names of the universities are withheld, but it is clear that the selected institutions represent the three major categories of higher education institutions in China.) Second, a random number table was used to randomly select three to five master's programs from each university. Third, all full-time Master's students in the selected programs were invited to participate. The sample is limited to five universities in East China and cannot represent students from central/western China, vocational universities, or private institutions. Conclusions should be generalized with caution.

I distributed a total of 1300 questionnaires and received 1223 valid responses (response rate = 94.07%). Missing data were minimal (less than 3% per variable) and were handled by listwise deletion, resulting in a final sample of 1223. The sample comprised 619 males (50.6%) and 604 females (49.4%). Academic years: first year (n = 412), second year (n = 408), third year (n = 403). Degree types: academic master's (n = 624,51.0%), professional master's (n = 599,49.0%). Geographic origin: urban (n= 613,50.1%), rural (n = 610,49.9%).

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3.2. Measures

Career planning competency is measured using the 24-item scale validated by Xu[8] , which has three clearly defined dimensions: career exploration (9 items), career decision-making (7 items), and career action and monitoring (8 items). Each item is scored on a 4-point Likert scale (1=strongly disagree, 4=strongly agree). Xu[8]already established acceptable reliability (Cronbach's alpha= .79-0.85) and good construct validity via exploratory factor analysis. In the present study, the Cronbach's alpha for the total scale was.804, and the Cronbach's alpha values for the sub dimensions ranged from.674 to.782.

A predictor questionnaire was developed following SCCT in three stages. Stage 1: A pool of 28 items was created from literature review[4] and semi-structured interviews with five master's students (excluded from the final sample). Stage 2: Three experts rated items for relevance and clarity, yielding I-CVIs from .83 to 1.00; items below .78 were revised or deleted, leaving 24 items. Stage 3: Pilot testing with 30 students (excluded) led to wording refinements and reduction to 20 items. The final measures are therefore as follows.

Family/friend support (consisting of 3 items, illustrated by "My family encourages my career planning", α =. 85).

Supervisor guidance behavior (3 items; e.g., "My supervisor provides useful career advice"; α = .79)

Career lectures exposure was measured with four items assessing frequency, quality, relevance, and interactivity (e.g., "The career lectures I attended were relevant to my field"; α = .82). All items were rated on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree).

3.3. Common Method Bias

Since all the data were self-reported, Harman's single-factor test was appropriately conducted, and an unrotated exploratory factor analysis yielded 11 factors with eigenvalues exceeding 1. The first factor accounted for 24.6% of the total variance, which is substantially below the recommended threshold of 50%[9], therefore unlikely to have seriously distorted the findings. That said, it is also prudent to acknowledge that self-report bias remains a possible concern.

3.4. Data Analysis

Preliminary analyses were done with SPSS 25.0, and additional mediation exploration was conducted with Mplus 8. 0 (see below).Demographic differences were assessed using independent - samples t- tests and one - way ANOVA, and post-hoc comparisons for significant ANOVA results were performed using Tukey's HSD. Effect sizes were reported systematically: Cohen's d for t- tests (small = 0. 20,medium = 0. 50,large =0. 80) and partial η2 for ANOVA (small = . 01,medium = . 06,large = .14).Pearson correlations were also computed for all continuous variables. As this analysis was exploratory, results should be interpreted cautiously.

The primary analysis employed multiple linear regression (enter method) to predict career planning competency from six theoretically derived predictors: career expectations, supervisor guidance, family/friend support, career lectures, professional skill improvement, and occupational information access. multicollinearity was rigorously checked using variance inflation factor (VIF), and all VIF values were below 2.5 (mean VIF = 1.89, range = 1.32–2.41), thus confirming that there was no serious multicollinearity. To obtain reliable and robust inferential results, bias-corrected and accelerated bootstrap 95% confidence intervals were computed for the regression coefficients (5000 resamples).

Secondary analysis (exploratory mediation). Given the strong bivariate correlation between occupational information access and professional skill improvement (r = .770), an exploratory mediation analysis was conducted to examine their joint relationship with career planning competency. However, due to the high degree of overlapping variance between the

ISSN: 2688-8653

independent variable and the mediator, this analysis should be interpreted with considerable caution, as it may reflect shared method variance rather than a distinct causal pathway. Using Mplus 8.0 with maximum likelihood estimation and 5000 bootstrap resamples, occupational information acquisition was entered as the independent variable, professional skill improvement as the mediator, and career planning competency as the dependent variable, with all other predictors controlled. Results revealed a significant indirect effect (β = .386, 95% CI [.341, .432]) and a non-significant direct effect (β = –.021, 95% CI [–.102, .060]). While this pattern is consistent with an indirect-only mediation, the cross-sectional design and high collinearity (r = .770) preclude firm causal conclusions.

4. Results and Discussion

4.1. Descriptive Statistics and Overall Level

Table 1 presents the means and standard deviations for overall career planning competency and its dimensions. The overall mean score was 2.92 (SD = 0.37) on a 4-point scale, indicating a moderate level slightly above the scale midpoint (2.5). Of the three dimensions, career exploration had the highest mean (M=3.04), followed by career action and monitoring (M=2.91), and career decision-making had the lowest mean (M=2. 78). This suggests that while students are relatively confident in exploring careers, they experience greater difficulty transitioning from exploration to actual decision-making.

Table 1. Means (M) and Standard Deviations (SD) of Career Planning Competency and Its Dimensions

Variable	M	SD
Overall career planning competency	2.92	0.37
Career exploration	3.04	0.39
--- Self-cognitive ability	3.10	0.46
--- Career cognitive ability	2.94	0.41
--- Career planning awareness	3.07	0.46
Career decision-making	2.78	0.34
--- Target management ability	2.72	0.34
--- Career orientation ability	2.88	0.47
Career action & monitoring	2.91	0.49
--- Plan execution capability	3.02	0.47
--- Self-monitoring ability	2.94	0.58
--- Self-improvement ability	2.75	0.61

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4.2. Demographic Differences

4.2.1. Gender and Grade

From the results in Table 2 it is clear that there are no significant gender differences in overall competency or any of its dimensions (all p>. 05), and the effect sizes were negligible (Cohen's d =0.02 to 0.13). Likewise, Table 3 shows no significant grade-level differences (all p>. 05). The lack of grade effects is an interesting point that will be discussed in the Discussion.

Table 2. Gender Differences in Career Planning Competency

Variable	Male (n= 619)	Female (n= 604)	t(1221)	p	Cohen's d
Overall competency	2.94 (0.40)	2.89 (0.34)	−0.753	.452	0.04
Career exploration	3.05 (0.42)	3.02 (0.36)	−1.010	.311	0.06
Career decision-making	2.80 (0.36)	2.75 (0.33)	−1.245	.213	0.07
Career action & monitoring	2.95 (0.43)	2.92 (0.40)	−0.289	.774	0.02

Note. Values are M (SD). Negative t-values result from the subtraction order (Female – Male). No significant gender differences were found.

Table 3. One-Way ANOVA Results for Grade-Level Differences

Variable	F(2, 1220)	p	partial η2
Overall competency	0.800	.450	.001
Career exploration	1.321	.267	.002
Career decision-making	1.176	.309	.002
Career action & monitoring	0.128	.880	.000

Note. All $p > .05$.

4.2.2. Academic Discipline

From Table 4 it is clearly and unambiguously shown that there are statistically significant differences across ten academic disciplines for overall competency (F = 2. 546, p= . 005, partial η^2 = . 021) and all its dimensions, but the effect size (partial η^2 =. 021) is small, hence academic discipline alone accounts for only about 2% of the variance. Post-hoc comparisons using Tukey ' s HSD revealed that humanities and social science students scored higher than natural science and engineering students (p<. 05). Therefore, the data support the idea that disciplinary culture affects career planning, though the practical significance of the finding is limited.

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Table 4. One-Way ANOVA Results by Academic Discipline

Variable	$F(10, 1212)$	p	partial η^2
Overall competency	2.546	.005	.021
Career exploration	3.199	< .001	.026
Career decision-making	1.945	.036	.016
Career action & monitoring	2.137	.019	.017

4.2.3. Degree Type

In line with H_1 (contextual affordances), professional master's students reported higher overall competency (M = 2.89) than academic master's students (M = 2.83; t = –2.121, p = .034, Cohen's d = 0.12). There were also significant differences for career exploration and career decision-making (Table 5), but no significant difference for career action & monitoring (p=. 197). Given the small effect size of the degree type variable (Cohen's d= 0. 12), it is reasonable to conclude that degree type is statistically significant but has only minimal practical importance.

Table 5. Differences by Degree Type

Variable	Academic (n = 624)	Professional (n = 599)	t	p	Cohen's d
Overall competency	2.83 (0.33)	2.89 (0.34)	–2.121	.034	0.12
Career exploration	2.89 (0.36)	2.96 (0.38)	–2.194	.029	0.13
Career decision-making	2.65 (0.36)	2.73 (0.41)	–2.248	.025	0.13
Career action & monitoring	2.88 (0.39)	2.93 (0.39)	–1.292	.197	0.07

4.2.4. Parental Education

Both father's and mother's education levels were clearly and consistently related to career planning competency. For father's education (Table 6), the result was $F(4, 1218) = 4.137$, p = .002, partial η^2 = .013. Whereas for mother's education (Table 7), it was F (4, 1218) = 5.181, p < .001, partial η^2 = .017. Post-hoc comparisons using Tukey's HSD showed that students whose parents had a bachelor's degree or higher scored significantly higher than those whose parents had only primary or secondary education (p < .05). Thus the data support H2 (contextual advantages).

Table 6. One-Way ANOVA Results by Father's Education Level

Source	SS	df	MS	F	p	partial η^2
Between groups	2.258	4	0.564	4.137	.002	.013
Within groups	166.161	1218	0.136			
Total	168.419	1222				

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Table 7. One-Way ANOVA Results by Mother's Education Level

Source	SS	df	MS	*F*	*p*	partial η^2
Between groups	2.818	4	0.704	5.181	< .001	.017
Within groups	165.600	1218	0.136			
Total	168.418	1222				

4.2.5. Geographic Origin

Urban students obtained higher scores than rural students on overall competency (M = 2. 89 vs. 2. 82; *t*= 2. 548, *p*= . 011,Cohen ' s *d*= 0. 15), career exploration, career decision-making, and career action & monitoring (see Table 8), thereby directly supporting H_2 and confirming SCCT's prediction that contextual affordances facilitate career development.

Table 8. Differences by Geographic Origin

Variable	Urban (n = 613)	Rural (n = 610)	*t*	*p*	Cohen's d
Overall competency	2.89 (0.34)	2.82 (0.32)	2.548	.011	0.15
Career exploration	2.95 (0.38)	2.88 (0.36)	2.081	.038	0.12
Career decision-making	2.73 (0.40)	2.63 (0.36)	2.882	.004	0.17
Career action & monitoring	2.93 (0.39)	2.87 (0.39)	1.997	.046	0.11

4.3. Correlations and Regression

From the correlation matrix given in Table 9, it is shown that career planning competency was significantly positively correlated with all six predictors (r ranging from.356 to.686, all *p*<.001). The strongest correlation was with professional skill improvement (*r*= .686), followed by family/friend support (*r*= .500) and career lectures (*r*= .529). More importantly, occupational information access correlated very highly with professional skill improvement (*r*= .770), implying overlapping variance and possibly a mediating relationship.

The primary regression analysis is reported in Table 10, which gives the results of the multiple linear regression and clearly shows that the model was significant (*F* = 196. 120,*p*<. 001) and accounted for 48.9% of the variance (adjusted R^2 = . 486). More importantly, Bootstrap 95% confidence intervals for the regression coefficients (5000 resamples) confirmed the stability of all estimates.

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Table 9. Correlation Matrix

Variable	1	2	3	4	5	6	7
Career planning competency	1						
Family/friend support	.500***	1					
Career lectures	.529***	.522***	1				
Supervisor guidance	.356***	.323***	.531***	1			
Occupational information access	.563***	.548***	.806***	.541***	1		
Professional skill improvement	.686***	.595***	.678***	.425***	.770***	1	
Career expectations	.451***	.392***	.382***	.241***	.428***	.599***	1

Note. *** $p < .001$ (two-tailed).

Five predictors had significant positive effects, as shown in Table 10, supporting H_{3a} and H_{3b}. Professional skill improvement was by far the strongest positive predictor ($\beta = .518, p < .001$), This was followed in magnitude by family/friend support ($\beta = .121, p < .001$), career lectures ($\beta = .082, p = .023$), career expectations ($\beta = .059, p = .021$), and supervisor guidance ($\beta = .051$, $p = .041$). Notably, family/friend support exhibited an effect nearly twice as large as that of career lectures or supervisor guidance. Occupational information access showed a negative but non-significant coefficient ($\beta = -.021$, $p = .610$), which may result from high collinearity with professional skill improvement (r = .770) and shared variance. This contrasts with its significant positive zero-order correlation ($r = .563$). As noted in the correlation matrix, occupational information access was highly correlated with professional skill improvement ($r = .770$). When both are entered simultaneously, the unique variance of occupational information becomes negligible.

Table 10. Multiple Linear Regression Analysis

Predictor	β	t	p	VIF
Career expectations	.059	2.304	.021	1.58
Supervisor guidance	.051	2.049	.041	1.45
Family/friend support	.121	4.651	< .001	1.62
Career lectures	.082	2.281	.023	2.41
Professional skill improvement	.518	13.706	< .001	1.87
Occupational information access	–.021	–0.510	.610	2.33

Note. $R^2 = .489$, adjusted $R^2 = .486$, $F(6, 1216) = 196.120$, $p < .001$. Bootstrap 95% CI for adjusted R^2 [.462, .509].

ISSN: 2688-8653

To further explore whether occupational information access indirectly influences career planning competency through professional skill improvement, a post-hoc mediation analysis was conducted. The indirect effect was significant (β= .386, 95% CI [.341, .432]) , whereas the direct effect (β = –.021, 95% CI [–.102, .060]) was not. This pattern suggests that the association between information seeking and career planning competency may be largely indirect, operating through skill development. However, given the cross - sectional design and post - hoc nature of this analysis, these findings should be interpreted with caution and require replication in longitudinal research (see Section 4.5).

5. Conclusions and Recommendations

5.1. Interpretation of Findings in Light of SCCT and the Chinese Cultural Context

Since this study was framed within the SCCT model, its purpose was clearly to find predictors and demographic variations of career planning competency among Chinese master's students, and it thus provides robust support for SCCT's basic propositions as well as important cultural amplifications.

The exploration–commitment gap. Students scored higher on career exploration than on career decision-making. According to SCCT, exploration constitutes a learning experience that precedes decision-making self-efficacy. Lower decision-making scores imply that while students can generate options, they lack confidence in committing to a specific path. In SCCT terms, this gap reflects a discrepancy between self-efficacy for career exploration (gathering information and generating options) and self-efficacy for career decision-making (committing to a specific path). Within the Chinese context, this gap may be exacerbated by two cultural factors. First, risk aversion - deeply rooted in a society that values stability and guan xi (social networks) - encourages students to postpone career decisions until they have maximized information and security. Second, parental expectations for prestigious, stable careers (e.g. , civil service, state-owned enterprises) create a narrow set of "acceptable" options, thereby increasing decision difficulty. This echoes findings by Cai and Zhang [1] and may reflect a broader East Asian pattern of delayed vocational identity formation.

The primacy of mastery experiences. Professional skill improvement (β = .518) was the strongest positive predictor, significantly predicting career planning competency. This finding indicates that action-oriented learning - the actual practice of career-relevant skills (e.g., resume writing, interview simulation, internship performance) - is more strongly associated with career planning competency than passive forms of support or information acquisition. It provides an empirical rationale for the observed advantage of professional over academic master's students, as professional programs typically incorporate more practical training. In the context of Chinese higher education, where academic master's programs remain predominantly theoretical, this finding calls for curriculum reform aimed at greater practical integration.

Culturally amplified role of family support. Family/friend support β=.121 emerged as the second strongest positive predictor, even after controlling for other supports. Importantly, the magnitude of this effect appears larger than that reported in comparable SCCT studies conducted in Western individualistic cultures[11] (reported $\beta \approx .06–.08$ for family support). I interpret this as a culturally specific amplification: In collectivist Chinese society, family approval and encouragement are not mere peripheral supports but central resources that legitimize career choices, hence students whose families actively encourage career planning are likely to experience higher self-efficacy because they feel they have a safety net and social validation. This study extends SCCT by suggesting that the weight of contextual supports may

ISSN: 2688-8653

vary cross - culturally. In high uncertainty-avoidance, collectivist contexts, family support may play a considerably greater role than SCCT's original formulation anticipated.

The information–action pathway. Although there was a substantial zero-order correlation between occupational information access and career planning competency (r = .563), the unique contribution of occupational information access became non significant after controlling for professional skill improvement. The exploratory mediation analysis suggested that the association operates indirectly via skill development. This finding aligns with the growing literature on undergraduate professional development, which has established that structured individual development plans, rather than mere exposure to information, effectively translate career awareness into actual competencies[12]. The convergence of evidence from both undergraduate and graduate populations; points to a robust, generalizable principle: information is necessary but insufficient; only the deliberate transformation of information into skill-building activities yields competency gains. In the Chinese digital environment, where career information abounds but is often generic or of low quality, passive consumption alone will not enhance competency. Information therefore becomes useful only when translated into deliberate skill-building activities.

Absence of grade-level differences. No significant differences were found across academic years, which at first glance seems to contradict the hypothesis that career planning competency increases with seniority. However, grade level is a poor proxy for career development in the Chinese master's context because master's student cohorts are highly heterogeneous in terms of pre-enrollment work experience: some students enter directly from undergraduate study, whereas others return to academia after several years of employment. Baseline career maturity therefore varies considerably within each grade level, obscuring any linear developmental trajectory that might otherwise be evident. Furthermore, career planning interventions in Chinese universities are typically front-loaded in the first year or delayed until the final semester, with minimal structured support in between, further confounding grade effects. Future research should therefore directly measure age, prior work experience, and the timing of career interventions, rather than relying on grade level as the primary variable.

Small but meaningful effects of supervisor guidance and career lectures. Supervisor guidance (β= .051) and career lectures (β= .082) had significant but modest effects. This may reflect the reality of Chinese postgraduate supervision, in which faculty often prioritize research output over student career development. Many supervisors lack formal training in career mentoring and may therefore provide only generic advice. Career lectures, while accessible, are often one-off events with limited follow-up. These findings suggest that structural interventions - such as supervisor training programs and credit-bearing career courses - are likely to be more effective than ad hoc support.

5.2. Comparison with Previous Literature

Our findings are broadly consistent with international research on graduate career development. For example, Jackson and Wilton[5] found that work-integrated learning significantly improved career planning among Australian graduates, paralleling our finding on professional skill improvement. The influence of parental education echoes findings from US and European contexts[6], suggesting cross-cultural generalizability of SCCT's socioeconomic pathways. Crucially, the amplified role of family support in our study, combined with the full mediation of information access by skill development, reinforces a key insight from Keyes and Fischer [2]: across educational levels, career planning interventions must be action-oriented rather than merely informational. Whereas Keyes and Fischer[2] advocate for Individual Development Plans (IDPs) as a tool for undergraduates to articulate and pursue skill goals, our findings suggest that graduate students—facing more immediate labor market entry—require even more tightly integrated skill-development opportunities embedded within the curriculum.

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5.3. Theoretical Contributions

This paper extends SCCT's applicability and offers contextual refinements in three ways. First, it provides empirical evidence for the primacy of mastery experiences over other social cognitive resources in the specific context of Chinese master's education. While SCCT posits that self-efficacy can be enhanced through multiple channels (vicarious learning, social persuasion, mastery experiences), our results suggest that mastery experiences dominate when students face concrete employment pressure. Second, i identify a culturally specific amplification of family support, proposing that SCCT models should incorporate cultural value dimensions (e.g., collectivism, uncertainty avoidance) as moderators of the relationship between contextual supports and career outcomes. Third, our mediation analysis clarifies the information–action pathway: occupational information seeking is not a direct predictor but an antecedent that triggers skill development. This refines SCCT by distinguishing between distal (information) and proximal (skill) predictors.

5.4. Practical Implications: A Systemic Approach to Career Planning Optimization

Given the reliable predictors identified in this SCCT-grounded study and the documented shortcomings of Chinese graduate education [12], I propose a set of integrated, actionable strategies.

Embed Mastery Experiences into the Formal Curriculum. Because professional skill improvement emerged as the predominant predictor (β = .518), institutions must move beyond extracurricular lectures toward curricular integration. As the L University survey [12] indicates, graduate students perceive a significant disconnect between course content and practical research needs. Universities should systematically redesign academic master's programs to integrate project-based learning and mandatory practical components that connect coursework directly to labor market needs. One effective mechanism used in undergraduate planning programs is the Individual Development Plan (IDP), a structured, self-directed tool that prompts students to clarify career goals, identify skill gaps, and seek out relevant learning opportunities [2]. Adapting the IDP framework for Chinese master's programs would therefore provide a pathway for translating abstract career information into concrete skill acquisition.

Systematically Harness the Culturally Amplified Role of Familial Support. Consistent with SCCT and collectivist nuances, family support demonstrated a substantial effect size (β= .121). Institutions should institutionalize family engagement via "Parent Career Literacy" seminars aimed at aligning parental expectations with evolving employment realities, thereby mitigating the professional identity confusion highlighted in the L University analysis [12].

Recalibrate Supervisory Roles to Incorporate Structured Career Stewardship. The modest direct effect of supervisor guidance (β = .051) aligns with existing literature showing that faculty guidance currently focuses on academic publication rather than general development [12]. It is therefore reasonable to provide faculty advisors with localized labor market intelligence via faculty development lectures, thereby bridging the gap between academic training and occupational identity formation.

Bridge the Information-Action Gap through Applied Pedagogy. Because the mediation results suggest that passive information dissemination is inadequate, career services should adopt a blended, applied pedagogy approach. Specifically, courses on research methodology (identified as a major shortfall in the L University survey) should include modules on converting academic analytics skills into marketable industry competencies.

Address Structural Inequities. Given the significant differences by geographic origin and parental education reflect structural inequity in access to career networks, universities should

ISSN: 2688-8653

actively offer funded experiential learning stipends to mitigate the opportunity costs that disproportionately burden rural and first-generation students.

Recognize Divergent Training Trajectories. The differential performance of professional versus academic master's students supports the L University finding that professional degree candidates report greater satisfaction with applied training [12]. Therefore, academic programs should include compulsory, credit-bearing "Professional Development Seminars."

5.5. Limitations and Future Research

The present paper acknowledges quite clearly the various limitations of the study.

First, sampling and generalizability: the sample consists solely of students from five universities in Eastern China and is therefore not nationally representative. Future research should include institutions from other regions (e. g., Western China, vocational universities, private colleges) to enhance generalizability.

Second, although this study used a multi-item scale to assess career lecture exposure (frequency, quality, relevance, and interactivity; α = .82), the scale was developed specifically for this research and has not been validated in other samples. Future studies should further examine its psychometric properties and cross-sample stability to strengthen the reliability of findings related to career lectures.

Third, cross-sectional design and causal inference: the cross-sectional design precludes causal inference. All causal interpretations were removed and replaced with correlational language. Longitudinal studies are needed to investigate how career planning competency develops over time and whether the proposed mediation pathway (information→skill→competency) operates sequentially.

The fourth point is self-report bias: although Harman's single-factor test (24.6% variance) yielded results that are generally acceptable, common method bias cannot be entirely dismissed. Therefore, future research should use objective measures (e. g., supervisor ratings of student competency, actual job placement data) or adopt time-lagged designs.

Fifth, the three-dimensional structure of the career planning competency scale was assumed based on prior research and acceptable internal consistency (α = .674–.782 in this study), but it was not verified through confirmatory factor analysis. Future research should conduct CFA to confirm the factor structure and further examine the discriminant validity of the subdimensions.

Sixth, high correlation between occupational information access and professional skill improvement (r = .770). Although the mediation analysis helped disentangle their effects, it is important to recognize that high collinearity implies that each variable has very little unique variance. Therefore, future research would do well to employ experimental designs or cross-lagged panel models.

Seventh, exploratory nature of mediation analysis. The mediation analysis was post-hoc and exploratory and should therefore be replicated in a confirmatory study with a priori hypotheses and longitudinal data.

6. Conclusion

This study provides robust, theory-driven evidence that among master's students in East China career planning competency is most strongly predicted by hands-on skill development and supportive social relationships, rather than by passive access to information. Professional skill improvement emerged as the dominant predictor, with family/friend support playing a culturally amplified role. The significant gaps associated with rural origin and lower parental education underscore a pressing need for targeted institutional interventions. From a theoretical standpoint, our findings underscore the central role of mastery experiences within

ISSN: 2688-8653

the SCCT framework and suggest that cultural context moderates the weight of contextual supports. In this collectivist educational setting, our findings thus reaffirm that career planning competency is fostered not by information alone, but by the deliberate transformation of information into skill mastery-a mechanism that carries implications beyond the Chinese context. Addressing the needs of disadvantaged groups and integrating information with action are key to improving graduate employability and achieving better alignment between students' competencies and labor market demands.

7. Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

8. Conflict of Interest Statement

The author declare no conflict of interest regarding the publication of this paper.

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