

# The Role of Career Planning Teaching Reform Program Based on "Learning through Racing" on College Students' Academic and Future Employment Psychological Anxiety

Jie Fan<sup>1,2,\*</sup>

<sup>1</sup>*Department of Electronic Commerce, Ningbo University of Finance and Economics, Ningbo, Zhejiang, China*

<sup>2</sup>*Zhejiang Soft Science Research Base "Digital Economy and Open Economy Integration Innovation Research Base", Ningbo, Zhejiang, China*  
Corresponding Author.

**Abstract:** Due to the lack of career planning education in high school, Chinese students often have no goals to strive for after entering college, and generally feel confused and even have psychological anxiety. Based on the teaching mode of "learning through racing" for other courses, the course group designed a teaching scheme of "learning through racing" for the course of Introduction to Major, which belongs to the courses of college students' career planning. A total of 391 students who attended in the course were surveyed for relevant information in this study. Descriptive statistics, chi-square test and logistic regression model were used to analyze the alleviating effect of the teaching reform program on college students' psychological anxiety in education and future employment. It was found that students' overall satisfaction with the course, the content of the course, the resources of the course and the recognition of teachers were related factors to alleviate academic anxiety and future employment anxiety. In order to improve the teaching effect of the course and help students relieve their anxiety about academic and future employment, the course group should strengthen and improve the course content, the recognition of teachers and the course resources to help them make appropriate career planning.

**Keywords:** Career Planning of College Students; Career Planning Education; Psychological Pressure of Employment; Learning through Racing

## 1. Introduction

### 1.1 Background in Career Planning Education in China

The phenomenon of college students' academic and employment psychological anxiety appeared many times in the course of news reporting in China. The career planning teaching reform course group in Ningbo University of Finance and Economics, through surveys and years of teaching experience, was also noticed about the prevalence of these psychological anxieties among students when they entered university. Students' psychological anxiety came from the confusion of college life, mainly including whether they should take the postgraduate entrance exam and what career they should pursue after graduation, which belong to the category of career planning. The concept of career planning was introduced into China in the 1990s, and the career planning education in the developed countries in Europe and America generally started in primary school, and some even started in the earlier stage. However, due to factors such as enrollment examination mode and traditional concept, career planning education was difficult to be carried out in junior middle schools and primary schools in China, and its first large-scale implementation was in colleges and universities. In 2007, China's Ministry of Education issued the Notice on the Teaching Requirements of Career Development and Employment Guidance Courses for College Students, which clearly required all ordinary colleges and universities to offer career development and employment guidance courses from 2008, and incorporated them

into the teaching plans as public courses, throughout the entire training process of students from enrollment to graduation. Since 2008, colleges and universities in China have launched courses related to career planning, but the course arrangement in colleges and universities varied from each other. At some colleges and universities, career development and employment guidance courses for their students were offered only on the first five weekends of each fall semester, with four class hours per week. The teaching content in these colleges and universities was mainly about the imparting of basic theoretical knowledge and policy interpretation, and the teaching method was basically the traditional "indoctrination" mode [1]. Some colleges and universities offered career planning course with fundamental theoretical knowledge about career planning for their students in the freshman and sophomore year, and offered additional elective courses in employment guidance in the students' junior and senior year. These colleges and universities still emphasized on traditional classroom teaching without a hands-on experience component [2]. Some colleges and universities designed the course "Career and Development Planning for College Students" in the first or second semester of the first year of college while other career planning course modules to be concentrated in one or two semesters [3].

## 1.2 Problems and Difficulties in College Students' Career Planning Education

Different from the courses of science and engineering majors, career planning courses do not have a clear right answer, and even the so-called "right answer" may be different for different students. By summarizing and analyzing the research results of relevant scholars, it was found that the following problems and difficulties were common in the courses of college students' career planning, which would adversely affect the development, effect and efficiency of the course teaching [4-7].

### 1.2.1 Large differences about the knowledge base of career planning among college students

College students come from all over the country. Some provinces had implemented the new college entrance examination system for

years and the high schools in these provinces had taught their students basic career planning related knowledge because the new college entrance examination system was a professional-oriented two-way selection scheme for colleges and universities and high school examinees, and it asked for career planning education. Some provinces had yet introduce the new college entrance examination system or just started to implement, in which the students had not been exposed to systematic career planning knowledge when they were in high schools. In addition, whether students studied in urban or rural areas during high school would also affect their reserves of career planning knowledge. Finally, the teaching ability and attitude of high school teachers and the financial resources of middle school and emphasis on this issue would also lead to students' mastery of career planning knowledge.

### 1.2.2 Teaching emphasis on theory and lack of practice links

The teaching organization forms of college students' career planning course were often based on classroom theory indoctrination, supplemented by relevant lectures and reports, and often lacked practical teaching links. The career planning courses did not effectively combine theory and practice together. The career planning courses in some colleges and universities required students to participate in the practice part and to provide investigation reports and evaluation sealed by enterprises as the basis for course evaluation. However, the lack of effective channels to integrate enterprise resources in the practical teaching process resulted in students' inability to contact appropriate enterprises to visit, investigate and practice. The teaching objectives of the course were not achieved.

### 1.2.3 Traditional course assessment methods unsuitable for career planning courses

Traditional course assessment methods only scored students by attendance, homework or survey reports, without comprehensive design for the characteristics and teaching purposes of career planning courses. The assessment method did not reflect the incentive factors and practical value, which led to the lack of initiative and enthusiasm of students in learning.

### 1.2.4 Unapparent role of teachers

The teachers of career planning courses in most colleges and universities were composed of (deputy) secretaries in charge of student work, counselors and some professional teachers, but there were few full-time career planning teachers. Because these teachers were part-time in teaching career planning courses, on the one hand, there were a general lack of knowledge and practical work experience in career planning area, which eventually brought about unsatisfactory teaching effect, on the other hand, the change of positions would cause the lack of stability of the teaching group. In addition, the courses of career planning needed the social practice part, but teachers did not have the opportunities to contact with enterprises, so they could not grasp the latest trend of the profession in the industry. The role of the teachers in the practical teaching part in the courses was not prominent and did not play the due guiding role.

How to overcome the above problems and difficulties in the education of college students' career planning was a big challenge. The model of "learning through racing" was successfully applied in the teaching of many university courses [8-16]. With the gradual popularization and maturity of "the College Students' Career Planning Competition" in recent years, the teaching model of "learning through racing" become a possible way to deal with the challenges in the course of college students' career planning. This paper will discuss the teaching reform plan of "learning through racing" of college students' career planning course in the School of International Trade and Economics of Ningbo University of Finance and Economics, and its role on relieving the psychological anxiety of college students in academic and future employment.

## 2. Materials and Methods

The first part of this section will introduce the key components of "learning through racing" teaching model in the School of International Trade and Economics of Ningbo University of Finance and Economics, which were also the main targets to be analyzed in this study.

### 2.1 The Teaching Reform Program of "Learning through Racing"

"Learning through racing" means that teacher

designs teaching plan in combination with the school's incentive policies and supporting resources for student competitions, encourages students to actively participate in relevant competitions in the course learning process, and helps students clarify their learning objectives and increase their learning motivation and effect through training and confrontation in competitions. In this paper, the teaching reform program of "learning through racing" was carried out in the course of "Introduction to Majors" for freshmen. The core objective of the course was to cultivate students' ability to design and plan their own career, so as to help them relieve their anxiety about academic and future employment.

#### 2.1.1 Course content

The course consisted of two parts: theory part and practice part. The theory part covered a lot of knowledge to help students with poor foundation to acquire relevant knowledge and information, including self-cognition, career cognition, introduction of core courses for the major, career decision-making and management, resume making, basic knowledge of entrepreneurship, etc. In the practice part, the teachers gave lectures and guidance based on the competition scheme, specifically including practice plan arrangement, career planning analysis report writing, enterprise survey and interview arrangement, and comments on previous award-winning works. For students interested in starting a business, instructors could guide them in writing proposals for creative projects.

#### 2.1.2 Teaching methods

In addition to the conventional use of PPT for classroom explanation, the teaching method also integrated the appreciation and comments of the award-winning works of previous competitions. At the same time, the teachers were also responsible for the students' questions in the process of enterprise practice or competition. Finally, the teachers also provided guidance for students' anxiety or confusion in their studies and future employment.

#### 2.1.3 Course resources construction

In terms of course resources, the teaching group prepared traditional textbooks, teaching syllabus, courseware, teaching calendar, scoring standards, ideological and political case base and other documents for theoretical

courses. In order to overcome the difficulty of students' lack of opportunities to participate in social practice, the course group also exploited resources such as school-enterprise cooperation units and target employment organizations to establish social practice bases. Award-winning works of previous competitions were also used as reference materials for students designing their own career plans.

#### 2.1.4 Teaching organization

The theory part focused on the teaching content in the classroom. In the practice part, students would choose relevant positions according to the requirements of "the College Students' Career Planning Competition", their own majors and interests to conduct an investigation. During the period, teachers would provide guidance and answers when students encountered problems.

#### 2.1.5 Course performance evaluation

The course performance evaluation scheme incorporated the concept of "learning through racing", which was reflected in the evaluation content and scoring standards. The content of performance evaluation was divided into two aspects: the performance in the classroom and the completion of practical tasks. The requirements of practical tasks were referred to the requirements of the competition works. All students in the course were encouraged to participate in "the College Students' Career Planning Competition". If a work entered the final of the school level, the student's practical task score would be directly assessed as 90 points, the work entered the provincial competition, the student's practical task score would be assessed as 95 points, and if the work entered the provincial final, the student's practical task would be assessed as 100 points.

## 2.2 Research Objective and Research Objects

The research objective of this study was to analyze the effects of the career planning teaching reform program based on "learning through racing" on college students' academic and future employment anxiety. In this study, the freshmen, sophomores and juniors of the School of International Trade and Economics of Ningbo University of Finance and Economics who had taken the course "Introduction to Majors" were selected as the

survey subjects. Questionnaires were distributed to all 466 students who met the requirements, and a total of 407 questionnaires were collected, of which 391 were valid, with an effective rate of 96.07%, including 192 males, accounting for 49.10%, and 199 females, accounting for 50.90%.

## 2.3 Research Methods

The course group designed 12 questions in the questionnaire according to the evaluation factors of the teaching effect for the courses in the university, own teaching experience of the teaching group and this study's objectives. The variables for the 12 questions were gender, grade, overall satisfaction, course content, teaching methods, course resources, teaching organization, course performance evaluation, teacher recognition, competition recognition, career planning help, and competition award value. Among the eight variables of overall satisfaction, course content, course resources, teaching methods, teaching organization, course achievement evaluation, teacher recognition and competition recognition, this study employed Likert five-level scale to score points to measure the degree of students' recognition of the course. The five levels to these questions were "very satisfied", "satisfied", "neutral", "dissatisfied" and "very dissatisfied", which were respectively recorded as 5, 4, 3, 2 and 1 points. The higher the score, the higher the degree of recognition of the students with the course.

If questions with the word "psychological anxiety" were asked in the questionnaire, the results would often be significantly different from the actual situation. Therefore, in this study, the course group asked the students whether the course was helpful to their career planning, namely, the variable of career planning help used in later analysis, to replace the alleviating effect of the reformed course program on their psychological anxiety in academic and future employment. The options for career planning help were "yes", "no", and "not sure". The variable of competition award value referred to whether winning a prize in "the College Students' Career Planning Competition" was valuable to the students. The answer options were "yes", "no", and "not sure".

The target variable of this study, that is, the

explained variable was career planning help with three outcomes, which was suitable for binary logistic regression as an analysis tool. In the analysis, the career planning help was re-coded, and "yes" was coded as 1, indicating that the course of "Introduction to Major" with reformed teaching approach had alleviating effect on their anxiety in academic and future employment. "Not sure" and "no" were coded as 0, indicating that the course had no alleviating effect on their anxiety about academic and future employment. In this study, R software was used to process and analyze the data, and the statistical methods adopted in the analysis included descriptive statistical analysis, chi-square test and logistic regression.

In this study, Chi-square test was applied to analyze the univariate relationship between the variable of career planning help and other variables. Only the variables that showed statistically significant correlation in the chi-square test would be analyzed in the logistic regression model for the multivariate analysis. The statistical expression of chi-square test is as follows

$$\chi^2 = \sum_{i=1}^I \sum_{j=1}^J \frac{(O_{ij} - E_{ij})^2}{E_{ij}} = \sum_{i=1}^I \sum_{j=1}^J \frac{(n_{ij} - n_{i.}n_{.j}/n_{..})^2}{n_{i.}n_{.j}/n_{..}} \sim \chi_{df}^2 \quad (1)$$

Where  $O_{ij}$  represents the observed value on the cell in row  $i$  and column  $j$ ,  $E_{ij}$  represents the expected value on the cell in row  $i$  and column  $j$ ,  $n_{..}$  represents the total number of the sample,  $n_{i.}$  represents the sum of the frequencies in row cells, and  $n_{.j}$  represents the sum of the frequencies in column cells. The expected value on the cell in  $i$  row and  $j$  column can be calculated by the following formula

$$E_{ij} = \frac{n_{i.}n_{.j}}{n_{..}} \quad (2)$$

df is the abbreviation of degree of freedom, which is calculated as: (number of rows -1) (number of columns -1). When the sample is large enough, the Pearson chi-square statistic

follows the chi-square distribution, and the larger the chi-square value, the larger the P-value, indicating the stronger the correlation between the two variables.

The logistic regression model of the effect of the reformed "Introduction to Major" course on alleviating students' anxiety about academic and future employment can be expressed as follows

$$\log \frac{P(Y=1|X)}{1-P(Y=1|X)} = \alpha + \beta_1x_1 + \dots + \beta_nx_n \quad (3)$$

Where,  $Y$  is the explained variable, namely career planning help after re-coding in this study,  $n$  is the number of explanatory variables. In this study, the value of  $n$  depends on the number of explanatory variables statistically associated with the explained variable in the chi-square test.

$x_i$  is the  $i$ th explanatory variable, and  $\beta_i$  is the coefficient of the  $i$ th explanatory variable.

The predict probability of the explained variable is

$$P(Y) = \frac{\exp(\alpha + \beta_1x_1 + \dots + \beta_nx_n)}{1 + \exp(\alpha + \beta_1x_1 + \dots + \beta_nx_n)} \quad (4)$$

### 3. Results

Table 1 showed that the study involved approximately equal numbers of male and female students, as well as approximately equal numbers across the three grades. On the whole, students believed that this reformed course was helpful to their career planning, or that this course had alleviated their psychological anxiety about academic and employment. 308 out of 391 students agreed on that point and 83 disagreed or remained neutral. In the chi-square test, gender and grade were significantly correlated with career planning help, with P values of 0.002 and 0.024, respectively. The P value of chi-square test between competition award value and career planning help was 0.225, showing no significant correlation between them. The competition award value factor would be excluded from later multivariate analysis.

**Table 1. Non-satisfaction Factors in Students' Evaluation of the Reformed Course Program**

Non Satisfaction Factor	Total		Career Planning Help				P
			Y(n=308)		N(n=83)		
			No. of Students	%	No. of Students	%	
Gender							0.002
Male	192	49	138	72	54	28	
Female	199	51	170	85	29	15	

Grade							0.024
Freshmen	128	33	93	73	35	27	
Sophomore	132	34	102	77	30	23	
Junior	131	34	113	86	18	14	
Competition award value							0.225
Yes	78	20	67	86	11	14	
No	237	61	183	77	54	23	
Not sure	76	19	58	76	18	24	

As shown in Table 2, the overall satisfaction, course content, teaching methods, course resources and teacher recognition for the reformed course program were highly evaluated by the students, with the average total evaluated score for each of them exceeding 4. All of the satisfaction factors

were significantly correlated with the career planning help variable in the chi-square tests, and each P value was less than 0.001 in the tests. All satisfaction factors were therefore included in the subsequent logistic regression analysis.

**Table 2. Satisfaction Factors in Students' Evaluation of the Reformed Course Program**

Satisfaction Factor	Total	Career Planning Help		P
		Y(n=308)	N(n=83)	
Overall satisfaction				<0.001
Mean	4.09	4.45	2.72	
Standard deviation	0.99	0.62	0.95	
Course content				<0.001
Mean	4.08	4.44	2.78	
Standard deviation	0.97	0.63	0.92	
Teaching methods				<0.001
Mean	4.06	4.29	3.20	
Standard deviation	0.86	0.74	0.69	
Course resources				<0.001
Mean	4.11	4.48	2.76	
Standard deviation	0.99	0.62	0.93	
Teaching organization				<0.001
Mean	3.93	4.15	3.11	
Standard deviation	0.91	0.81	0.78	
Course performance evaluation				<0.001
Mean	3.74	4.06	2.52	
Standard deviation	1.18	0.98	1.04	
Teacher recognition				<0.001
Mean	4.18	4.41	3.33	
Standard deviation	0.79	0.64	0.75	
Competition recognition				<0.001
Mean	3.87	4.19	2.69	
Standard deviation	1.08	0.88	0.90	

As shown in Table 3, there were a total of 10 variables or factors in the multivariate logistic regression analysis, among which gender and grade were categorical variables. In the regression model, overall satisfaction was strongly associated with career planning help or the alleviating effect of the reformed course program on students' psychological anxiety in academic and future employment. Students

who had higher overall satisfaction with the reformed course program were 1.52 times more likely than those who had less overall satisfaction with the reformed course program to agree on the role of the course for each 1-point increase in overall satisfaction rating. Course content, course resources and teacher recognition were also associated with career planning help with the confidence intervals

(0.52, 2.12), (0.21, 1.81), (0.38, 1.94) respectively. The rest of the factors were not

statistically significant in the regression model.

**Table 3. Logistic Regression Model of Students' Evaluation of the Reformed Course Program**

Factor	Co-efficient	OR	95% CI	P
Gender(Female)	0.77	2.16	-0.33 to 1.87	0.169
Grade(Sophomore)	0.02	1.02	-1.16 to 1.20	0.971
Grade(Junior)	0.88	2.41	-0.69 to 2.45	0.271
Overall satisfaction	1.52	4.57	0.79 to 2.25	<0.001
Course content	1.32	3.74	0.52 to 2.12	0.001
Teaching methods	0.45	1.57	-0.43 to 1.33	0.320
Course resources	1.01	2.75	0.21 to 1.81	0.015
Teaching organization	-0.57	0.57	-1.45 to 0.31	0.209
Course performance evaluation	-0.25	0.78	-0.94 to 0.44	0.480
Teacher recognition	1.16	3.19	0.38 to 1.94	0.004
Competition recognition	0.32	1.38	-0.35 to 0.99	0.345

#### 4. Discussion

On the whole, students were satisfied with the reformed teaching mode of "learning through racing" in the course of "Introduction to Major", and also highly recognized the alleviating effect of the course on their anxiety about academic and future employment. According to the results of the logistic regression model, the factors associated to alleviating the anxiety in academic and future employment included the overall satisfaction of the course, teaching content, teaching resources and teacher recognition. In order to improve the teaching effect of the course and help students relieve the anxiety in academic and employment, we should start from these related aspects to improve, and finally let more students benefit from the course and help them make an appropriate career planning. The shortcoming of this study is that there was no control group, so it is impossible to determine whether the reformed teaching model of "learning through racing" has advantages over the traditional teaching model for the career planning courses for college students. A control group should be included in the subsequent research to better analyze the teaching effect of the reformed teaching mode for the career planning courses.

#### Acknowledgments

Thanks to the partially fund support by Zhejiang soft science research base "digital economy and open economy integration innovation research base" and to the resources support by new liberal arts project of NBUFE.

#### References

- [1] Meng, X.B.; Lin, N.; Liu, L. Research on the curriculum system construction of college students' career planning and employment guidance. *Journal of Liaoning Educational Administration Institute* 2017, 34(04), 57-59.
- [2] Yu, P. Research on the course of career planning for independent college students. *Vocational Education (Mid-month Issue)* 2017, 16(07), 24-26.
- [3] Chen, S.Q. Some thoughts on the construction of the curriculum system of College Students' Career and Development Planning. *Journal of Jiamusi Vocational College* 2017, 06, 198+200.
- [4] Tian, L. The construction of a comprehensive curriculum system for college students' career planning. *Leadership Science Forum* 2014, 19, 34-36.
- [5] Li, R.W.; Wang, L.C.; Chao, Y.C. Study on the evaluation system of college students' career planning course. *Journal of Liaoning University of Technology (Social Science Edition)* 2018, 20(04), 66-68+77.
- [6] Zhao, Y.H. Research on countermeasures to improve the effectiveness of college students' career planning education -- A case study of Baicheng Normal University. *Journal of Baicheng Normal University* 2021, 35(06), 90-93.
- [7] Tian, Z.G.; Wang, S.Y.; Yang, Y. Teaching practice of plant landscape making course in Garden specialty under

- the mode of learning through racing. *Agriculture and Technology* 2022, 42(11), 178-180.
- [8] Luo, Z.X.; Rong, L.Q. Exploration of the integration of competition and education in the practical teaching model of management majors under the concept of "promoting learning through competition". *The Guide of Science & Education* 2023, (32): 27-29.
- [9] Huang, H.; Wang, F.; Song, Y.P.; Xu, G.G. Exploration and practice of mathematical modeling teaching based on "project-driven + learning through racing" teaching mode. *Journal of Higher Education* 2022, 8(17), 108-111.
- [10] Bian, Z.; Xia, S.; Ou, J.J.; Ge, Q.Y.; Dong, W.X. Software teaching reform of civil engineering specialty based on the model of "learning through racing" in BIM Application competition. *Metallurgy Education in China* 2022, 02, 62-64.
- [11] Mao, S.S.; Wang, Y.F. Exploration on curriculum innovation and reform of tourism management specialty in higher vocational colleges under the mode of "learning through racing". *Economic Research Guide* 2022, 05, 98-100+119.
- [12] Liao, S.H. Study on the practice of "learning through racing" in the teaching of E-commerce specialty. *Quality and Market* 2021, 23, 79-81.
- [13] Wang, G.X. Discussion on the strategy of "learning through racing" teaching method to improve the creative ability of Fine arts major students. *Art Education Research* 2021, 22, 154-155.
- [14] Guo, J. Using "learning through racing and teaching through racing" method to promote exploration and practice of the reform of public English teaching model under the background of changing student source structure in higher vocational colleges. *Technology & Management* 2021, 08, 202-203.
- [15] Zhang, B.; Luo, E.T. Research on the training mode of innovative information talents with "learning through racing, integration by professional and innovation". *Journal of Hunan University of Science and Engineering* 2022, 43(02), 109-112.
- [16] Cao, M.l.; Sun, Y.Z.; Pang, M. Exploration of interdisciplinary talent cultivation model in practical course teaching based on competition system. *Journal of Higher Education* 2023, 9 (21): 149-152+156.