

Effects of Career Course Instructional Design on Undergraduates' Career Self-Efficacy and Exploration

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Abstract

This study examined the effectiveness of a college career course designed to increase career self-efficacy and career exploration. Participants were 271 undergraduate students from a university in Taiwan with a 125-year history. A quasi-experimental longitudinal study was conducted to compare students who completed high-intensity action-based homework assignments (experimental group, $n = 74$) with a quasi-control group of students who were assigned low-intensity action-based homework ($n = 197$). Participants in both groups were given questionnaires assessing career self-efficacy and career exploration at the first and eighteenth weeks of the course. Repeated measure analyses were conducted to examine possible differences in the responses of both groups at the beginning and end of the course. The results indicated that students of both groups who completed the career course showed increased career self-efficacy and career exploration. Although the results confirmed that high-intensity action-based homework could better enhance the students' career exploration than low-intensity action-based homework, there was no difference between the two groups in terms of enhanced career self-efficacy. Interestingly, the control group exhibited higher career self-efficacy and career exploration after attending the course than did the experimental group. Implications and suggestions for career course lectures and further research are discussed.

Keywords: action-based instructional design, career development, career self-efficacy, career exploration

1. Introduction

This issue of undergraduates experiencing poor career planning and development assistance should receive greater attention from the education sector. Liao and Ji (2015) indicated that if undergraduates were to choose their majors based on personal and career preferences, their academic commitment would be significantly higher. In turn, high commitment to academic studies leads to higher career self-efficacy and career decision readiness. Although the social environment affects the students' choice of college major, there are several ways for students to improve their career self-efficacy after entering college. Moreover, instructors can assist students by offering career development-related courses.

In the past, the concept of student-centered learning focused on the roles of teacher and student in the classroom (Sams & Bergmann, 2013) but did not emphasize interactions between learners and the external environment. For some domains of knowledge, a lack of connection with the real world poses certain obstacles and limitations. Therefore, I argue in this study that during the learning process, in addition to establishing a classroom mechanism and teaching method in the spirit of flipped education, student interactions with the real environment should be strengthened as they are guided to pursue particular fields. Career development as a discipline requires strong connections to the external environment (Fouad et al., 2009). It is only through interactions with society that individuals gain a better understanding of themselves and develop insight into what they possess or lack, compared to others.

Mao et al. (2017) noted that dissimilarities between Eastern and Western cultures may lead to variations in the learning autonomy of students from each culture. The implication is that career theories may not be adequate since they fail to account for cultural differences. Accordingly, I argue that youths in Eastern cultures may require external forces (or be more accustomed to such forces) than their Western counterparts, insofar as they are prompted to think or take action while developing their personal career directions.

This study proposed the formation of an external force to promote students' career development. This was achieved through the design of high-intensity action-based homework assignments, which not only involved additional projects, but were also more challenging than standard homework assignments. As students worked on their assignments, stimulation from the external environment offered them a deeper understanding of a field they may have had little or the wrong information about, thereby providing a clear awareness of their strengths, inadequacies, vices they might give up, and resources available for their use. In general, the aim of this study was to understand whether students' career decision self-efficacy and career exploration would be improved through the assignment of action-based homework.

2. Literature Review and Hypotheses Development

Studies have found that career self-efficacy is the antecedent for individuals to reduce their career anxiety and achieve better career development (Lent et al., 1984; Mao et al., 2017). Career self-efficacy refers to individuals' level of confidence in their abilities to solve future career issues. Hackett and Betz (1981) cited the self-efficacy viewpoint of the social learning theory by Bandura (1977) and applied the concept to the issues of career choices and development. Bandura (1977) interpreted self-efficacy as a cognitive element that affects whether individuals engage in predetermined behaviors and the sustained performance of corresponding behaviors. In simple terms, persons with high self-efficacy have greater confidence in their abilities to achieve specific goals and will take the necessary actions to ensure that their goals are achieved. When applied to career development, self-efficacy means that individuals believe that they can perform well in their career development. When individuals hold such strong beliefs, they are more willing to engage in activities related to career development, thereby attaining greater achievements.

According to Gati, Krausz, and Osipow (1996), individuals face difficulties when making career choices because they have insufficient preparation, have obtained inconsistent information, or lack the information needed to make the proper decisions. Kelly and Lee (2002) also found that career indecision was caused by individuals having insufficient information related to career planning or low demand for information or was due to their personal characteristics. These conditions make individuals choose escapism such that they experience continuous emotional disturbance, leading to low self-efficacy. Humans feel uneasy and fearful of many things not because the things themselves are scary but because the uneasiness caused by ignorance leads to fear. Education is the solution to such problems.

Under the situated learning theory, learners' participation in and actual experiences of real or virtual learning environments introduced by their teachers can lead them to achieve learning goals more effectively (Lave & Wenger, 1991). This method is known as situated teaching, which emphasizes the integration of knowledge with actual situations to stimulate learning motivation. When learners resonate with the learning topics, the abundance of information will stimulate their cognition, making the learning process more rewarding (Choi & Hannafin, 1995). I propose that the effects of situational learning could be created through the design of activities and assignment of homework during career development classes.

According to the perspective on career development by Super (1953), college is a key stage in individuals' career orientation. If their cognitive abilities reach maturity at this stage and they have acquired the appropriate career information, their life goals change from being vague to being concrete, and these can then be steadily realized. Peterson, Sampson, and Reardon (1991) proposed cognitive information-processing theory, which states that when individuals strengthen their information-processing abilities, they achieve their career orientation with greater ease, and their career anxiety is reduced. They are better able to make career decisions (Lent, Wang, Morris, Ireland, & Penn, 2019), such that it is easier for them to achieve their career direction while reducing their career anxiety. I believe that the most effective way to improve individuals' information-processing abilities is through the act of processing information itself and that this process can be created through the design of appropriate homework.

Practice is the best method to learn anything. The Cone of Experience theory, put forward by Edgar Dale in 1946, states that the best way to have a comprehensive understanding of a particular field is through practice. Lalley and Miller (2007) proposed that learning through practical experience leads to better learning effectiveness. Therefore, I believe that learning through practical actions is more meaningful and effective for lessons on career management and planning than for other professional subjects. Specifically, I propose that the learning of all related knowledge and concepts be conducted in the classroom through discussions with students. However, the homework would be designed such that the students are required to enter actual workplace environments to interact with outsiders and to match the classroom knowledge learned with concrete actions on career planning. I advocate that the assignment of high-intensity action-based homework be equivalent to forcing students to collect job market information, explore their internal needs, understand career-related information, and prepare for their future careers. This approach can effectively promote students' abilities to acquire and integrate career information, reduce their career anxiety, and enhance their career self-efficacy. In the career course proposed by Reese and Miller (2006), the students were tasked to complete two informational interviews and use Web-based resources to gather occupational information. The results indicate that students who completed the career course showed increased career decision-making self-efficacy. Therefore, I proposed the first hypothesis.

H1: The career self-efficacy and career exploration of college students will improve after they complete the action-based homework design of the career course.

The proposal was that individuals are able to obtain more information and conduct self-evaluations easily when they have more contact with the external environment and when they proactively participate in career development activities. However, the exact enhancement to their career self-efficacy depends on the intensity of their exposure to the external environment. When teachers of career courses assign more action-based homework, the students will interact more with the outside world, making it easier for them to grasp complete career information. This can effectively reduce the uncertainty generated by a lack of understanding of the environment. Consequently, the students will achieve greater improvements in their career self-efficacy. Therefore, I propose the following two research hypotheses.

H2: The intensity of the action-based homework design will result in variations to improvements in career self-efficacy and career exploration. Specifically, a high-intensity action-based homework design will generate greater improvements to career self-efficacy and career exploration.

H3: Different intensities of the action-based homework design will lead to dissimilar career self-efficacy and career exploration in students after the course. The higher the intensity of the action-based homework design, the greater the improvement in students' career self-efficacy and career exploration.

3. Methods

3.1 Sample

The research participants were students of career management courses at the college at which I teach. A total of 300 undergraduates were enrolled over four semesters. Some students withdrew their consent to participate. Eventually, 271 valid samples were obtained, with 197 and 74 samples from the control and experimental groups, respectively.

3.2 Experiment

A quasi-experimental method was used in this study to divide the students taking the course in each semester into two groups. The control group comprised students from other departments in the college who took the elective course; the experimental group comprised students from the department in which I taught. For both groups, the course topics, schedules, specifications, requirements, teaching materials, and teaching methods were identical. The only difference was the amount of, and requirements for homework.

A questionnaire was used in this study to collect data. Each course lasted 18 weeks (i.e., 36 hours). During the first week of the course, I invited students to participate, and interested participants were asked to complete the pre-test questionnaire. After 18 weeks, they were invited to complete the post-test questionnaire.

When experimental research is conducted at a place of education, the most likely concern is whether the researcher has allocated inferior learning resources to certain students in the name of research, thereby violating their rights. However, in this study, both the class content and weights were same for all students. The primary difference between them was the amount of effort needed during their spare time, which could lead to varying supplementary learning effects. Overall, the educational rights of all participants were fully protected through the design of this study.

3.3 Measurements

The Career Decision-Making Self-Efficacy Scale–Short Form (CDMSE-SF), developed by Betz, Klein, and Taylor (1996) was used to evaluate career self-efficacy. A sample item is, “I believe that I can identify employers, firms, and institutions relevant to my career possibilities.” A 10-point response format was used for this scale with responses ranging from “no confidence at all” (code 0) to “complete confidence” (coded as 9).

The Career Exploration Survey (CES) developed by Stumpf et al. (1983) was used to measure career exploration. A sample item is, “Been retrospective in thinking about my career.” A 6-point response format was used, with responses ranging from “never” (code 0) to “always” (code 5).

According to prior literature, additional factors including career-related peer support, parental support, internal locus of control, family income, father's level of education, gender, and grade level were measured as control variables to make the research more rigorous (Betz & Hackett, 1981; Fouad et al., 2010; Mao et al., 2017; Zhang & Huang, 2018).

4. Results

Table 1 shows the correlations among variables examined in this study. Before data analysis, I conducted confirmatory factor analysis (CFA) of all constructs. Overall, the CFA results suggested that the five-factor measurement model provided an acceptable fit for the data ($\chi^2 = 773.45$, $p < .05$, RMSEA = 0.054, GFI = .92, AGFI = .89, CFI = .93). Moreover, since the standardized loadings of all the measurement items on their respective constructs were significant (t values range from 3.12 to 39.7, $p < .001$), and none of the confidence intervals of the phi values contained a value of 1, I concluded that the constructs exhibited convergent and discriminant validity (Montoya-Weiss, Massey, and Song, 2001). I also estimated construct reliability by calculating Cronbach's alpha value for each construct. All of the scales were above the suggested value of .7 (from .74 to .96).

As shown in Table 2, there were significant differences in all the students' career self-efficacy ($t = -12.4$, $p < .001$) and career exploration ($t = -15.1$, $p < .001$) before and after the course. For the experimental and control groups, there were significant differences in the students' career self-efficacy and career exploration before and after the course. Therefore, H1 was verified.

In addition, as shown in Table 2, improvements recorded for both groups failed to reach a statistically significant level ($t = -0.67$, $p > .05$). In terms of improvements to career exploration, improvement in the experimental group was significantly higher than that of the control group ($t = -2.62$, $p < .01$). Therefore, H2 could be partially accepted.

An independent-sample t -test established that results were contrary to expectations: The control group's career self-efficacy was significantly higher than that of the experimental group ($t = 2.74$, $p < .01$). For career exploration, there was no notable difference between the two groups ($t = 0.16$, $p > .05$). Therefore, the results were contrary to H3.

Table 1: Descriptive statistics and bivariate correlations (n=271) ^{a, b}

	variables ^c	mean	SD	1	2	3	4	5	6	7	8	9	10	11
1	Gender	--	--	--										
2	Grade level	1.34	.85	--	--									
3	Father's level of education	2.44	1.2	-.05	--	--								
4	Family income	2.34	.91	-.02	.01	.25***	--							
5	Parental support	4.00	.73	-.11	-.16**	.09	.23***	(.96)						
6	Career-related peer support	3.86	.51	-.19**	-.09	-.06	.11	.33***	(.88)					
7	Internal of locus of control	1.62	.26	-.06	.01	-.03	.03	.20**	.07	(.74)				
8	Career self-efficacy (t1)	5.96	1.16	.15*	.18**	-.03	.11	.15*	.28***	.22***	(.95)			
9	Career exploration (t1)	2.90	.88	.14*	.36***	.04	.15*	.01	.15*	.16*	.56***	(.91)		
10	Career self-efficacy (t2)	6.66	1.01	.06	.13*	-.08	.13*	.24***	.41***	.25***	.64***	.37***	(.95)	
11	Career exploration (t2)	3.73	.63	-.09	.08	-.04	.13*	.16**	.47***	.10	.33***	.31***	.61***	(.89)

^a * $p < .05$, ** $p < .01$, *** $p < .001$

^b Coefficient alphas for those measures that could be computed are located on the diagonal.

^c Categorical variables coded as: gender: 0 = female, 1 = male; grade level: 1 = freshman, 2=sophomore, 3=junior, 4=senior; father's level of education: 1=senior high school and under, 2= associate degree, 3= bachelor's degree, 4= master's degree, 5= doctoral degree; family income(year): 1=less than 28000 USD, 2 = 28,000-50,000 USD, 3 = 50,000-100,000 USD, 4 = 100,000-150,000 USD; 5 = more than 150,000 USD.

Table 2: T-test results of two groups before and after career course

Variables/groups	Career self-efficacy				Career exploration			
	Before class (t1)	After class (t2) (H3)	Difference (H2)	Paired-samples t-test (t value) (H1)	Before class (t1)	After class (t2) (H3)	Difference (H2)	Paired-samples t-test (t value) (H1)
All students (271)	5.96	6.66	0.7	-12.4	2.90	3.73	0.83	-15.1
Experimental group (74)	5.62	6.39	0.77	-6.1	2.65	3.77	1.12	-10.2
Control Group (197)	6.08	6.76	0.68	-10.9	2.99	3.74	0.75	-11.7
Independent-samples t-test (t value)	2.95	2.74	-0.67	--	2.84	0.16	-2.62	--

Note. All t-values are located on gray background. Absolute value of t-value > 2.58 for 99% confidence interval

5. Discussion and Conclusions

Through experimental design, the results of this study indicated that action-based homework design affected students' career self-efficacy and career exploration. Furthermore, the arrangement of assignments led to improvements in career self-efficacy and career exploration for both the experimental and control groups. Although I clearly could not deny the impact of the course itself, the results of the analysis did demonstrate that the assignments had an effect on students' learning. The teaching content that teachers use at the place of teaching constitutes the key to improving their students' abilities. However, homework, being an extension of classroom learning, can effectively expand the learning energy to non-classroom time. When students learn about career management, homework and reports that necessitate contact with the real social environment can increase students' learning in the subject more than mere book-based studying.

In addition, the changes in the experimental group's career exploration before and after the course were significantly greater than those of the control group. This indicates that action-based homework design of a higher intensity encouraged students to invest in greater exploration behaviors for their future. However, the study shows no difference between the two groups when it comes to the enhancing of their career self-efficacy, which deviated from the study's expectations, and no difference in career exploration between classes with different intensities of action-based homework design. In fact, classes with action-based design of a lower intensity had higher career self-efficacy at the end of the course, which was again contrary to the study's expectations.

One possible reason was that the difference in the intensities of action-based homework design between the two groups was not sufficient. Furthermore, the two groups of students showed different levels of self-efficacy before the course, meaning that the samples were unable to confirm all the hypotheses. It was learned through additional analysis that the students' career self-efficacy was deeply affected by their existing level of self-efficacy before the course. Since the teacher could not select the students to enroll when they opted for the elective course, the only option was to designate the entire class as belonging to either the experimental or control group. As the course was elective—rather than compulsory—for both groups, the self-efficacy of students in the control group (all students in the college) was higher than that of students from a specific department.

The original purpose of the experiment was to confirm that homework designed with the emphasis of being action-based could improve the students' career self-efficacy and career exploration more effectively. Unexpectedly, apart from confirming improvements to career exploration, this study was unable to ascertain that action-based design could have a more obvious effect in enhancing self-efficacy. Furthermore, the students' pre-test career self-efficacy was found to be an important factor influencing their post-test career self-efficacy. In other words, when the students already arrive in the course with high career self-efficacy, the effects of the course learning are less apparent.

If we look at it from another perspective, if the students who opted to take the course originally had high career self-efficacy, and the course effectiveness was confirmed under H1, then the results of this study have several teaching implications for teachers of future career courses. First, it is unquestionable that a properly designed career course improves the students'

confidence, and teachers should continue to invest in related teaching activities. Second, the original career self-efficacy of students taking the course affects their results for the course: the higher their self-efficacy, the better they are at absorbing the course content and the more seriously they treat and complete the take-home assignments. The learning effects were more obvious for those with high career self-efficacy than for those with low career self-efficacy. If students with high and low career self-efficacy are placed together in class during group activities or for the preparation of the group report, the overall learning effect may be better.

Finally, the students' career self-efficacy before attending the course is not a characteristic that the teachers can decide. What teachers can do is to produce the most attractive teaching design, which then attracts students who originally possess high levels of self-efficacy to take the course, so that their self-confidence is increased after completing the course. At the same time, students who originally have low self-efficacy will also be attracted to attend the course, thereby enhancing their self-efficacy. In general, this research echoes the findings of previous related studies (Fouad, Cotter, & Kantamneni, 2009; Lam & Santos, 2018; Reese & Miller, 2006; 2010), demonstrating that the career course is essential for the career development of college students and that their career self-efficacy can be enhanced through the learning from the course.

5.1 Suggestions and Directions for Future Research

In the past career course “quasi-experimental studies,” most lecturers required their students to complete a number of take-home assignments. These mostly involved reading, writing, or conducting evaluations, which did not require exposure to the working world. The only exception was the assignment on informational interviews, which required them to have contact with people possessing real-world experiences. Although some of the hypotheses in this study could not be validated, it remains true that emphasizing a high level of interactions with the external environment when designing homework has a positive impact on the students when they learn about career development. Future teaching research can be further developed based on this perspective.

One of the possible reasons that not all of this study's hypotheses were supported was the intensity of the homework design for the two groups of samples, which were not sufficiently differentiated. Consequently, the effects of the assignments were not made apparent. For future related research, the dissimilarities in homework design can be strengthened. For example, the action-based homework design for the experimental group can be high-intensity, whereas the control group can be given non-homework design appraisal such as written tests or the collection of secondary data to complete projects. This step may more directly reveal the effects of action-based homework on learning.

In the past few years, Taiwan's MOE launched multiple enrollment programs for high school students. According to research, these do not appear to have alleviated the pressure facing students but instead have caused student burnout and had negative impacts on academic achievement (Yang, 2004). When high school students enter college, they become even more confused over their career development. The findings of this study can provide some inspiration to optimize the design of future career course lectures.

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