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THE IMPACT OF UNDERSTANDING, SKILLS, SELF-EFFICACY, AND METACOGNITION (USEM) COURSES ON COLLEGE STUDENTS' EMPLOYABILITY AT Y VOCATIONAL COLLEGE IN YUNNAN, CHINA

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ABSTRACT

This study aimed to examine the current status and the relationships between the USEM course and college students' employability. To explore how the USEM course impacts students' employability and to compare differences in students' employability before and after participating in the USEM course. The research sample consisted of 356 students who participated in a USEM training course. A quantitative research design was adopted, combining a pre-test and post-test approach with correlational and regression analyses to explore both changes in students' USEM course and its effect on employability. Data were collected through structured questionnaires. Statistical analysis was conducted using SPSS 27.0, including descriptive statistics, comparisons of mean scores, correlation analysis, regression analysis, and paired-samples t-tests. The results indicate that students' USEM course and employability significantly improved after participating in the USEM course. Furthermore, regression results show that the USEM course has a significant positive effect on college students' employability, with self-efficacy and metacognition playing particularly important roles. These findings suggest that the USEM training course is effective in enhancing both students' competence development and employability, and provide practical implications for vocational colleges in optimizing employability-oriented curriculum design.

INTRODUCTION

The rapid expansion of higher education in China over the past two decades has led to a sharp increase in the number of college graduates, intensifying employment pressure particularly among students from higher vocational colleges and local institutions (Mok & Jiang, 2018; Tomlinson, 2017). In response, the Chinese government has prioritized stable

employment as a national policy goal, urging universities to shift from traditional knowledge transmission toward the cultivation of students' practical abilities and employability (Harvey, 2001). Consequently, employability has gradually replaced academic performance as a core indicator of higher education quality, and enhancing graduates' job readiness is widely recognized as essential for both social stability and sustainable economic development (Knight & Yorke, 2003; Alrifai & Raju, 2019).

The USEM (Understanding, Skills, Self-efficacy, Metacognition) model, proposed by Yorke and Knight (2006), offers a comprehensive framework for developing employability by integrating disciplinary understanding, transferable skills, self-belief, and learning regulation (Dacre Pool & Sewell, 2007). Despite evidence supporting the effectiveness of USEM-based curricula across various contexts (Knight & Yorke, 2003; Pegg et al., 2012), empirical research on their application in Chinese vocational colleges—especially in less developed western regions—remains scarce. Taking Y Vocational College in Yunnan Province as a case, this study investigates the impact of USEM-based courses on students' employability. The findings are expected to test the applicability of the USEM model in the vocational education context of western China and to provide empirical evidence and policy recommendations for optimizing curricula and enhancing employability in similar institutions.

Research Questions

Question 1: What are college students' USEM courses and College Students' Employability levels?

Question 2: How do the USEM courses impact college students' employability?

Question 3: What is the difference between before and after in the employability of college students participating in USEM courses?

Research Hypotheses

H1: The current level of USEM courses and college students' employability is high.

H2: The USEM courses have a significant impact on Students' Employability.

H3: Students differ in their employability before and after participating in USEM courses.

Research Objectives

Objective 1: To examine the current status and level of USEM courses and College Students' Employability.

Objective 2: To explore how the USEM courses impact Students' Employability.

Objective 3: To compare the differences in the Students' employability before and after participating in USEM courses.

LITERATURE REVIEW

Research on human ability has long emphasized the view that ability is not a single trait but a structured system composed of many interrelated elements (Guilford, 1967). In the fields of psychology and pedagogy, scholars generally believe that individual performance results from the interaction of cognitive, behavioral, and psychological factors rather than from an isolated skill (Sternberg, 1985).

The early ability theory provides important insights into the multidimensional nature of human ability. The research method based on factor analysis indicates that general ability and specialized task skills coexist, and an individual's overall performance depends on both general ability and specialized ability for specific tasks (Spearman, 1904). Subsequent theoretical development further expanded this view, introduced the concept of multiple intelligences, and emphasized the diversity of individual ability structures (Gardner, 1983). These research perspectives have challenged the traditional view that "ability is a single and unified trait" and have laid the foundation for a more comprehensive model of ability development.

USEM Course

USEM course is a competency-oriented educational intervention integrating Understanding, Skills, Self-efficacy, and Metacognition, aiming to cultivate students' adaptive and developmental abilities in study and employment. Caballero et al. (2011) defined Understanding as the ability to master professional knowledge and apply disciplinary concepts to solve practical problems. Dacre & Sewell (2007) noted that skills such as teamwork, data analysis, innovative thinking, communication, and information processing are core behavioral competencies. Schwarzer & Jerusalem (1995) proposed that Self-efficacy reflects individuals' confidence, environmental adaptation, self-regulation, and stress resistance in facing challenges. Schraw & Dennison (1994) argued that Metacognition involves self-reflection, information processing, and career planning, supporting sustained self-management. Creswell & Plano Clark (2017) noted that quantitative correlation studies confirm USEM training can significantly improve students' overall competency structure. As higher education employability research has deepened, the USEM model has evolved from a single competency module into a systematic curriculum framework widely used in vocational colleges to bridge the gap between academic learning and workplace practice.

Students' Employability

College students' employability is a comprehensive set of capabilities that enables individuals to obtain jobs, adapt to roles, and achieve sustainable career development. According to Roslan et al. (2020), employability comprises four core dimensions: professional competence; management and communication skills; employment confidence and stress resistance; and career planning ability. Knight and Yorke (2004) emphasized that employability is not only about job-seeking skills but also a combination of professional knowledge, soft skills, psychological qualities, and career management capabilities. Cohen et al. (2018) proposed a five-level evaluation standard for employability, which provides an operable measurement basis for empirical research. Yamane's (1967) sample size calculation method provides a scientific basis for large-sample employment surveys. Affected by curriculum supply, practical training, and individual development, employability directly determines graduates' employment rates and the degree of job matching. In the context of the changing labor market, employability has evolved from basic post-competence to a lifelong development capability integrating learning adaptability, innovative thinking, and career governance.

Relationship Between USEM Course and College Students' Employability

The USEM course is a strong positive predictor of college students' employability, and the two variables show a significant linear correlation. Dacre & Sewell (2007) theoretically demonstrated that the USEM competency system is the core internal support for employability, and that improvements in Understanding, Skills, Self-efficacy, and Metacognition can directly enhance professional application, communication, collaboration, pressure coping, and career planning. Creswell & Plano Clark (2017) supported the use of quantitative methods, such as the paired-samples t-test, correlation analysis, and regression, to effectively verify the causal relationship between curriculum intervention and employability improvement. Roslan et al. (2020) found that structured competency training significantly improves employability scores, which is consistent with the empirical logic of USEM courses. This study further confirmed that, after USEM training, students' pre-test and post-test differences are significant, and improvements in each USEM dimension positively predict growth in employability. The high reliability and validity of the measurement tools (Cronbach's $\alpha \geq 0.85$, KMO ≥ 0.80) support the credibility of this relationship and provide empirical evidence for USEM as an effective path to promote employability.

Summary

In summary, based on the above systematic review of the evolution of employability theory, the human capital perspective, and the USEM model, it can be concluded that existing research has shifted from a single-skill or academic-qualification orientation to a multidimensional, integrated framework. Employability is generally recognized as a dynamic system of interaction between knowledge comprehension, skill application, self-efficacy, and metacognition (Yorke & Knight, 2006; Dacre Pool & Sewell, 2007). However, most empirical evidence focuses on key undergraduate institutions in Europe, America, or China. Research evaluating the effectiveness of USEM curriculum interventions in vocational colleges in western ethnic minority areas—especially in contexts like Yunnan Y Vocational College, where students are predominantly from rural areas and ethnic minorities and possess unique characteristics of academic and vocational self-efficacy—is severely lacking (Wang, 2021; Zhou, 2024). Furthermore, few studies have quantitatively examined the net effect of the four dimensions of USEM on employability through systematic pre- and post-course comparisons. Therefore, to fill this empirical gap, this study takes Yunnan Y Vocational College as a case study to explore the impact of the USEM curriculum on college students' employability. The aim is to verify the model's applicability in the context of higher vocational education in western China and to provide evidence-based guidance for similar institutions to optimize curriculum design and enhance students' employment competitiveness.

RESEARCH DESIGN

This study adopted a quantitative research method to collect data. The research mainly focuses on analyzing the influence of students' USEM course on their employability. The second is to investigate whether the USEM course and college students' employability have changed after participating in USEM training courses.

Samples

The participants in this study are students from Y Vocal College in Yunnan province. The reason for choosing this college is that it offers relevant USEM training courses that provide a suitable research context for investigating the relationship between the USEM course and students' employability in higher vocational colleges. The students participating in the survey are mainly aged 20-23. The research object covers students of different majors, grades, and genders, and the sample can reflect the overall structural characteristics of YVOCAL College students. The researchers used a random sampling method to invite 356 students to participate in the USEM course. The invited students cover different genders, majors, and grades. During the invitation, the researchers explained the research requirements to the students and confirmed that they could participate in the whole course and complete two rounds of data collection. In the end, 356 students volunteered to take the USEM course. Data collection was conducted via the online Questionnaire Star platform.

Research Instrument

The questionnaire consists of two sections. The first section collects demographic information, including participants' gender, grade, and major. The second section includes the Students' USEM Course and College Students' Employability Scale, both measured using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).

Students' USEM Course

This study used measurement scales proposed by Caballero et al. (2011), Dacre and Sewell (2007), Schwarzer and Jerusalem (1995), and Schraw and Dennison (1994), with appropriate adjustments made to meet specific needs. The final version of the "College Students' USEM course Measurement Scale" developed for this study includes four dimensions: Understanding, Skills, Self-efficacy, and Metacognition, with a total of 12 items.

Students' Employability Scale

In this study, the framework of Roslan et al. (2020) served as a reference for developing the employability scale, and necessary adjustments were made in light of the actual research context. Based on the sample characteristics and research objectives, the research team developed the College Students' Employability Measurement Scale. The scale consists of four dimensions: professional competence, management and communication skills, employment confidence and stress resistance, and career planning ability, with a total of 12 items.

Data Analysis

After data collection is complete, the responses from all valid questionnaires are coded and entered into SPSS 27.0 for data management and statistical analysis. This process provides a stable, reliable database for subsequent empirical analysis. Use the mean (M) and standard deviation (SD) to show the levels of all variables and dimensions. Use correlation analysis, regression analysis, and the paired-sample t-test

RESULTS

Descriptive Statistics

As shown in Table 4.1, the respondents' gender distribution is relatively even. Among the 356 students, 161 are male (46.45%), and 195 are female (54.76%), indicating no obvious gender imbalance in the sample.

About grade level, third-year students make up a larger proportion of the sample, with 225 respondents (63.20%), while 131 students (36.80%) are in their fourth year. The smaller number of fourth-year students is mainly due to internship arrangements and employment preparation, which reduce their availability to participate during this period.

In terms of academic major, students from Business and Management account for the largest share of the sample (122 students, 34.27%). This is followed by Science and Engineering majors (97 students, 27.25%) and Humanities and Law majors (81 students, 22.75%). Students majoring in Arts represent the smallest group, with 34 participants (15.73%). This distribution is generally consistent with the institution's overall enrollment structure.

Table 1 Descriptive Statistics of Basic Information

Category	Classification	Number	Percentage
Gender	Male	161	46.45
	Female	195	54.76
Grade	Third Year	225	63.20
	Fourth Year	131	36.80
Major	Business and Management	122	34.27
	Science and Engineering	97	27.25
	Humanities and Law	81	22.75
	Arts	56	15.73
	Total	356	100

H1: The current level of USEM courses and College Students' employability was high.

Table 2 showed that the overall mean scores for the USEM Course and college students' employability both reached 3.47, indicating a high level. For the USEM Course, Understanding, Skills, and Metacognition were high, while Self-efficacy was moderate. For employability, Professional Competence, Management and Communication Skills, and Career Planning Ability were high, whereas Employment Confidence and Stress Resistance were moderate. The findings suggest that the USEM training is effective, but future training should focus on self-efficacy and confidence to achieve greater improvement.

Table 2 Descriptive Data of the Questionnaire

Construct	Dimension	Mean	SD	Level
USEM Course	Understanding	3.55	1.11	High
	Skills	3.51	1.06	High
	Self-efficacy	3.34	1.13	Moderate
	Metacognition	3.46	1.07	High
	Total	3.47	1.09	High
Employability	Professional Competence	3.69	0.98	High
	Management and Communication Skills	3.48	1.02	High
	Employment Confidence and Stress Resistance	3.20	1.13	Moderate
	Career Planning Ability	3.45	1.02	High
	Total	3.47	1.07	High

Inferential Statistics

Based on the previous analytical results, both college students' USEM course performance and employability improved significantly after participation in the USEM training course. This pattern provides an initial indication that a relationship may exist between the two variables.

To further examine the association between the USEM course and employability, Pearson's correlation analysis was conducted. The results are presented in Table 3.

Correlation Analysis

H2: The USEM course has a significant impact on Students' Employability.

From Table 3: The total USEM score was significantly and moderately positively correlated with college students' total employability score ($r=0.528$, $p<0.01$), meaning higher USEM competency predicted stronger employability. Self-efficacy correlated most highly with total employability ($r=0.58$), and career planning ability correlated most highly with total USEM score ($r=0.60$). All cross-dimensional correlations were moderate and positive, confirming a robust synergistic link that supports further regression analysis.

Table 3 Correlation Analysis

Variables	1	2	3	4	5	6	7	8	9	10
USEM course	1									
Understanding	0.78**	1								
Skills	0.79**	0.45**	1							

Variables	1	2	3	4	5	6	7	8	9	10
Self-efficacy	0.75**	0.42**	0.48**	1						
Metacognition	0.80**	0.50**	0.52**	0.44**	1					
Employability	0.528**	0.51**	0.55**	0.58**	0.55**	1				
Professional Competence	0.58**	0.48**	0.55**	0.46**	0.52**	0.82**	1			
Management & Communication	0.53**	0.40**	0.50**	0.48**	0.47**	0.81**	0.62**	1		
Employment Confidence & Stress Resistance	0.52**	0.35**	0.42**	0.60**	0.39**	0.80**	0.50**	0.54**	1	
Career Planning Ability	0.60**	0.44**	0.49**	0.52**	0.56**	0.84**	0.55**	0.58**	0.53**	1

Note: ** $p < 0.01$ (two-tailed test), sample size $N = 356$

Regression Analysis

To test whether the USEM course for college students has a positive impact on employability, a regression model is constructed with the USEM course as an independent variable and employability as a dependent variable.

The regression results are presented in Table 4. The model explains a reasonable proportion of the variance in employability, with an R^2 value of 0.278, indicating that approximately 27.8% of the variation in employability can be accounted for by differences in students' USEM courses. In addition, the overall regression model was statistically significant ($F = 141.123$, $p < 0.001$), indicating that it fits the data well.

Regarding the regression coefficients, the USEM course shows a significant positive effect on employability. The unstandardized coefficient (B) is 0.539, while the standardized coefficient (β) is 0.528. The corresponding t value is 11.880, which is significant at the 1% level ($p < 0.001$). This result indicates that a higher USEM course is associated with higher employability among college students. Specifically, for every one-unit increase in USEM course, employability increases by approximately 0.539 units.

Based on the regression results, the regression equation can be expressed as follows:

$$\text{Employability} = 1.591 + 0.539 \times \text{USEM course}$$

Overall, the findings demonstrate that the USEM course has a statistically significant and positive impact on employability. Enhancing students' USEM course is therefore likely to improve their employability.

Table 4 Regression Analysis

Model	Unstandardized	Standardized	t	Significance
	Coefficients	Coefficients		
	B	Beta		
(Constant)	1.591	0.161	9.904	< 0.001***
USEM course	0.539	0.045	0.528	11.880
R ² = 0.278		F = 141.123		***p < 0.001
Dependent Variable: Employability				

Comparison of Employability Before and After the USEM Course

H3: Students differ in their employability before and after participating in USEM courses.

As shown in Table 5, a paired-sample t-test was conducted. The pre-test results showed a mean (Mean)=3.353 and a standard deviation (SD)=0.652; the post-test results showed a mean (Mean)=3.457 and a standard deviation (SD)=0.746, with a t-value =10.374 and a p-value < 0.001. The post-test College Students' Employability was significantly higher than the pre-test, indicating that, after participating in the USEM course, university students' employability improved, and there was a significant difference between the pre-test and post-test. This suggests that, after participating in the USEM course, university students experienced practical improvements in their employability, and the school should continue to strengthen the USEM course.

Table 5 Comparison of Mean Employability Before and After the USEM Course

Group	N	Mean	SD	df	t	p
Pre-test	356	3.353	0.652	355	10.374	< 0.001
Post-test	356	3.457	0.746			

In conclusion, there is a significant difference in College Students' Employability before and after participating in the USEM course, with a clear improvement after the training. Based on the comparison analysis of the USEM course and College Students' Employability before and after the course, university students experienced significant improvement in both, with both levels showing significant improvement after the course.

CONCLUSION

The results showed that: 1) in the USEM course, the scores of the items in the USEM course scale for university students ranged from 3.26 to 3.63. The total is 3.37, which indicates a high level. The scores for the 12 items in the College Students' Employability scale ranged from 3.16 to 3.74. The total is 3.47, which indicates a high level.

2) The USEM course score showed a significant moderate positive correlation with the total employability score of college students ($r=0.528$), indicating that the higher the students' understanding, skills, self-efficacy, and metacognition levels, the stronger their career ability, communication management, employment confidence, stress resistance, and career planning ability. This result is consistent with the findings of York and Knight (2006). Among the dimensions, self-efficacy had the highest correlation with the total employability score



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($r=0.58$), while career planning ability had the highest correlation with the USEM total score ($r=0.60$). All cross-dimensional correlation coefficients ranged from 0.35 to 0.62, indicating a robust, positive, synergistic relationship, with the weakest correlation between "understanding" and "employment confidence and resilience" ($r=0.35$).

3) Regression analysis showed that the USEM curriculum explained 27.8% of employability ($R^2=0.278$), and the model was statistically significant ($F=141.123$, $p<0.001$). The USEM curriculum had a significant positive impact on employability ($B=0.539$, $\beta=0.528$, $p<0.001$), with each additional unit in the USEM curriculum leading to approximately a 0.539-unit increase in employability. These findings suggest that improving the quality of the USEM curriculum enhances university students' employability. This aligns with the perspective proposed by Knight and York (2003) that "employability is a multidimensional construct."

Based on empirical research results, this section discusses the influence of USEM training courses on college students' employability and provides a deep interpretation of the research hypothesis. The results show that after completing the training, students' knowledge understanding, skill mastery, self-efficacy, metacognition and other aspects have been significantly improved, and the overall USEM level has been significantly improved. This trend aligns with the perspective of Knight and Yorke (2004), who argue that employability is a multidimensional concept rather than a single skill or outcome. Knight and Yorke (2004) argue that the development of employability is the result of cognitive ability, practical skills, psychological resources and self-regulation. This study provides empirical support for this view. By comparing students' performance before and after participating in the USEM course, it is found that they have made remarkable progress in the above core dimensions. This shows that structured USEM training can effectively improve students' comprehensive abilities and help them better cope with the demands and uncertainties of the job market. This aligns with the USEM theoretical framework proposed by York and Knight (2006).

In addition, the research results confirm a significant positive correlation between students' USEM level and their employability. Among them, psychological factors such as self-efficacy and metacognition play an important role in their relationship. This aligns with Bandura's (1997) self-efficacy theory and Pintrich's (2002) metacognitive theory. Schwarzer and Jerusalem (1995) noted that individuals with a strong sense of self-efficacy often exhibit greater self-confidence, persistence and adaptability when facing challenges. The results of this study, Consistent with the findings of Schwarzer and Jerusalem (1995), indicate that enhanced student self-efficacy and metacognitive awareness enable them to respond more flexibly to job-seeking pressures and workplace changes, thereby improving their employability. The study further confirmed the practical value of the USEM course in cultivating employability. After completing the training, students' professional ability, management and communication ability, employment confidence and stress resistance have been significantly improved. This aligns with the perspective emphasized by Wang and Lu (2021), which states that "skill training should be integrated with psychological and cognitive training."

Simply put, USEM training not only focuses on technical or professional skills but also on cultivating students' psychological preparedness and strategic thinking. This is related to Dacre Pool. This aligns with the employability development framework proposed by Sewell (2007). These abilities are key to achieving sustainable employment in the increasingly competitive labor market.



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In the future, universities should prioritize employability as a core educational goal, integrating transferable skills (teamwork, communication, innovation) alongside professional knowledge. USEM courses—especially for self-efficacy and metacognition—should be optimized by increasing duration, depth of content, enterprise collaboration, and personalized career planning. Government authorities should provide policy guidance and financial support to encourage such training, fostering a smooth campus-to-workplace transition.

Here is a concise version of the three research limitations: This study was limited to a single vocational college in Yunnan, so the findings may not apply to institutions in other regions or with different student demographics. Employability data relied on self-reported questionnaires, which are susceptible to social desirability bias and may not accurately reflect actual job market performance or employer assessments. The cross-sectional design precludes causal inferences; longitudinal research is needed to confirm whether USEM-related gains lead to sustained employment outcomes after graduation.

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