

Beyond the Classroom: Exploring the Differential Roles of Extracurricular Activities in Undergraduate Employability in China

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Abstract

In recent years, higher education has increasingly emphasized undergraduate employability, but the relationships between different types of extracurricular activities (ECAs) and the dimensions of employability still lack systematic investigation. Based on experiential learning theory and the USEM (understanding, skills, efficacy beliefs and metacognition) model, this study focused on academic-oriented, career-oriented and social-oriented activities. Questionnaire data were collected from 621 students from five universities in Chongqing, China. Descriptive statistics, Pearson correlation analysis, hierarchical regression and multiple regression were used for the analysis. After controlling for demographic variables, all three types of activities were significantly and positively associated with overall employability, with career-oriented activities having the strongest association. Social-oriented activities had the most prominent association with understanding, skills and efficacy beliefs and career-oriented activities had the strongest association with metacognition, while academic-oriented activities were not significantly associated with skills or metacognition. The results indicate that different types of ECAs have different roles in employability development. Therefore, the evaluation of the educational value of ECAs should not only look at whether students participate, but also consider the functional characteristics of the activities. Higher education institutions should integrate disciplinary learning, workplace experience, social participation and reflective practice and allocate extracurricular resources according to their functions to more effectively support the multidimensional development of undergraduate employability.

Keywords: Employability, Experiential Learning, Extracurricular Activities, Higher Education, USEM Model.

Introduction

Technological progress and economic restructuring have imposed new requirements on undergraduates beyond disciplinary knowledge. In addition to professional knowledge, employers are also placing greater emphasis on communication, adaptability, problem-solving and continuous learning skills, prompting colleges and universities to rethink how to help students cope with the changing professional environment (1-3). Therefore, employability has become an important topic in higher education. Employability is not equivalent to immediate employment after graduation, but a dynamic and multidimensional construct that involves the integration of knowledge, skills, personal traits and situational awareness for sustained career development (4-6). This issue is particularly important for Chinese universities in the context of widespread higher education and increasingly complex labor market demands (7). The USEM (understanding, skills,

efficacy beliefs and metacognition) model provides an appropriate framework for examining this multidimensional view of employability (8). The model shows that the development of employability cannot rely on knowledge imparted alone, but also requires students to apply knowledge in practice, improve skills, build confidence and reflect on their own learning and development. It has also been shown in previous studies that the USEM model is suitable for analyzing the multiple abilities that constitute graduate employability (9, 10). Extracurricular activities (ECAs) provide an important way for students to develop employability outside the formal curriculum. They cover organized academic, professional, social, cultural and practical activities. Through these activities, students gain exposure to real tasks, collaborate with others, take responsibility and apply classroom knowledge to professional and social contexts

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(11-13). According to experiential learning theory, students can develop in a cycle of concrete experience, reflection, conceptualization and practical application (14). It has also been shown in systematic reviews that practical experience, combined with conscious reflection and application, can help promote deep learning (15). Therefore, ECAs are not an optional supplement to university life, but rather a valuable learning environment outside of formal teaching.

Existing studies generally show that participation in ECAs is positively related to employability development. ECAs provide students with practical opportunities to apply professional knowledge, develop transferable skills and enhance professional awareness (16, 17). However, the actual effect may be influenced by the design of the activity and the quality of student participation (12). In China, practical education activities such as labor education and structured extracurricular programmes have gradually become an important way to improve the employability of university students (18, 19). However, existing studies tend to treat ECAs as a whole, which makes it difficult to reveal the differentiated relationship between different types of ECAs and employability.

In view of this deficiency, this study divided ECAs into academic-oriented, career-oriented and social-oriented activities according to their function. Academic-oriented activities, which include academic competitions and research projects, emphasize knowledge application, inquiry and innovation and facilitate the development of problem-solving skills and creative thinking (20, 21). Career-oriented activities include internships, professional practice, career planning and vocational training, which can help students understand the requirements of the workplace, enhance practical preparation and reflect on personal capabilities and career goals (22-24). Social-oriented activities involve student organizing, volunteering, community involvement and leadership practices that foster communication, teamwork, leadership, self-confidence and social adaptability (25-27). The three types of activities thus constitute a learning experience with different foci, complementing one another.

The educational value of ECAs has been widely recognized in the literature, but there are still two

shortcomings in the existing research. First, the existing classification is mostly based on the organizational form or curriculum affiliation of activities and there is little systematic comparison of academic-oriented, career-oriented and social-oriented activities from the perspective of function (28, 29). Second, although employability is viewed as a multidimensional construct, studies examining the relationship between different types of activities and USEM dimensions are still relatively limited. Most studies focus on overall employability, general skills, or participation outcomes and have not fully examined whether different activity types have different associations with understanding, skills, efficacy beliefs and metacognition (9, 11, 12). This gap is especially relevant in the Chinese context, where diverse second classroom activities are widely implemented but their differentiated associations with undergraduate employability remain insufficiently understood.

This study addresses the above gaps in two ways. First, it adopts a function-oriented classification that divides ECAs into three types: academic-oriented, career-oriented and social-oriented, rather than treating them as a single category. Second, it applies the USEM model to examine the associations between each activity type and the four USEM dimensions separately. This approach has rarely been used in previous Chinese studies. In doing so, the study provides empirical evidence to inform more targeted extracurricular program design in Chinese universities.

Accordingly, this study examines the relationship between ECAs and undergraduate employability among students from five universities in Chongqing, China. It further compares how academic-oriented, career-oriented and social-oriented activities are associated with overall employability and its four USEM dimensions. The research questions are as follows:

RQ1: What are the associations between the three types of extracurricular activities and overall undergraduate employability in Chongqing, China?

RQ2: How are the three types of extracurricular activities associated with the four dimensions of undergraduate employability in Chongqing, China?

To answer the above research questions, this study proposes a conceptual framework to illustrate the relationship between extracurricular activities and undergraduate employability, as shown in Figure

1. The framework divides ECAs into three categories: academic-oriented, career-oriented and social-oriented activities. Employability is

examined from the overall level and the four dimensions of USEM (understanding, skills, efficacy beliefs and metacognition).

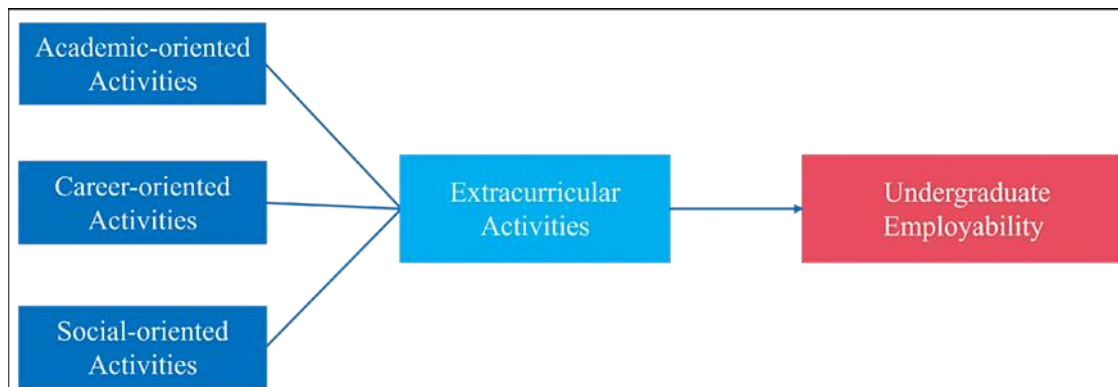


Figure 1: Conceptual Framework

Methodology

Research Design and Participants

A cross-sectional questionnaire survey was conducted between February and April 2026 among third- and fourth-year undergraduates from five universities in Chongqing. The five universities were purposively selected to ensure diversity in institutional characteristics, covering comprehensive, science-engineering and normal university types. A stratified sampling strategy was then adopted, with stratification by academic year and field of study. Questionnaires were distributed via the Questionnaire Star platform and 621 valid responses were collected.

Inclusion criteria were:

- (a) third- or fourth-year undergraduate students and
- (b) able to complete the questionnaire independently.

Exclusion criteria were:

- (a) students enrolled in universities outside Chongqing,
- (b) first- and second-year students and
- (c) incomplete or invalid responses.

All participants were informed of the study's purpose, anonymity and voluntary participation. The entire research process adhered to the basic ethical norms of social science research.

Research Instrument

The questionnaire contained four parts. The first part collected basic information such as gender, academic year, field of study, place of origin and work experience. The second part investigated participation in ECAs, covering the frequency of participation, weekly participation time, duration

and participation role. In the third part, a five-point scale was used to measure students' perceptions of the role of three types of activities in promoting employability (academic-oriented, career-oriented and social-oriented activities). The fourth part was the employability scale based on the USEM model, which consisted of 20 items, including five items in each of the four dimensions of understanding, skills, efficacy beliefs and metacognition. All items were scored on a five-point Likert scale. The Cronbach's alpha values of each dimension were between 0.862 and 0.878 and the Cronbach's alpha value of the total scale was 0.902, indicating that the reliability of the scale was good.

Data Analysis

Data were analyzed using SPSS 27.0. Descriptive statistics were used to present the sample characteristics, participation in ECAs, students' perceived contributions of three ECA types to employability and the score distribution of each dimension of employability. Cronbach's alpha was calculated to test the internal consistency of the employability scale. Pearson correlation analysis was used to examine the association between the three types of ECAs and each dimension of employability. Data were tested for normality, multicollinearity and homoscedasticity before regression analysis. Hierarchical regression was used to analyze the relationship between three types of ECAs and overall employability after controlling for gender, academic year, field of study and work experience. Multiple regressions were conducted separately to examine the relationship between the three types of activities

and each employability dimension. All statistical tests were two-tailed, with statistical significance set at $p < 0.05$.

Results

Table 1 shows the basic information of the participants. The sample was relatively evenly distributed in gender and academic year. In the distribution of field of study, students majoring in

science and engineering accounted for the highest proportion, followed by humanities and social sciences, business and economics, arts and sports and other fields. The proportion of urban students was higher than that of rural students and more than half of the students had internship or part-time experience. Taken as a whole, the sample covered students with different demographic characteristics and subject backgrounds.

Table 1: Demographic Characteristics of Participants (N = 621)

Characteristic	Category	n	%
Gender	Male	322	51.9
	Female	299	48.1
Academic year	Third year	338	54.4
	Fourth year	283	45.6
Field of study	Humanities and social sciences	178	28.7
	Science and engineering	182	29.3
	Business and economics	128	20.6
	Arts and sports	86	13.8
	Other fields	47	7.6
Place of origin	Urban	392	63.1
	Rural	229	36.9
Work experience	Yes	351	56.5
	No	270	43.5

Note: n = number of participants, % = percentage.

Descriptive statistics for participation in ECAs are presented in Table 2. The mean values of participation frequency ($M = 2.33$), weekly participation hours ($M = 2.34$) and duration of participation ($M = 2.54$) were all at a moderate

level. The mean value of participation role was relatively low ($M = 1.53$, $SD = 0.74$), reflecting that most students mainly participated in activities as ordinary members, with few coordination or organizational responsibilities.

Table 2: Descriptive Statistics of ECA Participation Indicators (N = 621)

Variable	N	Mean	SD	Min	Max
Participation frequency	621	2.33	0.923	1	4
Weekly participation hours	621	2.34	0.944	1	4
Duration of participation	621	2.54	0.895	1	4
Participation role	621	1.53	0.739	1	3

Note: SD = Standard Deviation, Min = minimum, Max = maximum. Participation frequency, weekly participation hours and participation duration were measured on four-point ordinal scales (1–4), with higher scores indicating greater participation. Participation role was coded as 1 = participant, 2 = coordinator and 3 = organizer.

Table 3: Reliability Analysis of the Employability Scale (N = 621)

Construct	Items	Cronbach's alpha
Understanding	5	0.878
Skills	5	0.862
Efficacy beliefs	5	0.862
Metacognition	5	0.870
Overall employability	20	0.902

The reliability results for the employability scale are presented in Table 3. Cronbach's alpha values ranged from 0.862 to 0.878 across the four employability dimensions, while the overall scale had a Cronbach's alpha value of 0.902. These results indicate good internal consistency and

support the use of the scale in subsequent analyses.

Table 4 presents the descriptive statistics for the three ECA types and the four employability dimensions. Among the ECA types, career-oriented activities received the highest perceived

contribution score ($M = 3.70$, $SD = 1.19$), followed by social-oriented activities ($M = 3.63$, $SD = 1.13$) and academic-oriented activities ($M = 3.59$, $SD = 1.14$). This pattern indicates that students perceived career-oriented and social-oriented activities as making relatively greater contributions to employability. The mean scores

for the four employability dimensions were similar, ranging from 3.66 to 3.71. Skills had the highest mean score ($M = 3.71$, $SD = 0.93$), whereas metacognition had the lowest ($M = 3.66$, $SD = 0.94$). As illustrated in Figure 2, the small differences among the four dimensions indicate a relatively balanced pattern of student self-evaluations.

Table 4: Descriptive Statistics for Perceived Contributions of ECA Types and Employability Dimensions ($N = 621$)

Variable	N	Mean	SD	Min	Max
Academic-oriented activities	621	3.59	1.14	1	5
Career-oriented activities	621	3.70	1.19	1	5
Social-oriented activities	621	3.63	1.13	1	5
Understanding	621	3.69	0.94	1	5
Skills	621	3.71	0.93	1	5
Efficacy beliefs	621	3.69	0.91	1	5
Metacognition	621	3.66	0.94	1	5

Note: SD = Standard Deviation, Min = minimum, Max = maximum. Scores for academic-oriented, career-oriented and social-oriented activities represent students' perceived contributions of these ECA types to employability. All variables were measured on a five-point scale, with higher scores indicating higher levels of the corresponding constructs.

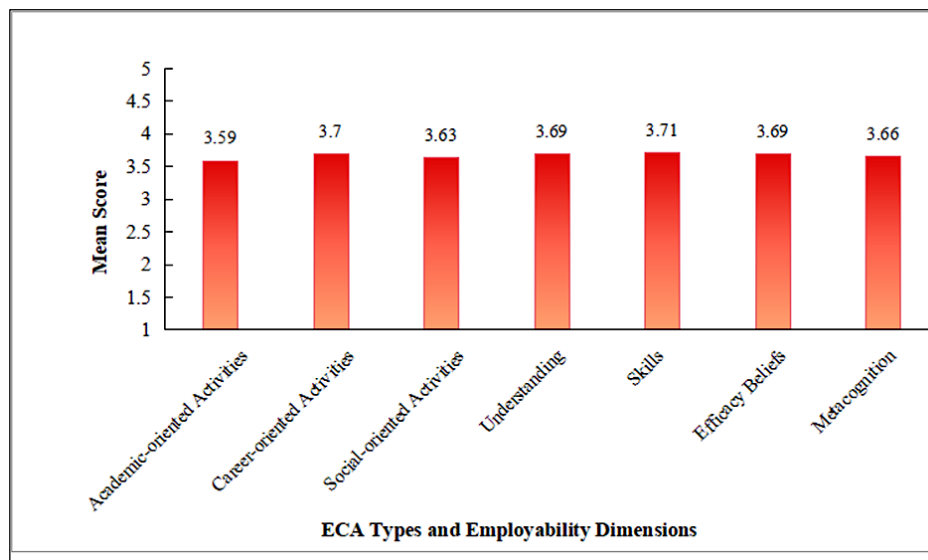


Figure 2: Mean Scores for Perceived Contributions of ECA Types and Employability Dimensions

Perceived Contributions of ECA Types and Overall Employability

Pearson correlation analysis was conducted as an initial examination of the relationships between the three ECA types and employability. The complete correlation matrix is presented in Table 5. Academic-oriented, career-oriented and social-oriented activities were positively correlated with

one another, with correlation coefficients ranging from 0.509 to 0.583 (all $p < 0.01$). Each ECA type was also significantly and positively correlated with the employability dimensions. The correlation coefficients for academic-oriented activities ranged from 0.260 to 0.331, while comparatively stronger correlations were observed for career-oriented and social-oriented activities.

Table 5: Correlation Matrix of ECAs and Employability Dimensions (N = 621)

Variable	1	2	3	4	5	6	7
Academic-oriented activities	1						
Career-oriented activities	0.583**	1					
Social-oriented activities	0.542**	0.509**	1				
Understanding	0.331**	0.339**	0.340**	1			
Skills	0.260**	0.266**	0.296**	0.386**	1		
Efficacy beliefs	0.288**	0.308**	0.311**	0.388**	0.372**	1	
Metacognition	0.273**	0.329**	0.265**	0.423**	0.330**	0.373**	1

Note: **p < 0.01 (two-tailed).

After controlling for demographic variables, hierarchical regression analysis was used to examine the relationship between the three types of ECAs and overall employability and the results are shown in Table 6. Model 1, which included gender, academic year, field of study and work experience as control variables, was not statistically significant and explained only 0.7% of the variation in employability ($R^2 = 0.007$).

After adding the three types of ECAs, the explanatory power of the model was significantly improved ($\Delta R^2 = 0.239$, $p < 0.001$) and the complete model could explain 24.6% of the

variation in overall employability ($R^2 = 0.246$, adjusted $R^2 = 0.238$, $F = 28.596$, $p < 0.001$). Among them, career-oriented activities had the strongest positive correlation with overall employability ($\beta = 0.225$), followed by social-oriented activities ($\beta = 0.222$) and academic-oriented activities were relatively weak ($\beta = 0.141$), but still reached statistical significance. After adding the ECAs variable, none of the demographic control variables reached statistical significance and after controlling for demographic variables, the three types of ECAs still had a significant positive association with overall employability.

Table 6: Hierarchical Regression Analysis of Perceived ECA Contributions and Overall Employability

Predictor	Model 1 β	Model 2 β
Gender	0.050	0.013
Academic year	0.024	0.007
Field of study	0.045	0.034
Work experience	-0.041	-0.010
Academic-oriented activities	—	0.141**
Career-oriented activities	—	0.225***
Social-oriented activities	—	0.222***
R^2	0.007	0.246
Adjusted R^2	0.001	0.238
ΔR^2	—	0.239***
F	1.094	28.596***

Note: β = standardized regression coefficient, R^2 = coefficient of determination, adjusted R^2 = adjusted coefficient of determination, ΔR^2 = change in the coefficient of determination. Model 1 includes demographic variables only; Model 2 additionally includes the three types of ECAs. **p < 0.01, ***p < 0.001.

Associations between ECA Types and Employability Dimensions

Multiple regression analysis was used to examine the relationship between the three types of ECAs and the four dimensions of employability and the results are shown in Table 7. All four regression models reached statistical significance with an R^2 between 0.110 and 0.163.

In the dimension of understanding, the three types of ECAs were significantly positively correlated; among them, the association of social-oriented activities was the strongest ($\beta = 0.182$), followed

by career-oriented activities ($\beta = 0.168$) and academic-oriented activities were relatively weak ($\beta = 0.134$). The model explained 16.3% of the variation in understanding ($R^2 = 0.163$).

For skills, the association of social-oriented activities was the strongest ($\beta = 0.187$) and the association of career-oriented activities was also significantly positive ($\beta = 0.118$), while the association of academic-oriented activities was not statistically significant ($\beta = 0.090$). The model explained 11.0% of the variation in skills ($R^2 = 0.110$).

Table 7: Regression Analysis of Perceived ECA Contributions and Employability Dimensions

Predictor	Understanding	Skills	Efficacy beliefs	Metacognition
Academic-oriented activities	0.134**	0.090	0.099*	0.084
Career-oriented activities	0.168***	0.118*	0.161**	0.226***
Social-oriented activities	0.182***	0.187***	0.175***	0.105*
R ²	0.163	0.110	0.132	0.125
Adjusted R ²	0.159	0.106	0.128	0.121
F	40.088***	25.463***	31.373***	29.386***

Note: β = standardized regression coefficient, R² = coefficient of determination, adjusted R² = adjusted coefficient of determination, F = F-statistic. *p < 0.05, **p < 0.01, ***p < 0.001.

In terms of efficacy beliefs, social-oriented activities had the strongest positive correlation (β = 0.175), followed by career-oriented activities (β = 0.161) and academic-oriented activities (β = 0.099). The model explained 13.2% of the variance in efficacy beliefs (R² = 0.132).

A different pattern emerged for metacognition. Career-oriented activities had the strongest positive association (β = 0.226) and social-oriented activities also reached statistical significance (β = 0.105), while academic-oriented activities were not statistically significant (β = 0.084). The model explained 12.5% of the variation in metacognition (R² = 0.125).

Figure 3 compares the standardized regression coefficients of the three types of ECAs on the four employability dimensions. Social-oriented activities had the strongest associations in the three dimensions of understanding, skills and efficacy beliefs. Career-oriented activities had the strongest association with metacognition and remained significant in other dimensions. Academic-oriented activities were only significantly associated with understanding and efficacy beliefs and the associations with skills and metacognition did not reach statistical significance. Overall, the three types of ECAs showed different association patterns with each dimension of employability.

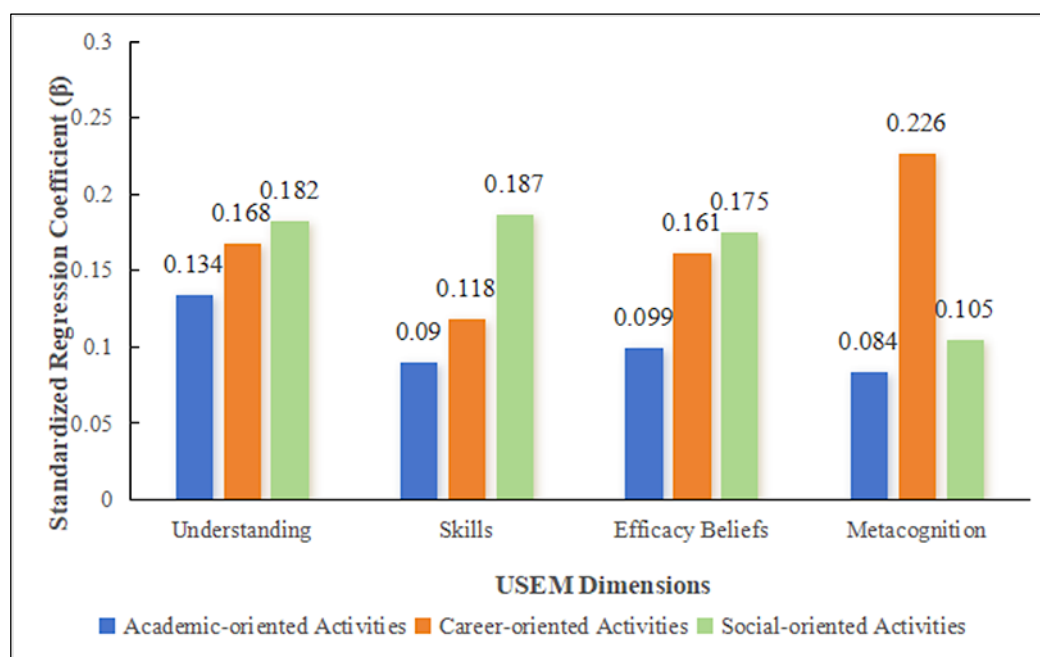


Figure 3: Standardized Regression Coefficients for Perceived Contributions of ECA Types and Employability Dimensions (N = 621)

Discussion

ECAs and Employability Development

The results of this study show that academic-oriented, career-oriented and social-oriented activities are all positively and significantly

associated with undergraduate employability. After controlling for demographic variables, the addition of three types of ECAs significantly improved the overall explanatory power of the regression model. Among them, career-oriented activities had the strongest association with

overall employability, followed by social-oriented activities and academic-oriented activities had a relatively weak but still statistically significant association. This finding is consistent with previous studies confirming the value of extracurricular engagement in developing employability-related competencies (11, 12). Moreover, our result aligns with previous findings that undergraduates engaged in relevant ECAs are perceived by employers as having higher employability (30). Compared with some Western studies, the effect size of this study is relatively small. This may be related to the organizational structure and value orientation of ECAs in different education systems.

Experiential learning theory provides a theoretical basis for understanding this relationship (14). The theory views learning as a cyclic process consisting of concrete experience, reflective observation, abstract conceptualization and active practice (14). ECAs provide real-world situations that enable students to apply their expertise in practice, collaborate with others, solve practical problems and reflect on their own performance. When practical experience is combined with reflection and subsequent application, it helps to promote deep learning and capability development (15). In this sense, ECAs serve as an experiential learning environment that connects formal education with future occupational and social contexts.

The results of this study also support the applicability of the USEM model for analyzing employability development. The model argues that employability involves not only subject understanding and transferable skills, but also confidence in one's own abilities and a reflective awareness of one's learning and development (8). The positive associations found in this study suggest that experiential learning outside the classroom may be associated with multiple dimensions of employability. Students can apply knowledge and skills in ECAs, increase confidence by completing challenging tasks and gradually recognize their strengths and areas for improvement. This supports the view that ECAs should be considered meaningful educational environments rather than optional additions to formal instruction (31).

This study further expands the existing research perspective and no longer treats ECAs as a homogeneous whole. Without distinguishing

between the types of activities, it is difficult to identify the unique learning experiences of academic-oriented, career-oriented and social-oriented activities (28, 29). The results show that the educational value of ECAs depends not only on the process of students' participation, but also on the nature and function of the activities themselves. Each of the three activities has its own focus and the differences between them provide complementary development paths for different dimensions of university students' employability. This function-oriented approach extends earlier classifications that categorized ECAs by organizational form rather than learning function (29). By demonstrating that different activity types have different employability purposes, our findings provide a more nuanced understanding of the value of ECA than previous studies that treated ECA as a single variable (30).

Relationships Between Different Types of ECAs and Dimensions of Employability

Associations between the three types of ECAs and USEM dimensions were not consistent. Social-oriented activities had the most prominent associations in the three dimensions of understanding, skills and efficacy beliefs and career-oriented activities had the strongest associations with metacognition, while academic-oriented activities were only positively correlated with understanding and efficacy beliefs and their associations with skills and metacognition did not reach statistical significance. This differential association pattern further indicates that the role of ECAs on employability should not be generalized and that different activity types may correspond to different ability development paths. This also supports a multidimensional understanding of employability, in which different extracurricular learning experiences contribute selectively to the development of students' abilities, rather than promoting all dimensions uniformly (8, 12).

Career-oriented activities were most strongly associated with overall employability and metacognition. Internships, career planning, professional training and workplace practice can help students directly understand career requirements. Students are able to use these experiences to make connections between university studies and future employment and to

recognize the abilities they need to improve (22, 32). Career-related learning also helps them to clarify their goals and rationally plan their future development (33). This reflective process corresponds closely to the metacognitive dimension of the USEM model. These findings are consistent with previous evidence that work experience is associated with students' career engagement and metacognitive awareness and with studies demonstrating the effectiveness of internships and career development learning in enhancing career readiness, particularly in non-Western contexts (24, 33, 34). Similar effects have been reported in Finnish studies, but the association was stronger in the present study (24). This may be because career-oriented activities in China are more directly linked to job market competition and formal qualifications.

Social-oriented activities showed the strongest associations with understanding, skills and efficacy beliefs. Student organizations, volunteer service, community engagement and leadership activities require students to communicate, collaborate, coordinate tasks and respond to interpersonal challenges. These activities provide repeated opportunities to develop transferable and leadership skills through active participation, responsibility and interaction with others (25, 34). The association between social-oriented activities and understanding suggests that disciplinary learning may also be strengthened through interaction and practical application. When students explain ideas, work with people from different backgrounds and apply knowledge to community or organizational problems, they may develop a more contextualized understanding of what they have learned. Similarly, completing tasks, assuming responsibility and receiving feedback from others may help students recognize their capabilities and strengthen their efficacy beliefs (35). These findings align with earlier work in the Philippines (25) and Malaysia (35), which also reported positive effects of ECAs on social skills and leadership development. These cross-contextual consistencies suggest that social-oriented activities may have relatively universal effects on interpersonal skills and self-beliefs, regardless of institutional setting. Nevertheless, the particularly strong effect on understanding in our study may reflect the unique emphasis of

Chinese higher education on collective activities and peer learning.

Academic-oriented activities were significantly associated with understanding and efficacy beliefs but not with skills or metacognition. Academic competitions, research projects and discipline-related activities have certain advantages in deepening professional knowledge, cultivating analytical and innovative thinking and also helping to enhance students' confidence in using knowledge (20, 21). However, their connection with real workplace needs is relatively weak and it is rarely embedded in the reflection of career goals. This helps to explain why the strength of the association between skills and metacognition is lower for academic-oriented activities than for career-oriented or social-oriented activities. To enhance its role in employability development, universities can integrate academic programs with practical problems in the industry and introduce elements such as off-campus tutors, interdisciplinary collaboration and workplace applications (36, 37). The limited effect of academic-oriented activities on skills and metacognition stands in contrast to previous findings that reported positive effects of academic competitions on problem-solving skills in American engineering education (20). This discrepancy may be due to differences in how academic competitions are designed. In China, these activities often emphasize individual achievement and knowledge recall within the examination-oriented system, whereas in Western contexts, they may place greater emphasis on collaborative problem-solving and reflective practice. This contextual explanation is supported by previous research noting that East Asian academic ECAs tend to focus on knowledge consolidation rather than transferable skill development (21).

The associations between different types of ECAs and each dimension of employability were different. Career-oriented activities were more closely related to career reflection and metacognition, social-oriented activities were more conducive to the development of understanding, transferable skills and efficacy beliefs and academic-oriented activities were mainly related to discipline understanding and knowledge application confidence. This suggests that universities should not only rely on one type

of ECA, but should also arrange ECAs differently according to their different functions so that they complement each other in the cultivation of student employability (12, 16).

Conclusion

The findings provide directions for the design of ECAs in universities. Career-oriented activities, such as internships, vocational training, enterprise projects and workplace visits, can be arranged to help students get closer to the real working environment. Social-oriented activities should focus on teamwork, leadership practice and community participation and strengthen interpersonal communication and transferable skills. Academic-oriented activities can introduce practical problems in the industry, allowing students to deepen their professional understanding in the process of problem-solving. The three types of activities have their own emphasis on function and content. On this basis, universities need to help students sort out the gains of activities through reflection, guidance, process feedback and result summary, so that the design of ECAs focuses not only on the scale of participation but also on the actual quality of participation.

Based on experiential learning theory and the USEM model, this study investigated the relationship between three types of ECAs and undergraduate employability in five universities in Chongqing. After controlling for demographic variables, all three types of activities were significantly and positively associated with overall employability, with strong contributions from career-oriented and social-oriented activities and relatively weak contributions from academic-oriented activities. Among the four dimensions of employability, social-oriented activities were most prominently associated with understanding, skills and efficacy beliefs; career-oriented activities were most strongly associated with metacognition; and academic-oriented activities were significantly associated with understanding and efficacy beliefs, but did not reach statistical significance for skills and metacognition. Combined with the function-oriented classification, this study found that the three types of ECAs play different roles in employability development.

This study makes two contributions to the literature on employability. First, it moves beyond the common practice of treating extracurricular

activities as a single variable. By adopting a function-oriented classification, we show that different types of activities have different educational value. Second, compared with previous studies in the Chinese context, this study applies the USEM model in a more detailed way by examining the relationships between each activity type and the four USEM dimensions separately. This kind of analysis is rarely found in earlier research. From a practical perspective, the findings provide university administrators and policymakers with a clearer basis for designing ECA programs that target specific employability outcomes, rather than offering generic participation opportunities.

There are several limitations in this study. The cross-sectional design is unable to determine the causal relationship between ECAs and employability. Student self-rated data may be affected by recall bias and social expectations. In addition, the samples were only from five universities in Chongqing and whether the results can be applied to other regions and different types of universities still needs to be further verified. Future research could further examine the relationship between ECAs and employability by using longitudinal or mixed methods, incorporating actual student participation records and expanding the sample.

Abbreviations

ECAs: Extracurricular Activities, USEM: Understanding, Skills, Efficacy Beliefs and Metacognition.

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Author Contributions

Wang Jun: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Visualization, Writing—Original Draft Preparation, Nasser Salimi Aghbolagh: Conceptualization, Methodology, Supervision, Validation, Writing-Review & Editing. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

No conflicts of interest are disclosed by the authors.

Data Availability

The anonymized data supporting the conclusions of this study were collected through a questionnaire survey administered via the Questionnaire Star platform. Descriptive and regression analyses were performed using SPSS 27.0. Due to confidentiality agreements with participants and institutional ethical restrictions, the dataset is not publicly available. However, anonymized data may be obtained upon reasonable requests to the corresponding author, subject to institutional ethical approval.

Declaration of Artificial Intelligence (AI) Assistance Process

DeepSeek was used solely for language polishing, grammar correction and sentence restructuring. It was not involved in figure preparation, data analysis, interpretation of results, or the generation of research findings. All AI-assisted content has been reviewed and confirmed by the authors, who take full responsibility for the originality, interpretation and accuracy of the manuscript.

Ethics Approval

Ethical approval for this study was obtained from the Research Ethics Committee of the authors' institution (Approval No. CQWL20260707). All participants were informed of the study's purpose, the principle of anonymity and the voluntary nature of participation prior to completing the questionnaire.

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