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Extracurricular Activities and Sustainable Employability in Chinese Higher Education

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Abstract: *This study explores the relationship between university students' participation in extracurricular activities (ECAs) and employability from a sustainable development perspective, based on Kolb's Experiential Learning Theory. A survey of 448 undergraduates from a university in Chongqing, China, examined correlations between ECAs and four dimensions of employability (subject understanding, skills, self-efficacy, and metacognition). Results show that higher participation in ECAs is associated with improved subject understanding, self-efficacy, and metacognition. First-year students had higher ECA participation and advantages in certain employability dimensions. Disciplinary differences influenced participation but not perceived employability. Findings suggest that continuous participation in ECAs can enhance cognitive and non-cognitive abilities, providing empirical support for higher education institutions to design inclusive and theory-oriented student development strategies aligned with Sustainable Development Goal 4 (SDG 4).*

Keywords: ECAs; Sustainable Employability; Experiential Learning Theory; Higher Education; SDG 4

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1. Introduction

In the process of enhancing economic resilience with human resources as the key driving force, high-quality talents are of vital importance, which provides support for the country to adapt to technological changes and external shocks (Yang et al., 2026). Globalization and technological progress are reshaping the structure of the labor market (Tushar & Sooraksa, 2023). Employers' requirements for graduates are no longer limited to academic performance alone, but also include comprehensive qualities such as communication skills, innovative thinking, and adaptability (Tushar & Sooraksa, 2023). Therefore, higher education must abandon the traditional knowledge-centered mode and focus on cultivating students' comprehensive employability (Awashreh, 2026), especially in the context of Chinese higher education (Liu & Liu, 2025).

Employability has become a core issue in the field of higher education and is increasingly regarded as an important reference for evaluating the quality of university education. However, its formation and improvement are not solely the responsibility of universities but require the joint efforts of universities, students, the government, and employers, among others (Cheng et al., 2022). In the context of increasing global employment pressure, enhancing students' employment ability has been widely recognized as an important task in higher education (Malcolm, 2023). Research indicates that there are differences among Chinese university

graduates in terms of salary levels, employment stability, and work intensity, highlighting the significance of cultivating sustainable employability during higher education (Zhou, 2023).

Traditional classroom teaching often focuses mainly on imparting theoretical knowledge, while insufficient attention is paid to the cultivation of practical and innovative abilities. This results in a certain disconnection between the course content and the actual demands of the industry, making it difficult to fully meet the requirements of the labor market for practical skills and professional capabilities (Zhu, 2024). To bridge this gap, many universities have expanded students' learning opportunities through diverse ECAs, including innovation and entrepreneurship competitions, enterprise internships, volunteer work, student organizations, and sustainable development projects (Kim et al., 2021; Lecksuwankun et al., 2023). ECAs are increasingly being integrated into the talent cultivation framework of institutions (An & Liu, 2023), and have been proven to enhance creativity, problem-solving abilities, interdisciplinary collaboration skills, and awareness of global challenges (Papavasileiou et al., 2025; Li et al., 2025). Therefore, extracurricular activities, as an important supplement to classroom teaching, contribute to the cultivation of students' employability within the framework of quality education and sustainable development goals, and align with the increasingly strengthened trend of integrating SDGs into the Chinese education system (Yuan & Yu, 2024).

Although the relationship between ECAs and employability has received extensive attention, most existing studies have merely been at the level of descriptive phenomena and lack systematic empirical research based on Chinese samples (Jackson & Cameron, 2026; Ribeiro et al., 2024). Particularly, the roles of academic characteristics such as the academic year and disciplinary background have not been systematically examined (Jackson et al., 2024).

Addressing these gaps, this study focuses on undergraduate students from a university in Chongqing, China. Using a quantitative questionnaire survey, it systematically explored the relationship between ECAs and employability. This study measured employability from four dimensions: subject understanding, skills, self-efficacy, and metacognition, and analyzed the influence of academic years and discipline on participation in ECAs and employability.

Accordingly, this study addresses the following research questions:

RQ1: What are the correlations between the degree of participation in extracurricular activities and the various dimensions of employability (subject understanding, skills, self-efficacy, and metacognition)?

RQ2: How does academic year and discipline influence participation in extracurricular activities and employability?

This study aims to fill the empirical research gap regarding the role of ECAs in promoting sustainable employability in Chinese universities, and to provide practical insights for the integration of curriculum and extracurricular learning in higher education.

2. Literature Review

2.1 Employability and Sustainable Employability

Employability has always been a key focus of higher education research, as it reflects the effectiveness of individuals in applying knowledge, skills and abilities in the rapidly changing labor market (Zhan et al., 2026). The USEM framework proposed by Knight and Yorke (2004) provides a useful perspective for analyzing employment ability, emphasizing the integration of subject understanding, skills, self-efficacy and metacognition. With the rapid technological

iteration and the increasing instability of the labor market, the research on employability has gradually shifted from short-term employment acquisition to the focus on long-term career development, forming the concept of sustainable employability. This concept emphasizes the ability of individuals to continuously adapt to changes, enhance resilience, and continuously accumulate resources related to employment at different stages of their career (Jabeen et al., 2022). From the perspective of higher education, sustainable employability is an expansion of traditional employability, and its core lies in regarding employment-related abilities as a fundamental resource, enabling graduates to take proactive career actions and maintain competitiveness and stability throughout their long-term career development (Yang et al., 2025).

Chinese research indicates that the reform of higher education focused on cultivating focus abilities and enhancing quality, such as improving skill alignment, optimizing the talent cultivation model, and strengthening human capital, helps to improve the employment matching of graduates and promotes the achievement of Sustainable Development Goal 4 (Lin, 2024). Therefore, systematically cultivating students' employment capabilities during the university stage has been widely regarded as a key path for promoting the sustainable development of human capital (Yang & Omar, 2026).

2.2 Extracurricular Activities

ECAs generally refer to various student participation activities organized or supported by universities beyond the formal curriculum, including student clubs, volunteer services, innovation and entrepreneurship competitions, enterprise internships, cultural and sports programs, as well as practical projects focused on sustainability (Javed & Srivastava, 2024). These activities provide students with opportunities to apply theoretical knowledge to real-life situations, helping them develop transferable skills such as communication abilities, teamwork skills, and problem-solving skills, and expanding the boundaries of traditional classroom teaching through collaborative and social learning (Cavaletto & Miglietta, 2024).

Research indicates that actively participating in ECAs can enhance students' self-efficacy, meta-cognitive abilities, and comprehensive qualities closely related to career development, thereby promoting their overall growth and improvement of employability (Atmono et al., 2023). ECAs that incorporate the concept of sustainable development can enhance university students' understanding of global challenges and sustainable development goals, while also improving their ability to apply sustainable development principles in practice (Yang et al., 2022). At the same time, ECAs can promote the development of students' sense of responsibility and leadership by stimulating intrinsic motivation and creative participation, and enhance their action ability to address complex social problems (Li et al., 2025). Therefore, ECAs are increasingly regarded as an important supplement to formal courses and a vital carrier for integrating knowledge, skills, and reflective abilities, helping students more effectively navigate the complex and changing labor market environment.

3. Methodology

This study employed a cross-sectional quantitative research design to examine the relationship between university students' participation in ECAs and employability at a university in Chongqing, China. The data was collected through structured questionnaires, and a total of 448 valid responses were received. A stratified random sampling method was used, with proportional sampling based on different disciplines and academic years to ensure the representativeness of the sample in the student population. All participants voluntarily

participated in the survey, and the questionnaires were filled out anonymously. The research process followed basic academic ethical norms.

The degree of participation in ECAs was evaluated using a comprehensive measurement questionnaire developed independently for this study. This tool depicts students' participation in ECAs from multiple dimensions, including frequency of participation, weekly time investment, duration of involvement, roles undertaken, and types of activities. The scale design fully incorporates the characteristics of the ECAs practice in Chinese universities, covering common forms such as student clubs, volunteer services, innovation and entrepreneurship activities, practical and competition activities, etc. The questionnaire was pre-tested before the formal administration, and the wording of the questions was revised based on feedback to ensure the clarity and contextual appropriateness of the questionnaire content.

The measurement of employability is based on the USEM framework proposed by Knight and Yorke (2004), and is evaluated from four dimensions: subject understanding, skills, self-efficacy, and metacognition. Employability was measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The results of the reliability analysis indicate that the internal consistency of each dimension is good, with Cronbach's α values ranging from 0.78 to 0.86, meeting the acceptable standards for social science research.

Data analysis was conducted using SPSS 27.0 software. Descriptive statistical methods were employed to provide an overview of students' participation in ECAs and their overall level of employability. Pearson correlation analysis was used to test the correlation between the degree of participation in extracurricular activities and each dimension of employability. One-way ANOVA was used to examine the differences in extracurricular activity participation and employability among students of different academic year and discipline, with post-hoc tests conducted if the conditions were met. Before the analysis, the normality and homogeneity of variance assumptions of the data were tested, and the statistical significance level was set at $p < 0.05$.

4. Results

4.1 Descriptive Statistics of Extracurricular Activities and Employability

Table 1 presents the descriptive statistics of students' participation in ECAs and their performance in various dimensions of employability. The mean score of the total participation in extracurricular activities (ECA_Total) was 7.43 (standard deviation SD = 3.51), indicating that the overall participation level was at a medium level. There were differences in each individual indicator (including frequency, hours, duration, role, and types of activities) on a scale ranging from 0 to 3. Students generally had a high self-evaluation in various dimensions of employability: subject understanding (M = 3.83, SD = 0.39), skills (M = 3.78, SD = 0.41), self-efficacy (M = 3.72, SD = 0.41), and metacognition (M = 3.70, SD = 0.43). Overall, these results indicate that Chinese university students, on average, have a moderately high perception of their own employability, especially in terms of subject understanding and cognitive ability.

Table 1: Descriptive Statistics of ECAs and Employability (N = 448)

Variable	N	Mean	SD	Min	Max
Frequency	448	1.46	1.13	0	3
Hours		1.46	1.14	0	3
Duration		1.54	1.13	0	3
Role		0.97	0.83	0	2
Types		1.48	1.11	0	3
ECA_Total		7.43	3.51	0	14
Subject understanding		3.83	0.39	2.59	4.85
Skills		3.78	0.41	2.55	5.00
Self-efficacy		3.72	0.41	2.22	4.86
Metacognition		3.70	0.43	2.46	4.88

Note: SD = standard deviation; Frequency, Hours, Duration, and Types were coded on ordinal scales (0–3); Employability dimensions were measured on 5-point Likert scales.

4.2 Relationships between Extracurricular Activities and Employability

To examine the correlation between ECAs and employability, a Pearson correlation analysis was conducted (see Table 2). The overall extracurricular activity participation (ECA_Total) was positively correlated with all dimensions of employability: subject understanding ($r = 0.354$, $p < 0.01$), skills ($r = 0.137$, $p < 0.01$), self-efficacy ($r = 0.269$, $p < 0.01$), and metacognition ($r = 0.273$, $p < 0.01$). These results indicate that the higher the level of ECA participation, the better the students perform in subject understanding, confidence enhancement, and meta-cognitive skills.

The correlation coefficients among the various dimensions of employability range from moderate to strong ($r = 0.412$ to 0.556, $p < 0.01$), indicating that although these dimensions are related, they measure different aspects of employability. The correlation between self-efficacy and metacognition is the strongest ($r = 0.556$), highlighting the interrelationship between students' self-perceived abilities and cognitive self-regulation.

Table 2: Pearson Correlations between ECAs and Employability (N = 448)

Item	1	2	3	4	5
1. ECA_Total	1				
2. Subject understanding	0.354**	1			
3. Skills	0.137**	0.412**	1		
4. Self-efficacy	0.269**	0.468**	0.521**	1	
5. Metacognition	0.273**	0.501**	0.487**	0.556**	1

*Note: Pearson correlation coefficients are reported; **p < 0.01 (two-tailed) indicates statistical significance.*

4.3 Differences by Academic Year

A one-way ANOVA was used to examine the differences in ECA participation and employability among students of different academic years (see Table 3). The results showed that ECA_Total of first-year students was the highest ($M = 9.14$), and it gradually decreased with each increasing academic year ($F = 16.51$, $p < 0.001$). In terms of employability, first-year students significantly outperformed senior students in subject understanding ($F = 4.34$, $p = .005$) and metacognition ($F = 3.04$, $p = 0.029$), while there were no significant differences in skills ($p = 0.198$) and self-efficacy ($p = 0.123$).

These results suggest that early participation in extracurricular activities may help students develop basic academic and cognitive abilities. However, as students progress through their academic years, both their participation rate and self-perceived employability may stabilize or

decline. This may be related to an increased academic workload or a shift toward employment-focused priorities.

Table 3: Differences by Academic Year (N = 448)

Variable	First-year	Second-year	Third-year	Fourth-year	F	p
ECA_Total	9.14 ± 3.35	6.80 ± 3.65	6.77 ± 3.32	6.55 ± 2.84	16.51	< .001
Subject understanding	3.9 3 ± 0.38	3.80 ± 0.38	3.76 ± 0.38	3.81 ± 0.40	4.34	.005
Skills	3.82 ± 0.41	3.79 ± 0.41	3.79 ± 0.40	3.70 ± 0.39	1.56	.198
Self-efficacy	3.79 ± 0.42	3.68 ± 0.43	3.69 ± 0.42	3.70 ± 0.37	1.94	.123
Metacognition	3.79 ± 0.41	3.68 ± 0.45	3.70 ± 0.45	3.62 ± 0.37	3.04	.029

Note: SD = standard deviation; values are presented as mean ± SD; one-way ANOVA was used to test differences across academic years; $p < 0.05$ indicates statistical significance.

4.4 Differences by Academic Discipline

The differences in ECA participation and employability across disciplines were evaluated using one-way ANOVA (see Table 4). Students from humanities and social sciences, science and engineering, and business and economics reported similar levels of extracurricular activity participation ($M \approx 7.70–7.82$). In contrast, students from the arts and sports disciplines reported significantly lower participation levels ($M = 6.58$, $F = 3.28$, $p = 0.021$). Regarding employability, no significant differences were found across disciplines in subject understanding, skills, self-efficacy, or metacognition (all $p > 0.05$). This suggests that while disciplinary background may influence the level of extracurricular activity participation, perceptions of employability remain relatively consistent across disciplines.

Table 4: Differences by Academic Discipline (N = 448)

Variable	Humanities & Social Sciences	Science & Engineering	Business & Economics	Arts & Sport	F	p
ECA_Total	7.72 ± 3.53	7.82 ± 3.60	7.70 ± 3.43	6.58 ± 3.37	3.28	.021
Subject understanding	3.84 ± 0.41	3.84 ± 0.38	3.87 ± 0.40	3.80 ± 0.37	0.67	0.568
Skills	3.72 ± 0.37	3.82 ± 0.43	3.83 ± 0.42	3.77 ± 0.41	1.76	0.154
Self-efficacy	3.73 ± 0.39	3.72 ± 0.37	3.68 ± 0.46	3.74 ± 0.43	0.54	0.658
MetaCognition	3.69 ± 0.42	3.66 ± 0.42	3.69 ± 0.46	3.76 ± 0.41	0.97	0.407

Note: SD = standard deviation; values are presented as mean ± SD; one-way ANOVA was used to test differences across academic disciplines; $p < 0.05$ indicates statistical significance.

5. Discussion

This study conducted a survey among 448 students from a university in Chongqing to explore the relationship between ECAs and four dimensions of employability (subject understanding, skills, self-efficacy, and metacognition). The results clearly demonstrated that participation in ECAs can actively promote the development of students' employability, and revealed the moderating effects of the academic year and discipline on the participation patterns.

5.1 Enhancing Employability through Experiential Learning in ECAs

The research findings are in line with Experiential Learning Theory (Kolb, 1984). This theory views learning as a cyclical process of specific experience, reflective observation, abstract conceptualization, and active practice. ECAs provide students with specific experiences outside the classroom, prompting them to reflect, integrate, and apply the knowledge they have learned in real situations. In this cycle, students not only deepen their understanding of the

subject, enhance their metacognition, but also enhance their self-efficacy by solving problems and receiving feedback from peers or mentors.

Research indicates that ECA participation has a relatively weak correlation with the skills dimension. This might be because some activities focus more on social interactions or cultural experiences rather than directly cultivating professional skills. Nevertheless, even with limited participation, students can gradually develop transferable skills through the iterative process of experiential learning (Collins-Nelsen et al., 2022).

5.2 Academic Year and Discipline Effects

First-year students demonstrate more outstanding performance in terms of ECA participation, subject understanding, and metacognition. From the perspective of ELT, this might reflect the characteristics of the initial stage of the learning cycle: first-year students actively explore university life through specific experiences, build interpersonal networks, and understand themselves. As they progress through different grades, with increasing academic pressure or heavier employment preparation tasks, students may spend less time on active practice, resulting in a decrease in their participation levels (Cuyul-Vásquez et al., 2025).

Although there are differences in extracurricular activity participation among students from different disciplines, graduates from all disciplines generally reported acquiring multi-dimensional employability during their university years. This reflects the widespread improvement of employability as a cross-disciplinary and multi-factor-driven comprehensive quality across different educational backgrounds (Monteiro et al., 2025).

5.3 Enhancing Employability through Sustainability-Focused ECAs

Integrating sustainable development projects into ECAs provides students with specific scenarios to address real and complex challenges. Such activities enhance the experiential learning cycle. Students actively solve problems, reflect on the results, form sustainable solutions, and put them into practice. This not only promotes the development of employability, but also aligns with the requirements of Sustainable Development Goal 4 (SDG 4) for quality education. At the same time, it cultivates students' awareness of sustainable development and their leadership in addressing social challenges.

5.4 Practical Implications

The research results offer various implications for higher education institutions. Universities should design structured, inclusive and continuous ECAs to encourage students to remain engaged throughout the academic year. By providing mentorship, credit recognition, and support for upper-level students or those in less engaged subjects, student engagement can be maintained and ensure the fairness of the development of employability. Offering ECAs related to sustainable development can further enhance students' employability and also strengthen their ability to address global challenges.

5.5 Limitations

This study still has several limitations. Firstly, the research utilized cross-sectional data, making it difficult to conduct rigorous causal inferences. It is not possible to determine whether it is the ECAs that enhance employability or whether students with stronger employability are more inclined to participate in such activities. Secondly, the research data mainly came from self-report questionnaires, which may be influenced by factors such as social expectations. Finally, the sample was only from one university in Chongqing, and the generalizability of the research conclusions still requires cautious consideration.

5.6 Future Research

Future research could adopt longitudinal studies to further examine the causal relationship between ECAs and employability. Meanwhile, it can deeply compare the differential impacts of different types of ECAs on employability, and explore the roles of potential mediating mechanisms such as social capital, participation motivation, and participation depth. Additionally, future research could expand the sample to include universities from different regions and types in order to enhance the general applicability of the results.

6. Conclusion

This study shows that participation in ECAs can effectively enhance university students' employability in China. Based on Experiential Learning Theory, ECAs enable students to practice, reflect, and apply knowledge, strengthening subject understanding, skills, self-efficacy, and metacognition. Activities related to the theme of sustainable development can better connect the cultivation of employability with global sustainable development goals, promoting the all-around development of students. Universities can regard ECAs as an important means to cultivate graduates who not only possess professional skills but also have a sense of social responsibility and are capable of adapting to changes in the future labor market.

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Conflict of Interest

All the authors of this study have declared no conflicts of interest.

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