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From Co-curricular Activities to Leadership Competence in Central China's Universities: Opportunity Structure and Urban/Rural Disparities

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Abstract

This study examined whether engagement in co-curricular activities is associated with leadership competencies among students at two universities in central China, and whether this relationship varies by gender and urban/rural background. Using survey data from 752 undergraduates, a regression model informed by an urban opportunity structure perspective was used to examine possible explanations for urban-rural disparities. Results indicated that internships and disciplinary competitions were positively associated with learning and reasoning, communication and influence, and problem solving; community service was positively associated with collaboration and teamwork and social responsibility; and holiday practice activities were positively associated with communication and influence, social responsibility, and problem solving. Gender and urban–rural background moderated certain pathways. Internships and community service showed stronger associations with collaboration and teamwork and with communication and influence for female students, while rural students showed weaker associations with internships, especially in learning and teamwork. This study contributes to the literature by suggesting that the associations linked to co-curricular engagement are activity-specific and socially differentiated across student groups. The findings may also inform student affairs efforts to align activity design with intended outcomes, provide mentoring and time supports, and establish tailored development pathways for key groups.

Keywords: *co-curricular engagement; leadership competence; gender moderation; urban–rural background moderation; student affairs practice*

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Introduction

In higher education, cultivating students' leadership competence is increasingly emphasized alongside disciplinary knowledge and is linked to career development and social adaptability (Komives & Wagner, 2017; Soria & Johnson, 2020). Practice-based co-curricular learning forms, including experiential learning, service learning, and high-impact practices, are recognized as key pathways. These activities engage students with real-world complexity and ill-structured tasks and use guided reflection to translate experience into competence development (Bonesso et al., 2024; Kolb, 2015; Lange & Stewart, 2019; Salam et al., 2019). In the context of Chinese higher education, such activities are commonly referred to as co-curricular practice and have been progressively institutionalized through policy initiatives (Weng & Yan, 2018). However, evidence that clearly differentiates which activity types align with which leadership dimensions and how these associations vary across city contexts remains limited, especially beyond Western contexts (Bonesso et al., 2024; Driscoll et al., 2024; Kuh, 2008; McConnell, 2024; Wen et al., 2023; Zahl-Thanem et al., 2024). Building on this gap, the present study maps six co-curricular activity types to five dimensions of leadership competence and examines gender and urban–rural background as stratifying variables, interpreting group differences through an opportunity-structure lens operationalized as opportunity intensity and organizational settings.

Previous studies have generally focused on the impact of a specific type of co-curricular activity (e.g., service learning, internships, competitions) on a particular type of leadership (e.g., transformational leadership, servant leadership), lacking a systematic examination of the differentiated associations between different co-curricular activities and the multidimensional structure of comprehensive leadership competence (Lucero et al., 2019; Soria & Johnson, 2020). In fact, leadership is not a single construct but encompasses multiple dimensions such as cognitive, social interaction, and values and ethics, including analytical reasoning, teamwork, effective communication, social responsibility awareness, and decision making and execution in complex situations. Accordingly, the co-curricular activities conducted by universities are also diverse, encompassing survey research, competitions and workshops, overseas exchanges, corporate internships, volunteer services, and intensive holiday programs, among other types. Different types of co-curricular activities are likely to exert differentiated associations with different dimensions of leadership competence through distinct learning mechanisms, such as deep reflection, engagement in real-world contexts, or the completion of tasks with high cognitive demands. Therefore, it is imperative to establish a more refined competence–practice mapping and situate it within urban opportunity structures to explain for whom and why associations strengthen or weaken (Bonesso et al., 2024; Kolb, 2015; McConnell, 2024; Soria & Johnson, 2020; Wen et al., 2023; Zahl-Thanem et al., 2024). Additionally, students' existing social capital, resource embeddedness, and interactional experiences may systematically influence how they access, experience, and translate specific practices into leadership-related outcomes. In the Chinese higher education context, urban–rural background is closely

related to long-standing inequalities in educational opportunity, family resources, information channels, and career-related networks (Bao et al., 2023; Crain & Newlin, 2021; Wang et al., 2024; Wen et al., 2023). Clarifying such boundary conditions can guide audience segmentation and tiered supports in student affairs.

Based on the mentioned gaps, this study focuses on the following two questions in the context of practice-based education in public universities in central China. First, what are the associations between different types of co-curricular activities and the multidimensional structure of leadership competence? Second, do these associations differ by gender and urban–rural background, and can opportunity intensity and organizational settings help explain these group differences? By addressing these questions empirically, this study aimed to provide evidence and diagnostic tools for equity-oriented programming within school–city–community partnership frameworks.

This study makes three specific contributions. First, it provides a fine-grained mapping between six activity types and five dimensions of leadership competence, treating co-curricular engagement as a multidimensional construct rather than a single construct. Second, it examines whether activity–competence associations vary across gender and urban–rural background, thereby highlighting the group-differentiated nature of co-curricular engagement. Third, it provides evidence from two universities in central China and uses this context to examine how Western-centric discussions of co-curricular engagement and leadership development may be reinterpreted under gendered and urban–rural opportunity structures.

Theoretical framework and hypotheses

Research on the relationship between co-curricular activities and college students' leadership competence can be situated within the theoretical foundations of experiential learning and the implementation pathways of high-impact practices. Experiential learning posits that systematic, reflective, and authentic learning experiences can support individuals in transforming experience into multiple facets of competence (Bonesso et al., 2024; Lange & Stewart, 2019; Salam et al., 2019). High-impact practices in higher education are also regarded as important contexts for leadership-related learning, with the social change model emphasizing collaboration, social responsibility, and reflective action as core elements of student leadership development (Komives & Wagner, 2017; Soria & Johnson, 2020). In the context of Chinese higher education, co-curricular practice often integrates multiple forms of high-impact learning, including knowledge-oriented activities (Social Survey and Projects, SSP; Disciplinary Competitions and Workshops, DCW; Academic Exchanges and International Programs, AEIP), internships (Corporate Internships and Industry Experience, CIIE), and public welfare activities (Community Services and Public Welfare Projects, CSPWP; Holiday Practice Programs, HPP).

Existing leadership research generally treats leadership not as an innate personal trait, but as a comprehensive competence that can be developed through education and practice (Bonesso et al., 2024; Komives & Wagner, 2017). Especially in higher

education, the concept of college student leadership has moved beyond traditional approaches centred on positions and traits, placing greater emphasis on collaboration, ethical awareness, social responsibility, and problem-solving competence (Komives & Wagner, 2017; Lange & Stewart, 2019; Salam et al., 2019). Based on existing leadership theories and relevant empirical research, this study identifies leadership-related competence dimensions that are closely connected to practice-based learning. The final research framework includes five core dimensions that are theoretically relevant to co-curricular contexts: learning and reasoning (LR), collaboration and teamwork (CT), communication and influence (CI), social responsibility (SR), and problem solving (PS) (Lucero et al., 2019; Soria & Johnson, 2020). Based on the above-mentioned theory, this study aimed to construct a conceptual link between co-curricular engagement and leadership competence. Hereafter SSP, DCW, AEIP, CIIE, CSPWP, and HPP denoted the six activity types; and LR, CT, CI, SR, and PS denoted the five competence dimensions.

Main effects of co-curricular engagement on leadership competence

Co-curricular activities emphasize deep cognition and knowledge transfer through real tasks, continuous reflection, and iterative improvement (Bonesso et al., 2024; Lange & Stewart, 2019; Salam et al., 2019). In universities in central China, extensive co-curricular engagement may expose students to complex, high-challenge tasks and guided reflection that are relevant to evidence evaluation, causal reasoning, and metacognition, thereby supporting learning and reasoning (Komives & Wagner, 2017). Co-curricular activities are often organized in the form of team projects: such team activities help students internalize collaborative norms and enhance team efficacy (Salam et al., 2019; Soria & Johnson, 2020). As engagement increases, students may also encounter more opportunities to practice clear, adaptive, and influential communication (Bonesso et al., 2024; Salam et al., 2019). Additionally, diverse contexts demand cross-disciplinary collaboration, refining coordination, conflict resolution, and interdependent work (Bonesso et al., 2024; Lange & Stewart, 2019).

Engagement in service learning and public welfare connects the goals of co-curricular activities with public issues and community needs (Hameduddin & Engbers, 2022; Salam et al., 2019; Vogelgesang & Astin, 2000). Through exposure to real-world social issues and sustained engagement, students may develop value-oriented beliefs that are expressed in responsible behaviours such as empathy, civic responsibility, and advocacy (Liu & Liu, 2019; Liu et al., 2020; Soria & Johnson, 2020). Taken together, these arguments suggest that co-curricular engagement is positively associated with leadership competence overall. Therefore, the following overarching hypothesis is proposed.

Hypothesis 1. Different types of co-curricular engagement are positively associated with students' leadership competence, although the strength of these associations may vary across competence dimensions.

Gender and urban or rural background as moderating variables

Moreover, this study treats gender and urban or rural background as stratifying variables rather than demographic background variables. Recent higher education research has shown that gender may influence students' learning outcomes, leadership identity, communication roles, and collaborative participation. Urban–rural background may reflect differences in students' educational resources, social capital, information channels, and career-related opportunities. In the Chinese context, these two dimensions are closely related to the organization of educational opportunities. Gendered role expectations may influence students' self-positioning and participation in communication-intensive and teamwork-based activities. Urban-rural differences may influence students' access to and familiarity with professional networks, internship environments, and practice-based resources. Therefore, both are understood as important stratifying variables that may influence students' access to co-curricular opportunities, their participation processes, and the translation of participation into leadership-related outcomes. Table 1 summarizes recent studies on the influence of gender and urban or rural background on higher education experiences and outcomes, providing a basis for the variable selection in this study.

Table 1
Recent Literature Basis for Gender and Urban-Rural Background as Stratifying Variables

Review point	Key argument for this study	Relevance to the Chinese context	Representative studies
Gender in higher education outcomes	Gendered learning and communication outcomes	Differentiated student development pathways	Driscoll et al., 2024; Wang & Wareewanich, 2024
Gender in Chinese higher education leadership identity	Gendered leadership identity and role expectations	Women's leadership participation and self-positioning	Wang & Wareewanich, 2024; Bao & Yuan, 2024; Yuan & Tian, 2023
Gender in collaborative learning	Gendered interaction and teamwork patterns	Communication- and collaboration-based activities	Feng et al., 2023; Wu & Wang, 2023
Urban-rural inequality in Chinese higher education	Unequal access to higher education opportunities	Rural students' accumulated educational disadvantage	Wen et al., 2023; Wang et al., 2024
Urban-rural inequality and rural hukou	Hukou-based and spatial opportunity gaps	Career information, networks, and internship familiarity	Wang et al., 2024; Crain & Newlin, 2021
Intersecting spatial and social inequalities	Intersecting spatial and social inequalities	Opportunity structures beyond individual choice	Zahl-Thanem & Rye, 2024; Wen et al., 2023

Existing research indicates that women often show stronger engagement or outcomes in contexts with intensive collaboration and communication, particularly in team collaboration, communication and relationship management, social responsibility,

and empathy (Bonesso et al., 2024; Driscoll et al., 2024; Soria & Johnson, 2020). In Chinese universities, such gender differences may be further shaped by role expectations, communication norms, and teamwork arrangements embedded in structured co-curricular activities (Feng et al., 2023; Wang & Wareewanich, 2024). Based on this, the study expects stronger correlations with leadership competences among women in high interaction and relationship oriented co-curricular activities such as DCW, CIIE, and CSPWP. Specifically, DCW and CIIE involve intensive team collaboration, suggesting that women may show stronger associations with CT in such activities (Bonesso et al., 2024; Soria & Johnson, 2020); CIIE and CSPWP are characterized by deep interpersonal interaction, suggesting that women may show stronger associations with CI (Driscoll et al., 2024; Lucero et al., 2019); while SR, which highly depends on prosocial behaviour and ethical resonance, exhibits significant gender moderation in practice activities centred on public welfare such as CSPWP (Hameduddin & Engbers, 2022). Taken together, these arguments suggest that women may show stronger associations between selected highly interactive and relationship-oriented co-curricular activities and leadership competence. Therefore, the following hypothesis was proposed.

Hypothesis 2. Gender moderates selected associations between co-curricular engagement and leadership competence, with stronger associations expected for women in highly interactive and relationship-oriented activities.

Differences that ensue from urban or rural background are not only reflected in educational resources and social capital but may also shape students' access to and use of industry placements such as corporate internships. Recent studies based on Chinese samples indicate that urban and rural students face significantly different resource and opportunity structures during higher education and early postgraduation periods, including differences related to household registration status, information access, and career-related networks (Bao et al., 2023; Qian & Smyth, 2008; Wang et al., 2024; Wen et al., 2023). CIIE is an opportunity driven activity type highly dependent on resource endowments and contextual integration. This study infers that rural students may face more barriers in accessing, interpreting, and translating internship experiences into leadership-related outcomes compared with urban and town students. Specifically, due to relatively insufficient prior resources, industry familiarity, and professional networks, they may face greater challenges in knowledge absorption, transformation, and rapid adaptation to team collaboration modes in unstructured internship environments (Bao et al., 2023; Paricio et al., 2020; Sk & Halder, 2020; Stone, 2021; Wang et al., 2024). These arguments suggest that urban–rural background may shape the strength of associations linked to internship-related co-curricular engagement, especially for competence dimensions closely related to learning and collaboration. Therefore, the following hypothesis was proposed.

Hypothesis 3. Urban-rural background moderates the association between corporate internships and industry experience and leadership competence, with weaker associations expected for rural students than for city/town students.

The conceptual model summarizes expected associations between co-curricular engagement and leadership competence and specifies moderation by gender and urban–rural background, as shown in Figure 1.

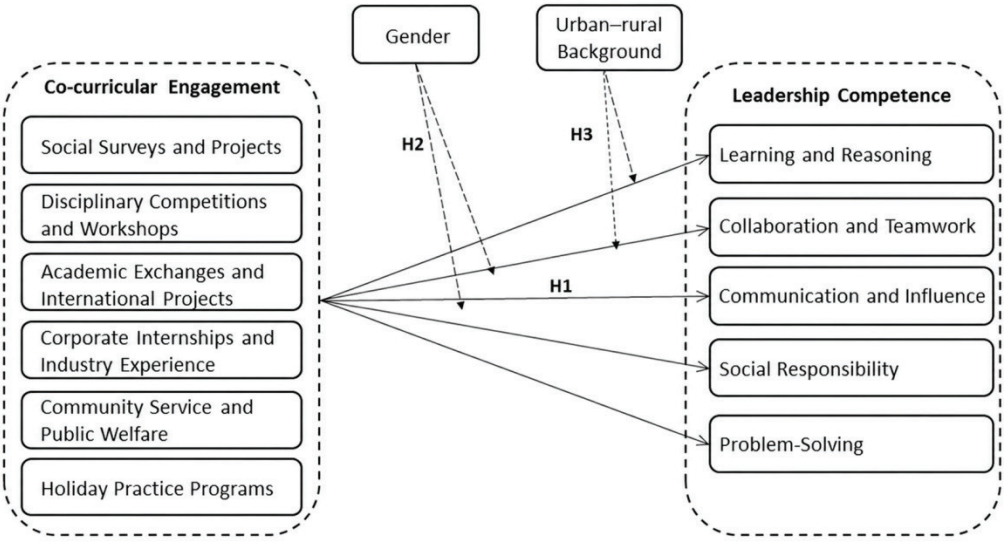


Figure 1. Conceptual Model

Methodology

Research design and participants

This study used a cross-sectional survey to examine links between co-curricular engagement and leadership competence among undergraduates in central China, and to assess whether these associations differed by gender and urban–rural background. The setting comprised two comprehensive public universities in Henan Province where co-curricular programs were institutionally supported. Fourth year students at the two institutions (10,533 and 8,578) were targeted because they had typically completed most coursework and accumulated substantive practical experience. According to common sample size tables, the minimum per school was about 370, with a total target of about 740. Data were collected online from April to July 2025 under university coordination. Of 800 returns, 752 satisfied the validity criteria (94.0%).

Measures and measurement quality

The questionnaire recorded demographic information on gender and urban-rural background, operationalized through residence, as well as two multi-item constructs. Co-curricular activities were captured on five-point Likert scales across six dimensions derived from experiential learning, service learning, and high-impact practices literature and localized to Chinese universities (total 30 items). Items emphasized behavioural engagement rather than engagement frequency. Leadership competence

was measured on parallel five-point scales across five dimensions (total 28 items) selected for their relevance to leadership-related outcomes in co-curricular contexts. These scales were adapted from widely used instruments with wording adjusted for cultural and institutional fit and were informed primarily by established measures of student leadership, teamwork, communication, civic engagement, and problem solving (e.g., Posner, 2016; Ren et al., 2023). Before the main survey, the draft instrument was reviewed by experts and refined through pilot testing. Content validity was assessed using the Index of Item Objective Congruence (IOC), and items with unclear wording or insufficient relevance were revised or removed. A pilot test was subsequently conducted to examine item clarity and contextual appropriateness, and several items were further reworded or deleted before the final questionnaire was administered. Full item wording and measurement properties are provided in the appendix and Table 2.

Table 2
Sources, Structure, and Sample Items of the Measurement Scales

Construct	Items	Scale	Sample item	Source
Social survey and projects	5	1–5 Likert	"I work with my team to set the goals for social surveys and related projects."	Self-developed (informed by high-impact practices; Kolb, 2015)
Disciplinary competitions and workshops	5	1–5	"I encourage teams to be innovative and try different solutions."	Self-developed (informed by high-impact practices; Kuh, 2008)
Academic Exchanges and international programs	4	1–5	"I respect members with different cultural and disciplinary backgrounds."	Self-developed (informed by international exchange literature; Kuh, 2008)
Corporate internships and industry experience	5	1–5	"My internship has allowed me to bridge theory and practice"	Self-developed (informed by experiential learning; Kolb, 2015; internship literature)
Community service and public welfare	5	1–5	"I advocate for and practice principles of fairness and inclusion."	Self-developed (informed by service-learning literature; e.g., Yorio & Ye, 2012)
Holiday practice programs	6	1–5	"I actively put forward ideas and encourage innovative approaches."	Self-developed (informed by high-impact practices; Kuh, 2008)
Learning and reasoning	5	1–5	"I am able to draw key lessons from past experiences."	Adapted from SLCI (Seemiller, 2013; Rosch & Seemiller, 2018)
Collaboration and teamwork	5	1–5	"I encourage team members to make the most of their strengths."	Adapted from CATME Team Tools (Ohland et al., 2012)
Communication and influence	6	1–5	"I am able to communicate respectfully and rationally in the face of conflict."	Adapted from SPCC (McCroskey & McCroskey, 1988)
Social responsibility	6	1–5	"I have a responsibility to make a positive impact on my community."	Adapted from CES (Doolittle & Faul, 2013)
problem solving	6	1–5	"I manage to remain calm and systematically look for solutions."	Adapted from PSI (Heppner & Petersen, 1982)

Measurement quality was assessed before modelling. Content validity used the index of item objective congruence (IOC). The final instrument achieved a mean IOC of 0.894, indicating strong content validity. Internal consistency was high across dimensions (Cronbach's α ranged from .848 to .908). Composite reliability ranged from .849 to .907, AVE from .585 to .623, and standardized factor loadings from .740 to .813, indicating acceptable convergent validity (Hu & Bentler, 1999; Kline, 2016). Because the measurement framework consisted of two conceptually distinct blocks, confirmatory factor analyses were conducted separately for the six-factor co-curricular engagement scale and the five-factor leadership competence scale. Full properties (α, CR, AVE, loading ranges) are reported in Table 3, and the corresponding CFA path diagrams are presented in Figures 2 and 3.

Table 3
Reliability, Convergent Validity, and CFA Fit of the Measurement Scales

Model	Construct	α	CR	AVE	Std. loading	χ^2/df	CFI	TLI	RMSEA	SRMR
Co-curricular engagement	Social survey and projects	.876	.876	.586	.758-.773	1.058	.998	.998	.009	.027
	Disciplinary competitions and workshops	.877	.879	.592	.752-.795					
	Academic exchanges and international programs	.848	.849	.585	.746-.789					
	Corporate internships and industry experience	.885	.885	.607	.740-.794					
	Community service and public welfare	.885	.887	.611	.758-.799					
	Holiday practice programs	.901	.902	.606	.746-.794					
Leadership competence	Learning and reasoning	.882	.882	.599	.748-.813	2.743	.951	.946	.048	.066
	Collaboration and teamwork	.906	.886	.609	.771-.795					
	Communication and influence	.892	.907	.621	.769-.797					
	Social responsibility	.908	.908	.623	.764-.800					
	Problem solving	.897	.897	.591	.757-.800					

Note. N = 752. CR = composite reliability; AVE = average variance extracted. Fit indices are reported at the model level. Standardized loading ranges are based on AMOS standardized estimates.

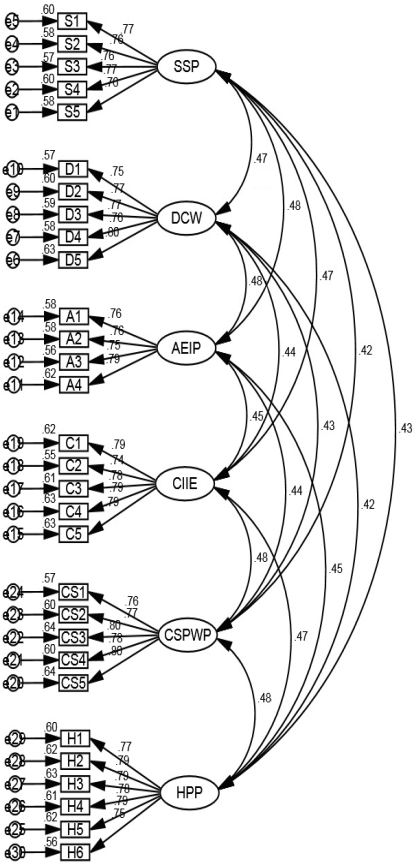


Figure 2. Confirmatory factor analysis model of co-curricular engagement

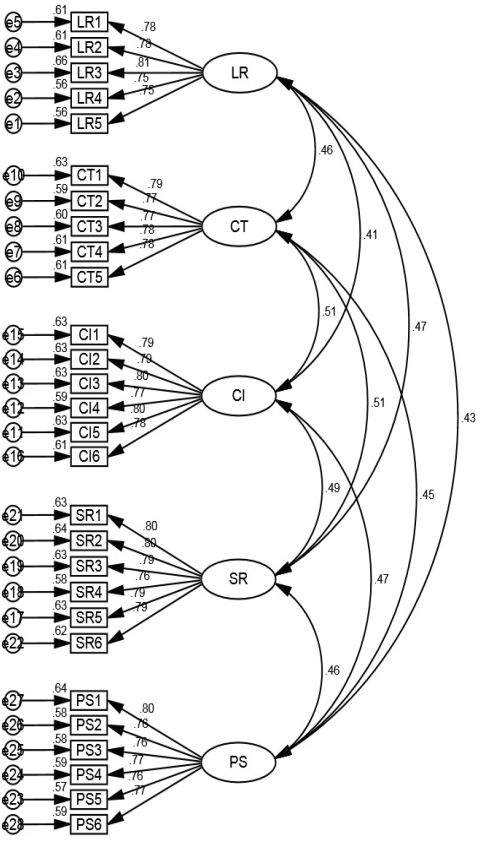


Figure 3. Confirmatory factor analysis model of leadership competence

Procedure and ethics

The survey link and information sheet were distributed through the academic affairs offices. Participation was voluntary and anonymous, with an informed consent obtained electronically before the implementation. The study complied with institutional ethical guidelines and received approval from the university review committee. All statistical analyses were conducted using SPSS 26.0 and AMOS 26.0.

Statistical analysis

Analyses followed the conceptual model in three stages. First, descriptive statistics and Pearson correlations were computed for the independent and dependent variables. Second, for each leadership competence dimension, three-block hierarchical ordinary least squares regressions were conducted to estimate the correlations of co-curricular engagement with leadership competences and to test moderation by gender and urban-rural background. In the hierarchical models, Block 1 included gender and

urban-rural background as control variables. Gender was coded as female = 1 and male = 0. Urban-rural background was represented by two dummy variables for town and rural categories, with city as the reference category. Block 2 added the six practice variables, centred at the grand mean, to aid interpretation and mitigate multicollinearity when interactions were included. Block 3 added the prespecified interaction terms (gender × practice; urban–rural background × practice). HC3 robust standard errors were computed. Model improvement was evaluated using changes in R squared and F statistics. Prior to the regression analyses, linearity was examined using standardized residual-versus-predicted plots. No obvious curvilinear patterns were observed, and the relationships between predictors and the dependent variables appeared approximately linear. Diagnostics otherwise showed no concerning departures from assumptions, and VIF values were below common thresholds.

Results

Descriptive statistics and correlations

Table 4 presents the descriptive statistics and normality test results for the five dependent variables. All five leadership competence dimensions were at a moderately high level, with mean scores ranging from 3.28 to 3.32 and standard deviations from 0.91 to 0.99, indicating generally positive performance with some individual variation. The Kolmogorov–Smirnov tests for all dimensions were non-significant ($p > .05$), and both skewness (0.033 to 0.195) and kurtosis (-1.035 to -0.862) were within acceptable ranges. These results indicate that the dependent variables did not show substantial departures from normality and therefore supported the use of parametric analyses.

Table 4

Descriptive Statistics and Normality Diagnostics for the Dependent Variables

Variable	N	M	SD	Skewness	SE of Skewness	Kurtosis	SE of Kurtosis	K–S	p
Learning and reasoning	752	3.278	0.955	0.105	0.089	-0.938	0.178	0.078	0.145
Collaboration and teamwork	752	3.283	0.979	0.159	0.089	-1.027	0.178	0.091	0.051
Communication and influence	752	3.319	0.908	0.195	0.089	-0.862	0.178	0.050	0.114
Social responsibility	752	3.308	0.989	0.033	0.089	-1.035	0.178	0.065	0.054
Problem solving	752	3.307	0.936	0.105	0.089	-0.897	0.178	0.099	0.101

Note. K–S = Kolmogorov–Smirnov test with Lilliefors significance correction. The dependent variables were computed as mean scores for each competence dimension.

The six engagement indicators of the independent variables (SSP, DCW, AEIP, CIIE, CSPWP, HPP) exhibited moderate to high intercorrelations ($r \approx .38$ - $.68$), indicating that these activities were interrelated and may reflect a broader pattern of engagement breadth/intensity. Each engagement indicator showed small to moderate positive

correlations ($r \approx .35$ - $.47$, $p < .01$) with the five dependent variables, indicating that higher levels of co-curricular engagement were associated with higher self-reported levels of leadership competence (LR, CT, CI, SR, and PS). The five competencies also exhibited small to moderate correlations ($rs \approx .38$ - $.54$), consistent with their shared orientation toward the broader leadership construct. Complete descriptive statistics and correlation matrices are presented in Table 5.

Hierarchical regression analyses

Each model had three blocks: Block 1 included gender and urban-rural background, Block 2 included six engagement indicators, and Block 3 included prespecified interactions. Compared with Block 1, Block 2 significantly improved model fit ($\Delta R^2 = .143$-$.208$). After controlling for gender and urban-rural background, the engagement indicators explained significant additional variance in the leadership competence dimensions (Table 6). The hypothesized main associations were then examined. Co-curricular engagement was positively associated overall, although selectively across competence dimensions. SSP, DCW, and CIIE were positively associated with learning and reasoning (LR). CSPWP and SSP were positively associated with collaboration and teamwork (CT). Communication and influence (CI) was positively associated with DCW and HPP, while social responsibility (SR) was positively associated with CSPWP and HPP. Problem solving (PS) was positively associated with SSP, CIIE, and HPP. AEIP showed no significant associations. These patterns were broadly consistent with H1.

Table 5
Descriptive Statistics and Pearson Correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1.SSP	3.38	0.936	1										
2.DCW	3.38	0.934	.681**	1									
3.AEIP	3.36	0.945	.671**	.671**	1								
4.CIIE	3.32	0.974	.409**	.393**	.386**	1							
5.CSPWP	3.39	0.953	.375**	.374**	.384**	.422**	1						
6.HPP	3.38	0.946	.380**	.374**	.394**	.414**	.684**	1					
7.LR	3.28	0.955	.351**	.355**	.344**	.417**	.422**	.401**	1				
8.CT	3.28	0.979	.413**	.431**	.413**	.393**	.440**	.401**	.408**	1			
9.CI	3.32	0.908	.427**	.459**	.430**	.445**	.418**	.405**	.405**	.542**	1		
10.SR	3.31	0.989	.440**	.432**	.445**	.461**	.420**	.426**	.416**	.455**	.470**	1	
11.PS	3.31	0.936	.405**	.404**	.389**	.427**	.345**	.378**	.377**	.402**	.448**	.417**	1

Note. N = 752. Pearson r; lower triangle shown. Two-tailed tests. ** $p < .01$, * $p < .05$. Abbreviations as defined in the text

Table 6
Hierarchical Regression Analyses Predicting Leadership Competence

Variable	LR			CT			CI		
	B(SE)	β	p	B(SE)	β	p	B(SE)	β	p
Block 1									
Female	0.063 (0.060)	.033	.290	0.253 (0.066)	.128	< .001	0.588 (0.055)	.320	< .001
Town	-0.502 (0.066)	-.245	< .001	0.013 (0.072)	.006	.870	-0.045 (0.059)	-.023	.430
Rural	-0.870 (0.083)	-.364	< .001	-0.225 (0.090)	-.092	.011	-0.184 (0.075)	-.081	.019
Block 2									
SSP	0.218 (0.041)	.197	< .001	0.186 (0.084)	.157	.028	-0.040 (0.128)	-.040	.753
DCW	0.237 (0.042)	.236	< .001	0.073 (0.154)	.069	.636	0.274 (0.028)	.280	< .001
AEIP	0.051 (0.132)	.050	.692	-0.065 (0.144)	-.062	.671	-0.080 (0.120)	-.083	.505
CIIE	0.222 (0.065)	.226	.001	0.091 (0.071)	.090	.207	0.067 (0.059)	.072	.262
CSPWP	0.081 (0.113)	.080	.216	0.288 (0.073)	.277	< .001	-0.101 (0.102)	-.105	.323
HPP	0.098 (0.113)	.096	.377	0.008 (0.123)	.008	.950	0.181 (0.090)	.185	.041
Block 3									
Female× DCW	0.099 (0.148)	.074	.507	0.138 (0.061)	.100	.026	0.129 (0.134)	.101	.345
Female× CIIE	0.048 (0.069)	.037	.486	0.137 (0.065)	.120	.035	0.176 (0.072)	.142	.022
Female× CSPWP	0.101 (0.129)	.075	.433	0.041 (0.140)	.030	.759	0.399 (0.116)	.312	< .001
Rural×CIIE	-0.179 (0.091)	-.125	.038	-0.171 (0.079)	-.129	.031	0.056 (0.082)	.024	.508
R^2 B1/B2/B3	.271/.413/.437			.230/.438/.464			.265/.445/.494		
Adj. R^2	.262/.402/.411			.220/.425/.435			.257/.434/.471		
ΔR^2	.143			.208			.180		
B2 vs B1									
ΔR^2	.024			.026			.049		
B3 vs B2									

Variable	SR			PS		
	B(SE)	β	p	B(SE)	β	p
Block 1						
Female	0.381 (0.063)	.191	< .001	0.201 (0.063)	.108	< .001
Town	-0.157 (0.108)	-.074	.153	-0.301 (0.068)	-.152	.002
Rural	-0.375 (0.086)	-.152	< .001	-0.295 (0.086)	-.127	< .001
Block 2						
SSP	0.060 (0.147)	.056	.681	0.228 (0.097)	.228	.021
DCW	0.063 (0.147)	.060	.673	0.058 (0.148)	.058	.721
AEIP	0.097 (0.117)	.093	.406	-0.039 (0.138)	-.039	.863
CIIE	-0.044 (0.117)	-.041	.702	0.145 (0.068)	.152	.034
CSPWP	0.197 (0.038)	.182	< .001	-0.056 (0.118)	-.057	.543
HPP	0.146 (0.068)	.124	.031	0.172 (0.078)	.173	.031
Block 3						
Female× DCW	0.076 (0.154)	.055	.623	0.188 (0.154)	.145	.220
Female× CIIE	0.123 (0.071)	.091	.082	0.113 (0.072)	.090	.128
Female× CSPWP	-0.047 (0.134)	-.034	.711	0.013 (0.134)	.010	.927
Rural×CIIE	0.100 (0.094)	.041	.288	-0.030 (0.094)	-.013	.327
R^2 B1/B2/ B3	.308/.509/.531			.245/.426/.451		
Adj. R^2	.299/.497/.505			.235/.413/.421		
ΔR^2	.201			.181		
B2 vs B1						
ΔR^2	.049			.025		
B3 vs B2						

Note. N = 752. Continuous predictors were grand-mean centred. Gender was coded as female = 1 and male = 0. Urban-rural background was represented by two dummy variables for town and rural categories, with city as the reference category. All tests were two-tailed.

Interaction effects

Prespecified interaction terms were added in Block 3, which improved model fit across outcomes (ΔR^2 = .024 to .049; Table 6), and simple slopes were evaluated at -1 standard deviation, the mean, and +1 standard deviation of the centred predictors, as shown in Figures 4 to 6.

Gender moderation (H2). The CT dimension showed two significant interaction terms, indicating that the positive associations of CIIE and DCW with CT were stronger for women than for men. As shown in Figure 4, the association with CT was stronger for women than for men under these forms of engagement. The CI dimension showed two significant interaction terms, indicating that the positive associations of CIIE and CSPWP with CI were also stronger for women than for men. As shown in Figure 5, the simple slope for women was significantly positive, whereas the slope for men was near zero for CIIE and negative for CSPWP. In SR, the interactions female × CIIE and female × CSPWP were not significant. Taken together, these findings provided partial support for H2.

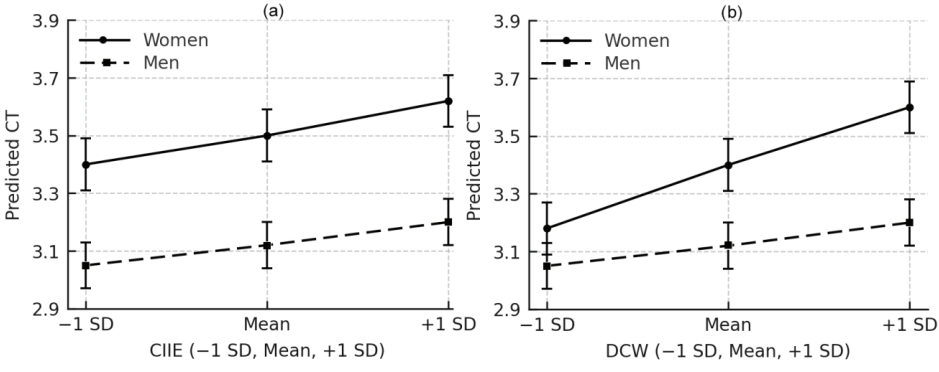


Figure 4. CT Simple Slopes by Gender: (a) CIIE, (b) DCW

Note. Predicted CT at −1 SD, mean, and +1 SD of engagement (centred) by gender; error bars = 95% CIs.

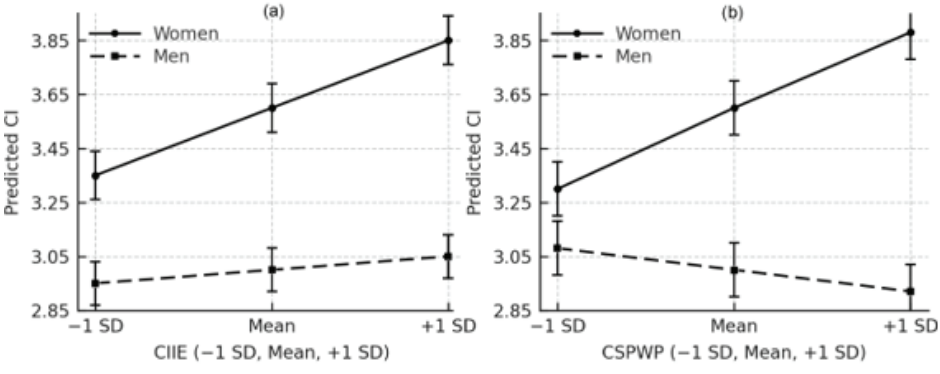


*Figure 5***.** CI Simple Slopes by Gender: (a) CIIE, (b) CSPWP

Note. Predicted CI at −1 SD, mean, and +1 SD of engagement (centred) by gender; error bars = 95% CIs.

Urban-rural background moderation (H3). The rural × CIIE interaction was significant for LR and CT. Simple slope tests showed that city and town students had similarly positive associations between CIIE and LR, whereas the association was weaker among rural students (Figure 6). For CT, city and town students showed a slight positive slope, whereas the rural group showed a slight negative slope (Figure 6). These patterns indicated that the associations between CIIE and these competence dimensions were weaker for rural students. These findings supported H3.

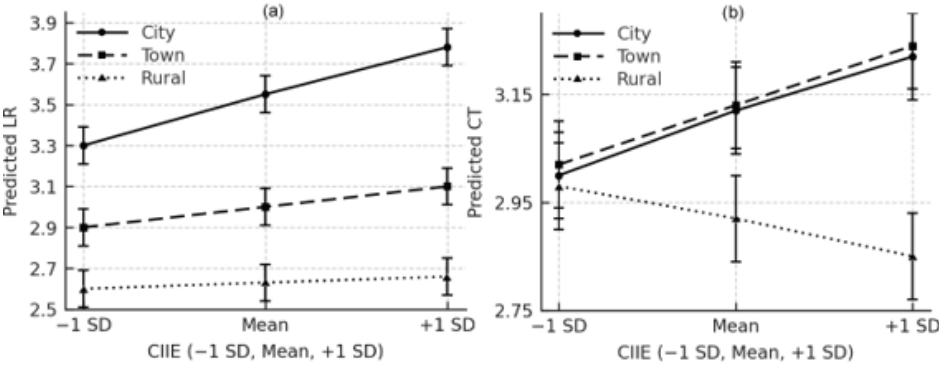


Figure 6. Simple Slopes by Urban-Rural Background for LR × CIIE and CT × CIIE

Note. Predicted values at −1 SD, mean, and +1 SD of CIIE (centred) by urban–rural background, represented by city, town, and rural categories. City was the reference category. Error bars = 95% CIs.

Robustness and diagnostics

Diagnostics supported model adequacy and robustness. Multicollinearity was acceptable (all VIFs < 5, tolerances > .20, and the maximum condition index < 30). Visual inspection of the standardized residual-versus-predicted plots suggested no substantial deviations from linearity, and HC3 robust standard errors were used to address potential heteroscedasticity. No influential cases were detected based on Cook's D and DFBETAs, and the Durbin–Watson statistic was approximately 2. The overall pattern of main associations and moderation results remained unchanged.

Discussion

Research findings and interpretation

The findings indicated that the various dimensions of college students' leadership competence were not associated with a single type of co-curricular activity alone, but rather with multiple forms of co-curricular activities. LR was most strongly associated with SSP, DCW, and CIIE. This is consistent with prior evidence suggesting that experiential learning and high-impact practices are linked to higher-order cognitive and metacognitive skills (Bonesso et al., 2024; Salam et al., 2019; Soria & Johnson, 2020). Specifically, SSP may provide real-world problems and evidence appraisal, DCW may offer high-challenge argumentation cycles, and CIIE may support knowledge transfer in unstructured contexts (Lange & Stewart, 2019; Lucero et al., 2019). CT was

also associated with multiple types of activities, with CSPWP showing the strongest association and SSP showing a secondary association. This pattern may reflect the practical components of CSPWP, such as role rotation, task division, and peer evaluation, which may provide opportunities for students to practice coordination, conflict management, and responsibility sharing through continuous cycles (Bonesso et al., 2024; Salam et al., 2019; Soria & Johnson, 2020), while SSP may involve team planning, division of labour, and execution through collaborative processes (Lange & Stewart, 2019; Lucero et al., 2019).

In terms of CI, this study indicates that CI was mainly associated with DCW and HPP. Prior findings suggest that high-challenge public presentation and public service contexts are linked to expression and persuasion skills (Bonesso et al., 2024; Salam et al., 2019; Soria & Johnson, 2020). One possible explanation is that DCW may provide opportunities for students to practice comprehensive expression skills, whereas HPP may place students in real-world social interactions with diverse audiences, requiring them to flexibly switch roles, communicate across contexts, and engage in public storytelling (Lucero et al., 2019; Komives & Wagner, 2017). SR was mainly associated with CSPWP and HPP. This aligns with the core principles of service learning, where engagement with real communities is closely linked to civic responsibility and empathy (Hameduddin & Engbers, 2022; Salam et al., 2019; Soria & Johnson, 2020). HPP, especially activities like the Three Rural Areas initiative in China, may help students connect macro-level value concepts with embodied social responsibility actions through periodic immersive engagement. Such activities may be associated with students' identification with collective well-being and their expression of value beliefs through observable responsibility practices (Komives & Wagner, 2017). PS showed a convergent pattern of association with SSP, CIIE, and HPP, consistent with classic findings on high-impact practices. Unstructured problems and real-world tasks may support problem definition, information integration, and iterative solution development (Lange & Stewart, 2019; Lucero et al., 2019; Bonesso et al., 2024; Soria & Johnson, 2020). Notably, AEIP did not show robust associations in this sample.

Women showed stronger associations between CIIE and CSPWP and CI, and between CIIE and DCW and CT, whereas men showed relatively weaker associations on these paths. This pattern is consistent with prior work suggesting that women often show stronger engagement or outcomes in communication-intensive, relationship-oriented, high-interaction settings (Bonesso et al., 2024; Driscoll et al., 2024; Soria & Johnson, 2020). In the Chinese higher education context, these patterns may also reflect gendered role expectations, communication norms, and teamwork arrangements embedded in organized co-curricular activities, where female students may be more likely to take on coordinative, relational, or communication-oriented roles. Taken together, these findings are consistent with the expectation that selected associations between co-curricular engagement and leadership competence vary by gender.

Rural students appeared to show weaker associations between CIIE and LR and CT than city and town students. Prior studies show that urban-rural background is

linked to disparities in resources and opportunity structures, especially in activities that depend strongly on external conditions, institutional support, and professional networks (Bao et al., 2023; Li et al., 2025; Qian & Smyth, 2008; Wang et al., 2024). Possible mechanisms include relatively limited prior exposure to industry settings, less extensive professional networks, and fewer opportunities to become familiar with implicit team scripts in unstructured internship tasks (Bao et al., 2023; Wang et al., 2024). These results are consistent with the expectation that urban-rural background shapes the associations linked to internship-related co-curricular engagement.

Theoretical Contributions

This study makes three main theoretical contributions. First, it offers a more differentiated account of the relationship between co-curricular engagement and leadership competence by examining six activity types in relation to five dimensions of leadership competence. In doing so, it moves beyond broader treatments of co-curricular engagement and suggests that different forms of participation are associated with different leadership competence dimensions (Bonesso et al., 2024; Lucero et al., 2019; Soria & Johnson, 2020). Second, the study suggests that the associations linked to co-curricular engagement are not uniform across student groups. By identifying selected pathway differences by gender and urban-rural background, it suggests that observed differences in leadership competence are shaped not only by participation itself but also by the opportunity structures and prior resources through which participation is linked to competence outcomes. Third, this study provides evidence from universities in central China and uses this context to examine how discussions of co-curricular engagement and leadership competence may be reinterpreted beyond Western higher education settings (McConnell, 2024; Wen et al., 2023; Zahl-Thanem et al., 2024). Bringing co-curricular practices, urban-rural disparities, and opportunity structures into a single analytical framework helps broaden the contextual scope of research on student leadership competence.

At the methodological level, this study adapted and refined relevant measurement instruments for the context of co-curricular engagement in Chinese universities. Their applicability was examined through expert review, pilot testing, and confirmatory factor analysis. Although the study does not aim to propose an entirely new scale system, the resulting multidimensional measurement framework provides a useful reference for future research on co-curricular engagement and student leadership competence in similar contexts.

Management Implications

Based on the patterns identified in this study, student affairs units could shift from uniform program management to an outcomes-aligned framework that matches co-curricular pathways to diagnosed competence needs. The scheme starts with a baseline diagnosis of students' competence, identifies dominant and auxiliary co-curricular activities, and sets difficulty ranges as the basis for program adjustments. Taking

learning and reasoning as an example, the core pathway could primarily consist of disciplinary competitions and workshops, supplemented by corporate internships and social surveys. The proportions of these three types of activities could be roughly set at 30-40%, 25-35%, and 25-35%, respectively. When resources are limited, support measures should be prioritized for critical bottlenecks in the main pathway activities to improve resource allocation efficiency. In the context of central Chinese universities, DCW should prioritize competitions oriented to entrepreneurship and innovation (e.g., Challenge Cup), with each team assigned a faculty methods mentor and an industry mentor; CIIE should rely on practice bases jointly established with enterprises to complete problem definition, evidence compilation, and a methodology log within 4 to 6 weeks; SSP projects can focus on regional real-world issues, advancing weekly through problem definition, questionnaires or interviews, and evidence compilation, with a joint review by the university and local partners.

Building on the general pathway, student affairs should implement equity-oriented tiered supports for key groups (Soleimani Babadi, 2025), as activity-competence associations differ across groups. For men, the focus should be on strengthening communication and influence and collaboration and teamwork. It is recommended to embed a mandatory presentation, defence, and guided reflection process in disciplinary competitions and workshops, community service activities, and academic projects to provide more structured opportunities for practicing expression and collaboration. For rural students, corporate internships and industry experience appear to be less strongly associated with learning and reasoning, and collaboration and teamwork. Student affairs units may implement a three-part support mechanism that includes pre-internship training, individual industry mentors plus peer learning groups, and practical support such as travel subsidies and flexible scheduling. At the same time, employers should be consulted to clarify responsibilities, timelines, and evaluation criteria for internship positions, thereby improving task feasibility and outcome measurability.

To ensure effective operation of the above adaptation and group supports, student affairs should establish an evidence-informed cycle of program evaluation and continuous improvement. First, a standardized program repository should be established to define task norms and ethical and safety provisions for co-curricular activities, and to integrate process data and student competence evidence into a unified platform. Second, annual program reviews should grade programs and collaborating units based on two key indicators, competence outcomes and resource efficiency. Third, a results-linked incentive system should connect assessment results to credit recognition, scholarship decisions, faculty evaluations, and partner selection, shifting co-curricular practice from engagement to outcomes (Lange & Stewart, 2019; Soria & Johnson, 2020). Finally, the baseline to process to outcome feedback loop should be strengthened by integrating admissions, training, and career services information to enable comparisons across terms and units.

The above three measures are interconnected and mutually reinforcing for student affairs practice. Through systematic evidence collection, dynamic feedback, and results-linked incentives, student affairs units can translate research findings into actionable, measurable, and scalable co-curricular programs while improving resource efficiency, thereby supporting learning outcomes and equity in leadership-related competence development.

Research limitations and future directions

This study was based on a cross-sectional survey and therefore cannot support strong causal inference. In addition, the sample was drawn from fourth-year students at two public universities in central China, so the findings should be generalized with caution. The interpretation of gender and urban-rural background differences also remains tentative because the present survey could not directly observe the role expectations, interaction norms, information access, or institutional processes through which these differences may be produced. The measures were also based on self-reported responses, which may be subject to common-method bias and social desirability bias. Future research could use longitudinal tracking, quasi-experimental designs, and multiple sources of evaluation (e.g., peer assessments, instructor ratings, and process data) to examine these relationships more dynamically and across a wider range of institutional contexts. It is also advisable to conduct small pilot assessments across regions and institution types to test the scalability of co-curricular programs and group-tailored models.

Ethics statement

Approved by the Institutional Review Board at the blinded institution; protocol details withheld to preserve anonymity. Electronic informed consent was obtained from all participants.

Competing Interests

The authors declare no competing interests.

Data availability

De-identified data and code are available upon reasonable request during review; an archival repository link will be provided upon acceptance.

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Od izvannastavnih aktivnosti do kompetencije vodstva na sveučilištima u središnjoj Kini: struktura prilika i razlike između urbane i ruralne sredine

Sažetak

Ovom studijom ispitivalo se je li sudjelovanje u izvannastavnim aktivnostima povezano s kompetencijama vodstva među studentima na dva sveučilišta u središnjoj Kini te varira li ta povezanost ovisno o spolu i urbanom/ruralnom podrijetlu. Koristeći podatke iz ankete provedene sa 752 preddiplomskih studenta, primijenjen je regresijski model temeljen na perspektivi urbane strukture prilika kako bi se ispitala moguća objašnjenja za razlike između studenata na osnovi urbanoga i ruralnoga okružja. Rezultati su pokazali da su stažiranja i natjecanja unutar akademskih disciplina pozitivno povezana s učenjem i rasuđivanjem, komunikacijom i kompetencijom vodstva te rješavanjem problema; volontiranje je pozitivno povezano sa suradnjom i timskim radom te društvenom odgovornošću, a aktivnosti praktične nastave tijekom praznika pozitivno su povezane s komunikacijom i sposobnosti vođenja, društvenom odgovornošću i rješavanjem problema. Spol i urbana, tj. ruralna pozadina modulirali su određene putove. Prakse i volontiranje u zajednici pokazale su jače povezanosti sa suradnjom i timskim radom te s komunikacijom i kompetencijom vodstva među studenticama, dok su studenti iz ruralnih područja pokazali slabije povezanosti s praksama, osobito u učenju i timskom radu. Ova studija doprinosi literaturi pokazujući da su dobivene, društveno diferencirane korelacije proizašle iz izvannastavnoga angažmana studenata. Dobiveni rezultati također mogu informirati o nastojanjima studentskih službi u usklađivanju dizajna izvannastavnih aktivnosti s planiranim ishodima, pružanju mentorske i vremenske podrške te uspostavljanju prilagođenih razvojnih putova za ključne skupine.

Ključne riječi: *kompetencija vodstva; moderatorska uloga spola; moderatorska uloga urbanoga/ruralnoga podrijetla; praksa podrške studentima; sudjelovanje u izvannastavnim aktivnostima*

Uvod

U visokom obrazovanju sve se više naglašava razvijanje sposobnosti vođenja studenata uz disciplinarno znanje, a kompetencija vodstva povezana je s razvojem karijere i socijalnom prilagodljivošću (Komives i Wagner, 2017; Soria i Johnson, 2020). Praktični izvannastavni oblici učenja, uključujući iskustveno učenje, učenje u okviru službe i učinkovite prakse prepoznaju se kao ključni putovi. Te aktivnosti uključuju studente u složenost stvarnoga svijeta i slabo strukturirane zadatke te koriste vođenu refleksiju kako bi se iskustvo pretvorilo u razvoj kompetencija (Bonesso i sur., 2024; Kolb, 2015; Lange i Stewart, 2019; Salam i sur., 2019). U kontekstu kineskoga visokog obrazovanja takve se aktivnosti obično nazivaju izvannastavnom praksom i postupno su institucionalizirane političkim inicijativama (Weng i Yan, 2018). Međutim, dokazi koji jasno razlikuju koje se vrste aktivnosti podudaraju s kojim dimenzijama vodstva i kako se te poveznice razlikuju u gradskim kontekstima ostaju ograničeni, osobito izvan zapadnih konteksta (Bonesso i sur., 2024; Driscoll i sur., 2024; Kuh, 2008; McConnell, 2024; Wen i sur., 2023; Zahl-Thanem i sur., 2024). Nastojeći premostiti taj jaz, u ovoj studiji definira se šest vrsta izvannastavnih aktivnosti kao pet dimenzija kompetencije vodstva te ispituje spol i urbanu i ruralnu pozadinu kao stratifikacijske varijable, tumačeći grupne razlike kroz prizmu strukture prilika operacionalizirane kao intenzitet prilika i organizacijski okviri.

Prethodne studije uglavnom su proučavale utjecaj određene vrste izvannastavnih aktivnosti (npr. društveno koristan rad, stažiranje, natjecanja) na određeni tip vodstva (npr. transformacijsko vodstvo, uslužno vodstvo), pri čemu nedostaje sustavno ispitivanje diferenciranih povezanosti između različitih izvannastavnih aktivnosti i višedimenzionalne strukture sveobuhvatne voditeljske kompetencije (Lucero i sur., 2019; Soria i Johnson, 2020). Zapravo, vodstvo nije jedinstveni konstrukt, već obuhvaća kognitivnu dimenziju, socijalnu interakciju te vrijednosti i etiku, uključujući analitičko rasuđivanje, timski rad, učinkovitu komunikaciju, svijest o društvenoj odgovornosti te donošenje odluka i njihovo provođenje u složenim situacijama. Sukladno tome, izvannastavne aktivnosti koje provode sveučilišta također su raznolike, a obuhvaćaju anketna istraživanja, natjecanja i radionice, inozemne razmjene, poslovne prakse, volonterske usluge i intenzivne ljetne programe. Različite vrste izvannastavnih aktivnosti vjerojatno će imati različite veze s raznim dimenzijama kompetencije vodstva putem različitih mehanizma učenja, kao što su duboko promišljanje, uključivanje u stvarne kontekste ili izvršavanje zadataka s visokim kognitivnim zahtjevima. Stoga je nužno preciznije odrediti kompetencije i prakse te ih smjestiti unutar urbane strukture prilika kako bi se objasnilo za koga i zašto veze između izvannastavnih aktivnosti i sposobnosti vođenja jačaju ili slabe (Bonesso i sur., 2024; Kolb, 2015; McConnell, 2024; Soria i Johnson, 2020; Wen i sur., 2023; Zahl-Thanem i sur., 2024). Osim toga, postojeći društveni kapital studenata, dostupnost resursa i iskustva u interakciji mogu sustavno utjecati na to kako pristupaju, doživljavaju i pretvaraju specifične prakse u ishode povezane s vodstvom. U kontekstu visokoga obrazovanja u Kini urbano,

tj. ruralno podrijetlo usko je povezano s dugogodišnjim nejednakostima u obrazovnim i obiteljskim prilikama, kanalima informiranja i mrežama vezanima uz karijeru (Bao i sur., 2023; Crain i Newlin, 2021; Wang i sur., 2024; Wen i sur., 2023). Pojašnjavanje tih ograničavajućih uvjeta može usmjeriti segmentiranje publike i slojevitu podršku studentskim pitanjima.

Kako bi premostilo navedene praznine, ovim istraživanjem ispitala su se sljedeća dva pitanja u kontekstu obrazovanja temeljenoga na praksi javnih sveučilišta u središnjoj Kini. Prvo: koje su poveznice između različitih vrsta izvannastavnih aktivnosti i višedimenzionalne strukture kompetencije vodstva? Drugo: razlikuju li se te poveznice prema spolu i urbanom/ruralnom podrijetlu te mogu li intenzitet prilika i organizacijski okviri pomoći u objašnjavanju tih razlika među skupinama studenata? Rješavajući ta pitanja empirijski, ova studija imala je za cilj pružiti dokaze i dijagnostičke alate za programiranje usmjereno na jednakost unutar okvira partnerstva škola/grad/zajednica.

Ova studija ima tri specifična doprinosa. Prvo, pruža detaljni prikaz šest vrsta aktivnosti i pet dimenzija kompetencije vodstva, tretirajući izvannastavni angažman kao višedimenzionalni, a ne jedinstveni konstrukt. Drugo, ispituje variraju li veze između izvannastavnih aktivnosti i kompetencija ovisno o spolu i urbanom/ruralnom podrijetlu, čime se ističe grupno diferencirana priroda izvannastavnoga angažmana. Treće, pruža dokaze s dva sveučilišta u središnjoj Kini i koristi taj kontekst kako bi ispitala kako se rasprave usmjerene na Zapad o uključivanju u izvannastavne aktivnosti i razvoju vodstva mogu reinterpretirati unutar rodno uvjetovanih i urbano-ruralnih struktura mogućnosti.

Teorijski okvir i hipoteze

Istraživanje o odnosu između izvannastavnih aktivnosti i upravljačke kompetencije studenata može se smjestiti unutar teorijskih temelja iskustvenoga učenja i načina primjene učinkovitih praksi. Iskustveno učenje postavlja tezu da sustavna, refleksivna i autentična iskustva učenja mogu pomoći u pretvaranju iskustva u različite aspekte kompetencije (Bonesso i sur., 2024; Lange i Stewart, 2019; Salam i sur., 2019). Učinkovite prakse u visokome obrazovanju također se smatraju važnim kontekstima za učenje vezano uz vodstvo, pri čemu model društvenih promjena naglašava suradnju, društvenu odgovornost i refleksivno djelovanje kao ključne elemente razvoja studentskoga vodstva (Komives i Wagner, 2017; Soria i Johnson, 2020). U kontekstu kineskoga visokog obrazovanja izvannastavna praksa često integrira više oblika dokazano učinkovitoga učenja, uključujući aktivnosti usmjerene na znanje (društvena istraživanja i projekti, SSP, akademska natjecanja po disciplinama i radionice, DCW, akademske razmjene i međunarodni programi, AEIP), stažiranje (korporativni staž i industrijsko iskustvo, CIIE) i aktivnosti od javnoga interesa (društveno koristan rad i projekti od javnoga interesa, CSPWP, programi prakse tijekom praznika, HPP).

Postojeća istraživanja vodstva općenito ne tretiraju vodstvo kao urođenu osobinu, već kao sveobuhvatnu kompetenciju koja se može razviti tijekom obrazovanja i stjecanjem

iskustva (Bonesso i sur., 2024; Komives i Wagner, 2017). Koncept studentskoga vodstva nadilazi tradicionalne pristupe usmjerene na položaje i osobine, posebno u visokome obrazovanju, stavljajući veći naglasak na suradnju, etičku svijest, društvenu odgovornost i sposobnost rješavanja problema (Komives i Wagner, 2017; Lange i Stewart, 2019; Salam i sur., 2019). Na temelju postojećih teorija vodstva i relevantnih empirijskih istraživanja, ovim istraživanjem identificiraju se dimenzije upravljačkih kompetencija koje su usko povezane s učenjem temeljenim na praksi. Konačni istraživački okvir uključuje pet temeljnih dimenzija koje su teorijski relevantne za izvannastavne kontekste: učenje i rasuđivanje (LR), suradnja i timski rad (CT), komunikacija i utjecaj (CI), društvena odgovornost (SR) i rješavanje problema (PS) (Lucero i sur., 2019.; Soria i Johnson, 2020.). Na temelju navedene teorije, cilj ove studije bio je uspostaviti konceptualnu vezu između izvannastavnoga angažmana i kompetencije vodstva. U nastavku rada akronimi SSP, DCW, AEIP, CIIE, CSPWP i HPP označavaju šest vrsta izvannastavnih aktivnosti, a akronimi LR, CT, CI, SR i PS pet dimenzija kompetencija vodstva[1].

Glavni učinci sudjelovanja u izvannastavnim aktivnostima na kompetenciju vodstva

Izvannastavne aktivnosti naglašavaju kogniciju i korištenje znanja u životnim situacijama, kontinuiranu refleksiju i iterativno poboljšanje (Bonesso i sur., 2024.; Lange i Stewart, 2019.; Salam i sur., 2019.). Na sveučilištima u središnjoj Kini izraženo sudjelovanje u izvannastavnim aktivnostima studente može izložiti složenim zadatcima koji uključuju velike izazove i vođenu refleksiju, a oni su važni za procjenu dokaza, kauzalno rasuđivanje i metakogniciju, čime se podržava učenje i rasuđivanje (Komives i Wagner, 2017). Izvannastavne aktivnosti često se organiziraju u obliku timskih projekata, a takve aktivnosti pomažu studentima pri usvajanju normi suradnje i povećavanju timske učinkovitosti (Salam i sur., 2019; Soria i Johnson, 2020). Kako se angažman povećava, studenti također mogu dobiti više prilika za vježbanje jasne, prilagodljive i utjecajne komunikacije (Bonesso i sur., 2024; Salam i sur., 2019). Osim toga, različiti konteksti zahtijevaju suradnju među disciplinama, čime se usavršavaju koordinacija, rješavanje sukoba i uzajamno ovisni rad (Bonesso i sur., 2024; Lange i Stewart, 2019).

Učenje putem služenja zajednici i javnom dobru povezuje ciljeve izvannastavnih aktivnosti s javnim pitanjima i potrebama zajednice (Hameduddin i Engbers, 2022; Salam i sur., 2019; Vogelgesang i Astin, 2000). Izlaganjem o stvarnim društvenim problemima i kontinuiranim sudjelovanjem u spomenutim aktivnostima studenti mogu razviti vrijednosno orijentirana uvjerenja koja se iskazuju odgovornim ponašanjem kao što su empatija, građanska odgovornost i zagovaranje (Liu i Liu, 2019; Liu i sur., 2020; Soria i Johnson, 2020). Sve u svemu, ovi argumenti pokazuju da je sudjelovanje u izvannastavnim aktivnostima općenito pozitivno povezano s kompetencijom vodstva. Stoga se predlaže sljedeća sveobuhvatna hipoteza.

[1] Zadržani su akronimi na engleskome jeziku (napomena prevoditeljice).

Hipoteza 1. Različite vrste izvannastavnoga angažmana pozitivno su povezane s kompetencijom vodstva studenata, iako se snaga tih povezanosti može razlikovati ovisno o dimenzijama kompetencije.

Spol i urbano/ ruralno podrijetlo kao moderatorske varijable

Ovo istraživanje tretira spol i urbanu/ruralnu pozadinu kao stratifikacijske, a ne demografske varijable. Nedavna istraživanja u visokom obrazovanju pokazala su da spol može utjecati na ishode učenja studenata, identitet vodstva, komunikacijske uloge i suradničku participaciju. Gradsko-seoska pozadina može odražavati razlike u obrazovnim resursima studenata, društvenom kapitalu, kanalima informiranja i mogućnostima vezanim uz karijeru. U kineskome kontekstu ove su dvije dimenzije usko povezane s organizacijom obrazovnih prilika. Očekivanja rodnih uloga mogu utjecati na samopozicioniranje studenata i njihovo sudjelovanje u aktivnostima koje zahtijevaju intenzivnu komunikaciju i timski rad. Razlike između urbanoga i ruralnoga okružja mogu utjecati na pristup studenata i njihovu upoznatost s profesionalnim mrežama, okružjima za stručnu praksu i resursima temeljenima na praksi. Stoga se obje varijable smatraju važnim stratifikacijskim varijablama koje mogu utjecati na pristup studenata izvannastavnim prilikama, njihov angažman i pretvaranje istoga u kompetencije vodstva. Tablica 1 sažima nedavne studije o utjecaju spola i urbanoga/ ruralnoga podrijetla na iskustva i ishode visokoga obrazovanja, pružajući osnovu za odabir varijabli u ovoj studiji.

Tablica 1

Postojeća istraživanja pokazuju veći angažman žena ili njihove bolje ishode u kontekstima intenzivne suradnje i komunikacije, osobito u područjima timske suradnje, komunikacije i upravljanja odnosima, društvene odgovornosti i empatije (Bonesso i sur., 2024.; Driscoll i sur., 2024.; Soria i Johnson, 2020.). Na kineskim sveučilištima takve rodne razlike mogu biti dodatno oblikovane očekivanjima vezanim uz rodne uloge, komunikacijskim normama i aranžmanima timskoga rada u sklopu strukturiranih izvannastavnih aktivnosti (Feng i sur., 2023.; Wang i Wareewanich, 2024.). Na temelju toga u ovoj studiji očekivane su jače korelacije s kompetencijama vodstva za žene u izvannastavnim aktivnostima s visokom razinom interakcije i usmjerenima na odnose, kao što su DCW, CIIE i CSPWP. Konkretno, DCW i CIIE uključuju intenzivnu timsku suradnju, što sugerira da bi korelacija s CT-om u takvim aktivnostima mogla biti veća kod žena (Bonesso i sur., 2024; Soria i Johnson, 2020); CIIE i CSPWP karakterizira izražena međuljudska interakcija, što navodi na pretpostavku da bi povezanost s CI-jem mogla biti izraženija kod žena (Driscoll i sur., 2024; Lucero i sur., 2019); dok SR, koja uvelike ovisi o prosocijalnom ponašanju i etičkoj rezonanciji, pokazuje značajnu posredničku ulogu spola u praktičnim aktivnostima usmjerenim na javno dobro, poput CSPWP-a (Hameduddin i Engbers, 2022). Sve u svemu, ovi argumenti upućuju da među ženama mogu postojati jače veze između odabranih

visoko interaktivnih izvannastavnih aktivnosti usmjerenih na odnose i kompetencija vodstva. Stoga se predlaže sljedeća hipoteza:

Hipoteza 2. Spol moderira povezanost izvannastavnoga angažmana i kompetencije vodstva, pri čemu se za žene u visoko interaktivnim aktivnostima i onima usmjerenim na odnose očekuje jača korelacija.

Razlike u urbanom i ruralnom podrijetlu ne odražavaju se samo u obrazovnim resursima i društvenom kapitalu, već mogu oblikovati i pristup učenika praksama u području industrije, poput korporativnih stažiranja. Nedavne studije na kineskim populacijama pokazuju da se urbani i ruralni studenti suočavaju sa znatno različitim strukturama resursa i prilika tijekom visokoga obrazovanja i ranih postdiplomskih razdoblja, uključujući razlike vezane uz vrstu prebivališta, pristup informacijama i karijerne mreže (Bao i sur., 2023; Qian i Smyth, 2008; Wang i sur., 2024; Wen i sur., 2023). CIIE je vrsta aktivnosti vođena prilikama koja uvelike ovisi o raspoloživosti resursa i kontekstualnoj integraciji. Ovom se studijom pretpostavilo da se studenti iz ruralnih područja suočavaju s većim preprekama u pristupanju, tumačenju i pretvaranju iskustava stažiranja u ishode vezane uz vodstvo u usporedbi sa studentima iz urbanih područja. Konkretno, zbog relativno nedostatnih prethodnih resursa, poznavanja industrije i profesionalnih mreža, studenti iz ruralnih područja mogu se suočiti s većim izazovima u usvajanju znanja, njegovoj transformaciji i brzom prilagođavanju timskoj suradnji u nestrukturiranim okružjima za stažiranje (Bao i sur., 2023; Paricio i sur., 2020; Sk i Halder, 2020; Stone, 2021; Wang i sur., 2024). Ovi argumenti pokazuju da urbani i ruralni konteksti mogu oblikovati snagu povezanosti kompetencije vodstva s izvannastavnim angažmanom vezanim uz stažiranje, osobito za dimenzije kompetencija koje su usko povezane s učenjem i suradnjom. Stoga se predlaže sljedeća hipoteza:

Hipoteza 3. Urbano-ruralna pozadina moderira povezanost između korporativnoga stažiranja i industrijskoga iskustva te kompetencije vodstva, pri čemu se za studente iz ruralnih područja očekuje slabija korelacija nego za studente iz gradova.

Konceptualni model sažima očekivane korelacije između izvannastavnoga angažmana i kompetencije vodstva te određuje posredovanje prema spolu i urbanoj/ruralnoj pozadini, kao što je prikazano na Slici 1.

Slika 1

Metodologija

Dizajn istraživanja i sudionici

U ovoj je studiji korišten pregled presjeka kako bi se ispitale veze između uključivanja u izvannastavne aktivnosti i kompetencija vodstva među studentima preddiplomskih studija u središnjoj Kini te procijenila razlikuju li se te korelacije prema spolu i urbanom ili ruralnom podrijetlu. Istraživanje je provedeno na dva sveučilišta u provinciji Henan, gdje su izvannastavni programi institucionalno podržani. U uzorak istraživanja uključeni su studenti četvrte godine na dvije spomenute institucije (10.533 i 8.578)

jer su završili većinu nastavnih obveza i stekli značajno praktično iskustvo. Prema uobičajenim tablicama veličine uzorka, minimalni broj po sveučilištu iznosio je oko 370, a ukupan ciljani broj bio je oko 740. Podatci su prikupljani putem interneta od travnja do srpnja 2025. godine pod koordinacijom sveučilišta. Od 800 pristiglih anketnih listića, 752 su ispunjavala kriterije valjanosti (94,0 %).

Mjerni instrument i kvaliteta mjerenja

Upitnik je bilježio demografske podatke o spolu i urbanom/ruralnom podrijetlu, koje je operacionalizirano putem mjesta stanovanja, kao i dva višestruka konstrukta. Izvanškolske aktivnosti bilježene su na petostupanjskoj Likertovoj skali u šest dimenzija izvedenih iz literature o iskustvenom učenju, učenju u službi i visoko učinkovitim praksama na kineskim sveučilištima (ukupno 30 stavki). Stavke su naglašavale sam angažman, a ne učestalost sudjelovanja. Kompetencija vodstva mjerena je na paralelnim petostupanjskim ljestvicama u pet dimenzija (ukupno 28 stavki) odabranih zbog njihove relevantnosti za ishode vezane uz vodstvo u izvannastavnim kontekstima. Ove su skale prilagođene na osnovi često korištenih instrumenata, s formulacijama prilagođenima kulturnom i institucionalnom kontekstu, a prvenstveno su se temeljile na utvrđenim mjerilima studentskoga vodstva, timskoga rada, komunikacije, građanskoga angažmana i rješavanja problema (npr. Posner, 2016.; Ren i sur., 2023). Izradi glavne ankete prethodio je nacrt instrumenta, njegov pregled od strane stručnjaka te pokusna testiranje. Sadržajna valjanost procijenjena je pomoću indeksa objektivne usklađenosti stavki (IOC), a stavke s nejasnom formulacijom ili nedovoljnom relevantnošću revidirane su ili uklonjene. Naknadno je provedeno pokusno testiranje kako bi se ispitala jasnoća stavki i kontekstualna prikladnost, a nekoliko je stavki dodatno preformulirano ili uklonjeno prije provedbe konačnoga upitnika. Cjelovita formulacija stavki i svojstava mjerenja navedene su u prilogu i Tablici 2.

Kvaliteta mjerenja procijenjena je prije modeliranja. Za procjenu sadržajne valjanosti korišten je indeks objektivne usklađenosti stavki (IOC). Konačni instrument postigao je prosječan IOC od 0,894, što ukazuje na snažnu sadržajnu valjanost. Unutarnja dosljednost bila je visoka u svim dimenzijama (Cronbachova α vrijednost kretala se od 0,848 do 0,908). Kompozitna pouzdanost kretala se od 0,849 do 0,907, AVE od 0,585 do 0,623, a standardizirana faktorska opterećenja od 0,740 do 0,813, što ukazuje na prihvatljivu konvergentnu valjanost (Hu i Bentler, 1999; Kline, 2016). Budući da se okvir mjerenja sastojao od dva konceptualno različita bloka, potvrdne faktorske analize provedene su odvojeno za ljestvicu sudjelovanja u izvannastavnim aktivnostima sa šest faktora i ljestvicu kompetencija vodstva s pet faktora. Potpuna svojstva (α, CR, AVE, rasponi opterećenja) navedena su u Tablici 3, a odgovarajući dijagrami putova CFA prikazani su na slikama 2 i 3.

Tablica 2
Izvori, struktura i dimenzije skala

Konstrukt	Čestice	Skala	Primjer čestice	Izvor
Društveno istraživanje i projekti	5	1–5 Likert	„Radim zajedno s timom kako bih postavio ciljeve za društvena istraživanja i projekte."	Autor (prema učinkovitim praksama; Kolb, 2015)
Stručna natjecanja i radionice	5	1–5	„Potičem timove na inovaciju i iskušavanje drugačijih rješenja."	Autor (prema učinkovitim praksama; Kuh, 2008)
Akademske razmjene i međunarodni programi	4	1–5	„Poštujem članove tima iz različitih kulturnih i akademskih pozadina."	Autor (prema literaturi o međunarodnoj razmjeni; Kuh, 2008)
Korporativne prakse i iskustvo u struci	5	1–5	„Stažiranje mi je omogućilo premošćivanje jaza između teorije i prakse."	Autor (prema iskustvenom učenju; Kolb, 2015; literatura o stažiranju)
Rad u zajednici i javna dobrobit	5	1–5	„Zagovaram i prakticiram principe poštenja i inkluzije."	Autor (prema literaturi o učenju u službi; npr., Yorio i Ye, 2012)
Programi prakse za vrijeme praznika	6	1–5	„Aktivno promičem zamisli i potičem inovativne pristupe."	Autor (prema učinkovitim praksama; Kuh, 2008)
Učenje i rasuđivanje	5	1–5	„Sposobna sam učiti iz prošlih iskustava."	Prilagođeno prema SLCI (Seemiller, 2013; Rosch i Seemiller, 2018)
Suradnja i rad u timu	5	1–5	„Ohrabrujem članove tima da koriste svoje snage."	Prilagođeno prema CATME Team Tools (Ohland i sur., 2012)
Komunikacija i utjecaj	6	1–5	„Sposobna sam za racionalnu i uvažavajuću komunikaciju tijekom sukoba.	Prilagođeno prema SPCC (McCroskey i McCroskey, 1988)
Društvena odgovornost	6	1–5	„Imam odgovornost pozitivno djelovati na svoju zajednicu."	Prilagođeno prema CES (Doolittle i Faul, 2013)
Rješavanje problema	6	1–5	„Mogu ostati miran i sustavno tražiti rješenja."	Prilagođeno prema PSI (Heppner i Petersen, 1982)

Tablica 3

Postupak i etika

Poveznica za anketu i obrazac ankete distribuirani su putem ureda za akademska pitanja. Sudjelovanje je bilo dobrovoljno i anonimno, a elektronički pristanak na informirano sudjelovanje osiguran je prije prikaza stavki. Studija je bila u skladu s

institucionalnim etičkim smjernicama i dobila je odobrenje sveučilišnoga Etičkog povjerenstva. Sve statističke analize provedene su pomoću SPSS-a 26.0 i AMOS-a 26.0.

Statistička analiza

Analize su provedene prema odabranom konceptualnom modelu u tri faze. Prvo su izračunate vrijednosti deskriptivne statistike i Pearsonovi koeficijenti korelacije za nezavisne i zavisne varijable. Drugo, za svaku dimenziju kompetencije vodstva provedene su hijerarhijske regresijske analize običnih najmanjih kvadrata kako bi se procijenile povezanosti uključivanja u izvannastavne aktivnosti i testiralo posredovanje spola i urbane, tj. ruralne pozadine. U hijerarhijskim modelima blok 1 je uključivao spol i urbanu/ruralnu pozadinu kao kontrolne varijable. Spol je kodiran kao ženski = 1 i muški = 0. Urbano-ruralna pozadina bila je predstavljena dvjema umjetnim varijablama za kategorije grada i sela, pri čemu je grad bio referentna kategorija. U bloku 2 dodano je šest praktičnih varijabli, centriranih oko ukupne aritmetičke sredine, kako bi se olakšala interpretacija i ublažila multikolinearnost kada su uključene interakcije. U bloku 3 dodane su unaprijed definirane čestice interakcije (spol × praksa; urbano-ruralna pozadina × praksa). Izračunane su robusne standardne pogreške HC3. Poboljšanje modela ocijenjeno je pomoću promjena u R-kvadratu i F-omjeru. Prije regresijskih analiza ispitana je linearnost pomoću grafikona standardiziranih ostataka naspram predviđenih vrijednosti. Nisu uočeni očiti nelinearni obrasci, a odnosi između prediktora i zavisnih varijabli činili su se približno linearnima. Dijagnostika inače nije pokazala zabrinjavajuća odstupanja od pretpostavki, a VIF vrijednosti bile su ispod uobičajenih pragova.

Rezultati

Deskriptivna statistika i korelacije

Tablica 4 prikazuje podatke deskriptivne statistike i rezultate testa normalnosti za pet zavisnih varijabli. Svih pet dimenzija kompetencija vodstva bile su na umjereno visokoj razini, s prosječnim vrijednostima u rasponu od 3,28 do 3,32 i standardnim odstupanjima od 0,91 do 0,99, što ukazuje na općenito pozitivne rezultate uz određene individualne varijacije. Rezultati Kolmogorov–Smirnov testa za sve dimenzije nisu bili statistički značajni ($p > 0,05$), a i vrijednosti asimetrije (od 0,033 do 0,195) i spljoštenosti (od -1,035 do -0,862) bile su unutar prihvatljivih raspona. Ovi rezultati pokazuju da zavisne varijable nisu pokazale značajna odstupanja od normalne raspodjele, pa su primijenjene parametrijske analize.

Tablica 4

Šest pokazatelja angažmana nezavisnih varijabli (SSP, DCW, AEIP, CIIE, CSPWP, HPP) pokazalo je umjerene do visoke međusobne korelacije ($r \approx 0,38–0,68$), što pokazuje da su te aktivnosti međusobno povezane i mogu odražavati širi obrazac širine/intenziteta angažmana. Svaki pokazatelj angažmana imao je male do umjerene pozitivne korelacije ($r \approx 0,35–0,47$, $p < 0,01$) s pet zavisnih varijabli, što znači da su više

razine izvannastavnoga angažmana bile povezane s višim samoprijavljenim razinama kompetencije vodstva (LR, CT, CI, SR i PS). Pet kompetencija također je pokazalo male do umjerene korelacije (rs ≈ 0,38 – 0,54), što je u skladu s njihovom zajedničkom orijentacijom prema širem konstruktu vodstva. Potpuni podatci deskriptivne statistike i matrice korelacija prikazane su u Tablici 5.

Tablica 5

Hijerarhijske regresijske analize

Svaki je model imao tri bloka, pri čemu je prvi blok uključivao spol i urbanu, tj. ruralnu pozadinu; drugi blok je obuhvatio šest pokazatelja angažmana, a treći blok predodređene interakcije. U usporedbi s blokom 1, pristajanje modela značajno je poboljšano u bloku 2 (ΔR^2 = 0,143–0,208). Nakon kontrole za spol i urbanu/ruralnu pozadinu, pokazatelji angažmana objasnili su značajnu dodatnu varijancu u dimenzijama kompetencija vodstva (Tablica 6). Zatim su ispitane pretpostavljene glavne povezanosti. Izvannastavni angažman bio je općenito pozitivan, iako selektivno unutar dimenzija kompetencija, pri čemu su SSP, DCW i CIIE bili pozitivno povezani s učenjem i rasuđivanjem (LR). CSPWP i SSP bili su pozitivno povezani sa suradnjom i timskim radom (CT). Komunikacija i utjecaj (CI) bili su pozitivno povezani s DCW-om i HPP-om, dok je društvena odgovornost (SR) bila pozitivno povezana s CSPWP-om i HPP-om. Rješavanje problema (PS) bilo je pozitivno povezano sa SSP-om, CIIE-om i HPP-om. AEIP nije pokazao značajne povezanosti. Ovi su obrasci u velikoj mjeri potvrdili H1.

Tablica 6

Učinci interakcije

Unaprijed definirane interakcije dodane su u blok 3, što je poboljšalo prilagodbu modela za sve ishode (ΔR^2 = 0,024 do 0,049; Tablica 6), a jednostavni nagibi evaluirani su na vrijednosti standardne devijacije od −1, srednjoj i +1 standardnoj devijaciji centriranih prediktora, kao što je prikazano na slikama 4 do 6.

Uloga spola (H2). Dimenzija CT pokazala je dvije značajne interakcije, što ukazuje na to da su pozitivne korelacije između CIIE-a i DCW-a i CT-a bile jače kod žena nego kod muškaraca. Kao što je prikazano na Slici 4, povezanost tih oblika angažmana s CT-om bila je jača kod žena nego kod muškaraca. Dimenzija CI pokazala je dvije značajne interakcije, što ukazuje da su pozitivne korelacije između CIIE-a i CSPWP-a s CI-om također bile izraženije među ženama nego muškarcima. Kao što je prikazano na Slici 5, nagib od jednoga stupnja za žene bio je značajno pozitivan, dok je nagib za muškarce bio blizu nule za CIIE i negativan za CSPWP. U SR-u interakcije žena × CIIE i žena × CSPWP nisu bile značajne. Sveukupno, ovi rezultati djelomično potvrđuju H2.

Slika 4

Slika 5

Moderatorska uloga urbanoga i ruralnoga podrijetla (H3). Interakcija ruralno × CIIE bila je značajna za LR i CT. Jednostavni testovi nagiba pokazali su da su studenti iz većih i manjih gradova imali slične pozitivne korelacije između CIIE-a i LR-a, dok je veza bila slabija među ruralnim studentima (Slika 6). Studenti iz manjih i većih gradova pokazali su blagi pozitivan nagib u CT-u, dok je ruralna skupina pokazala blagi negativan nagib (Slika 6). Ovi obrasci ukazuju na to da su veze između CIIE-a i ovih dimenzija kompetencija bile slabije među studentima ruralnoga podrijetla. Dobiveni rezultati potvrdili su H3.

Slika 6

Otpornost i dijagnostika

Dijagnostika je potvrdila adekvatnost i otpornost modela. Multikolinearnost bila je prihvatljiva (svi VIF-ovi < 5, tolerancije > 0,20 i maksimalni indeks uvjetovanosti < 30). Vizualni pregled grafikona standardiziranih ostataka nasuprot predviđenih vrijednosti nije ukazivao na značajna odstupanja od linearnosti, a robusne standardne pogreške HC3 korištene su za rješavanje potencijalne heteroskedastičnosti. Nisu otkriveni utjecajni slučajevi na temelju Cookove udaljenosti i DFBETA vrijednosti, a Durbin–Watsonov statistički pokazatelj iznosio je približno 2. Cjelokupni obrazac glavnih korelacija i rezultati moderatorskoga učinka ostali su nepromijenjeni.

Diskusija

Rezultati istraživanja i tumačenje

Rezultati su pokazali da različite dimenzije kompetencije vodstva studenata nisu bile povezane samo s jednim tipom izvannastavnih aktivnosti, već s više oblika tih aktivnosti. LR je bio najjače povezan sa SSP-om, DCW-om i CIIE-om. To je u skladu s prethodnim dokazima koji sugeriraju da su iskustveno učenje i učinkovite prakse povezane s višim kognitivnim i metakognitivnim vještinama (Bonesso i sur., 2024; Salam i sur., 2019; Soria i Johnson, 2020). Konkretno, SSP osigurava probleme iz stvarnoga svijeta i procjenu dokaza, DCW može ponuditi vrlo izazovne argumentacijske cikluse, a CIIE može podržati prijenos znanja u nestrukturiranim kontekstima (Lange i Stewart, 2019; Lucero i sur., 2019). CT je također bio povezan s više vrsta aktivnosti, pri čemu je CSPWP pokazao najjaču povezanost, a SSP sekundarnu povezanost. Ovaj obrazac može odražavati praktične komponente CSPWP-a, kao što su izmjena uloga, podjela zadataka i međusobna procjena, koje mogu pružiti prilike studentima za vježbanje koordinacije, upravljanje sukobima i dijeljenje odgovornosti tijekom kontinuiranih cikluse (Bonesso i sur., 2024; Salam i sur., 2019; Soria i Johnson, 2020), dok SSP može uključivati timsko planiranje, podjelu rada i izvršenje zadataka u suradničkim procesima (Lange i Stewart, 2019; Lucero i sur., 2019).

Ova studija pokazuje da je CI uglavnom bio povezan s DCW-om i HPP-om. Prethodni rezultati sugeriraju da su konteksti vrlo zahtjevnih javnih istupa i službi povezani s

vještinama izražavanja i uvjeravanja (Bonesso i sur., 2024; Salam i sur., 2019; Soria i Johnson, 2020). Jedno moguće objašnjenje jest da DCW može pružiti prilike studentima za vježbanje sveobuhvatnih vještina izražavanja, dok HPP može smjestiti studente u stvarne društvene interakcije s raznolikom publikom, zahtijevajući od njih fleksibilno mijenjanje uloga, komunikaciju u različitim kontekstima i javno istupanje (Lucero i sur., 2019; Komives i Wagner, 2017). SR je uglavnom bio povezan s CSPWP-om i HPP-om. To je u skladu s temeljnim načelima učenja služenjem zajednici, pri čemu je angažman s realnim zajednicama usko povezan s građanskom odgovornošću i empatijom (Hameduddin i Engbers, 2022; Salam i sur., 2019; Soria i Johnson, 2020). HPP, posebice aktivnosti poput inicijative „Tri ruralna područja u Kini", može pomoći studentima da povežu konceptualne vrijednosti na makrorazini s utjelovljenim djelima društvene odgovornosti u okviru povremenoga angažmana. Takve aktivnosti mogu biti povezane s identifikacijom studenata s kolektivnim dobrobiti i njihovim izražavanjem vrijednosnih uvjerenja konkretnim oblicima odgovornoga djelovanja (Komives i Wagner, 2017). PS je pokazao konvergentan obrazac povezanosti sa SSP-om, CIIE-om i HPP-om, što je u skladu s klasičnim rezultatima o vrlo učinkovitim praksama. Nestrukturirani problemi i zadatci iz stvarnoga svijeta mogu podržati razvoj sposobnosti definiranja problema, integracije informacija i iterativnoga razvoja rješenja (Lange i Stewart, 2019; Lucero i sur., 2019; Bonesso i sur., 2024; Soria i Johnson, 2020). Zanimljivo je da AEIP u ovome uzorku nije pokazao snažne poveznice s PS-om.

Među ženama su zabilježene jače poveznice između CIIE-a i CSPWP-a te CI-a, kao i između CIIE-a i DCW-a te CT-a, dok su kod muškaraca navedene korelacije bile slabije. Ovaj je obrazac u skladu s prethodnim istraživanjima koja su pokazala da žene često pokazuju jači angažman ili bolje ishode u komunikacijski intenzivnim okružjima usmjerenim na odnose i s visokom razinom interakcije (Bonesso i sur., 2024; Driscoll i sur., 2024; Soria i Johnson, 2020). U kontekstu visokoga obrazovanja u Kini ovi obrasci također mogu odražavati rodno očekivane uloge, komunikacijske norme i aranžmane timskoga rada ugrađene u organizirane izvannastavne aktivnosti, pri čemu su studentice sklonije preuzimati uloge vezane uz koordinaciju, odnose i komunikaciju. Sve u svemu, ovi rezultati u skladu su s očekivanjem da se istraživana povezanost između angažmana u izvannastavnim aktivnostima i kompetencije vodstva razlikuje ovisno o spolu.

Činilo se da studenti ruralnoga podrijetla pokazuju slabiju povezanost CIIE-a i LR-a s CT-om nego studenti iz većih i manjih gradova. Prethodne studije pokazuju da je urbana, tj. ruralna pozadina povezana s razlikama u resursima i strukturi prilika, osobito u aktivnostima koje uvelike ovise o vanjskim uvjetima, institucionalnoj podršci i profesionalnim mrežama (Bao i sur., 2023; Li i dr., 2025; Qian i Smyth, 2008; Wang i sur., 2024). Mogući mehanizmi uključuju relativno ograničenu prethodnu izloženost industrijskim okružjima, manje opsežne profesionalne mreže i manje prilika za upoznavanje s implicitnim timskim scenarijima u nestrukturiranim zadatcima stručne prakse (Bao i sur., 2023; Wang i sur., 2024). Ovi rezultati u skladu su s očekivanjem

da urbani i ruralni kontekst oblikuju povezanost s izvannastavnim angažmanom vezanim uz stručnu praksu.

Teorijski doprinosi

Ova studija uključuje tri glavna teorijska doprinosa. Prvo, nudi diferenciraniji prikaz odnosa između izvannastavnoga angažmana i kompetencije vodstva ispitivanjem šest vrsta aktivnosti u odnosu na pet dimenzija kompetencije vodstva. Time nadilazi šire pristupe izvannastavnom angažmanu i sugerira da su različiti oblici sudjelovanja povezani s različitim dimenzijama kompetencije vodstva (Bonesso i sur., 2024; Lucero i sur., 2019; Soria i Johnson, 2020). Drugo, studija pokazuje da korelacije između kompetencije vodstva i sudjelovanja u izvannastavnim aktivnostima nisu jednolične u skupinama studenata. Utvrđivanjem odabranih razlika u putanjama prema spolu i urbanom, tj. ruralnom podrijetlu, ova studija pokazuje da su opažene razlike u kompetenciji vodstva oblikovane ne samo samim sudjelovanjem, već i strukturama prilika i prethodnim resursima putem kojih je sudjelovanje povezano s ishodima kompetencija. Treće, ovo istraživanje pruža dokaze dobivene u populaciji studenata na sveučilištima u središnjoj Kini i koristi taj kontekst kako bi ispitalo kako se rasprave o izvannastavnom angažmanu i kompetenciji vodstva mogu reinterpretirati izvan zapadnih visokoškolskih okružja (McConnell, 2024; Wen i sur., 2023; Zahl-Thanem i sur., 2024). Ova studija pomaže u širenju kontekstualnoga opsega istraživanja o kompetenciji vodstva studenata putem uključivanja izvannastavnih praksi, urbanih i ruralnih nejednakosti te struktura prilika u jedan analitički okvir.

Na metodološkoj razini ova je studija prilagodila i usavršila relevantne instrumente mjerenja za kontekst izvannastavnoga angažmana na kineskim sveučilištima. Njihova primjenjivost ispitana je putem pregleda stručnjaka, pokusnih testiranja i potvrdne faktorske analize. Iako studija ne teži predlaganju potpuno novoga sustava skala, dobiveni višedimenzionalni okvir mjerenja pruža korisnu referencu za buduća istraživanja izvannastavnoga angažmana i kompetencija vođenja studenata u sličnim kontekstima.

Implikacije za upravljanje

Na temelju otkrivenih obrazaca u ovoj studiji odjeli za studentska pitanja mogli bi prijeći s ujednačenoga upravljanja programima na okvir usklađen s ishodima koji povezuje izvannastavne aktivnosti s utvrđenim potrebama za razvojem određenih kompetencija. Shema započinje osnovnom dijagnozom kompetencija studenata, identificira dominantne i pomoćne izvannastavne aktivnosti te postavlja raspone težina kao osnovu za prilagodbe programa. Ako se učenje i rasuđivanje uzme kao primjer, osnovni put mogao bi se sastojati ponajprije od stručnih natjecanja i radionica, uz dopunu korporativnim stažiranjima i društvenim anketama. Omjeri ovih triju vrsta aktivnosti mogli bi se otprilike postaviti na 30-40 %, 25-35 % i 25-35 %, tim redom. Kada su resursi ograničeni, podrška kritičnim uskim grlima trebala bi biti prioritet kako bi se poboljšala učinkovitost raspodjele resursa. U kontekstu središnjih kineskih

sveučilišta, DCW bi trebao dati prednost natjecanjima usmjerenima na poduzetništvo i inovacije (npr. *Challenge Cup*), pri čemu se svakom timu dodjeljuje mentor za nastavne metode s fakulteta i mentor iz područja industrije; CIIE bi se trebao oslanjati na baze za praksu zajednički uspostavljene s poduzećima kako bi unutar četiri do šest tjedana dovršio definiranje problema, prikupljanje dokaza i vođenje metodološkoga dnevnika; projekti SSP-a mogu se usredotočiti na stvarne regionalne probleme, napredujući tjedno definiranjem problema, upitnika ili intervjua te prikupljanjem dokaza, uz zajednički pregled sveučilišta i lokalnih partnera.

Nadovezujući se na opće smjernice, službe za studentska pitanja trebale bi uvesti višeslojnu podršku usmjerenu na jednakost za ključne skupine (Soleimani Babadi, 2025), budući da su veze između aktivnosti i kompetencija različite među skupinama. Za muškarce fokus bi se trebao usmjeriti na jačanje komunikacije, utjecaja, suradnje i timskoga rada. Preporučuje se uvrstiti obvezan proces prezentacije, obrane i vođenoga promišljanja u natjecanja unutar akademskih disciplina i radionice, aktivnosti volontiranja u zajednici i akademske projekte kako bi se pružile strukturiranije prilike za vježbanje izražavanja i suradnje. Među studentima iz ruralnih područja korporativne prakse i iskustvo u industriji manje su povezani s učenjem, rasuđivanjem te suradnjom i timskim radom. Službe za studentska pitanja mogu provesti trodijelni mehanizam podrške koji uključuje obuku prije prakse, individualne mentore iz područja industrije te grupe za međusobno učenje, kao i praktičnu podršku poput subvencija za putovanja i fleksibilnoga rasporeda. Istovremeno bi se trebalo konzultirati s poslodavcima kako bi se razjasnile odgovornosti, vremenski okviri i kriteriji za ocjenjivanje mjesta za praksu, čime bi se poboljšala izvedivost zadataka i mjerljivost ishoda.

Kako bi se osiguralo učinkovito djelovanje navedenih prilagodbi i grupne potpore, služba za studentska pitanja trebala bi uspostaviti ciklus utemeljen na dokazima za evaluaciju programa i kontinuirano poboljšanje. Prvo, trebao bi postojati standardizirani repozitorij programa kako bi se definirale norme zadataka te etičke i sigurnosne odredbe za izvannastavne aktivnosti, te kako bi se podatci o procesu i dokazi o studentskim kompetencijama integrirali u jedinstvenu platformu. Drugo, godišnje revizije programa trebale bi ocjenjivati same programe i suradničke jedinice na temelju dvaju ključnih pokazatelja: ishoda kompetencija i učinkovitosti resursa. Treće, poticajni sustav povezan s rezultatima trebao bi povezati rezultate procjene s priznavanjem bodova, odlukama o stipendijama, evaluacijama nastavnoga osoblja i odabirom partnera, premještajući praksu izvannastavnih aktivnosti s angažmana na ishode (Lange i Stewart, 2019; Soria i Johnson, 2020). Na kraju, osnovni povratni krug od procesa do ishoda trebao bi se ojačati integriranjem informacija o upisima, obuci i karijernim uslugama kako bi se omogućila usporedba različitih uvjeta i odjela.

Tri navedene mjere međusobno su povezane i uzajamno se osnažuju u praksi odjela za studentske poslove. Sustavnim prikupljanjem dokaza, dinamičnom povratnom informacijom i poticajima povezanim s rezultatima, službe za studentska pitanja mogu rezultate istraživanja pretvoriti u provedive, mjerljive i skalabilne izvannastavne

programe, a istovremeno povećati učinkovitost resursa, čime bi se poboljšali ishodi učenja i jednakost u razvoju kompetencija vezanih uz vodstvo.

Ograničenja istraživanja i budući smjerovi

Ova studija temelji se na presječnom istraživanju i stoga ne može podržati snažne uzročne zaključke. Osim toga, uzorak je odabran među studentima četvrte godine na dvama javnim sveučilištima u središnjoj Kini, pa se nalazi trebaju oprezno generalizirati. Tumačenje razlika zasnovanih na spolu i urbanom/seoskom podrijetlu također ostaje preliminarno jer ovo istraživanje nije moglo izravno promatrati očekivanja rodnih uloga, norme interakcije, pristup informacijama ili institucionalne procese putem kojih se te razlike mogu stvarati. Osim toga, mjere su temeljene na samoprijavljenim odgovorima, što može biti podložno pristranosti zajedničke metode i društvene poželjnosti. Buduća istraživanja mogla bi koristiti longitudinalno praćenje, kvazieksperimentalne dizajne i više izvora evaluacije (npr. procjene vršnjaka, ocjene edukatora i podatke o procesu) kako bi se ovi odnosi ispitali dinamičnije i u širem rasponu institucionalnih konteksta. Također je preporučljivo provesti male pokusne projekte u različitim regijama i vrstama ustanova kako bi se testirala skalabilnost izvannastavnih programa i modela prilagođenih grupama.

Etička izjava

Istraživanje je odobrilo Etičko povjerenstvo ustanove čiji je identitet zaštićen; detalji protokola zadržani su radi očuvanja anonimnosti. Od svih sudionika prikupljena je elektronička informirana suglasnost.

Sukob interesa

Autori izjavljuju da nemaju sukob interesa.

Dostupnost podataka

Pseudonimizirani podatci i kodovi dostupni su na razuman zahtjev tijekom pregleda; poveznica na arhivski repozitorij bit će dostavljena nakon prihvaćanja.

Napomena

Zahvaljujemo kolegama, studentima i administratorima uključenih institucija na korisnim povratnim informacijama i logističkoj podršci. Financijska potpora i zahvale institucijama nisu obznanjeni kako bi se sačuvala anonimnost tijekom recenzije.