



Family Socioeconomic Status, Student Activity Participation, and Socio-Emotional Skills: Evidence from Final-Year Undergraduates in Shandong, China

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Abstract: This study examines the associations among family socioeconomic status (SES), student activity participation (SAP), and selected socio-emotional skill domains among final-year undergraduates, with SAP tested as a statistical mediator. Guided by Astin's I-E-O model and Bourdieu's capital theory, SAP is framed as an educational experience through which family background may be associated with differences in student development. Survey responses from 571 undergraduates at public universities in Shandong Province, China, were analyzed using SPSS 26 and AMOS 24. Structural equation modelling (SEM) was used to estimate the structural associations, and bootstrapping was used to test the indirect association through SAP. SES was positively associated with both SAP and socio-emotional skills, and SAP was positively associated with socio-emotional skills. The bootstrap analysis indicated a significant partial statistical mediation pattern. These findings suggest that family background remains associated with students' socio-emotional development in higher education and with access to student activity experiences. SAP may therefore represent one pathway through which SES-related differences are statistically linked to selected interpersonal and intrapersonal skill domains. Because the study is cross-sectional, the mediation results should be interpreted as associations rather than evidence of temporal or causal transmission.

Keywords: Family Socioeconomic Status, Student Activity Participation, Socio-Emotional Skills, Higher Education Inequality, Structural Equation Modelling.

1. Introduction

Socio-emotional skills refer to students' ability to manage emotions, regulate behavior, interact with others, and cope with challenging situations (Soto *et al.*, 2022). In higher education, these skills matter because they are related to how students engage with learning, interact with others, and adapt to university life (Santos *et al.*, 2023; Wang *et al.*, 2025a). Socio-emotional skills have also been linked to students' academic achievement (Corcoran *et al.*, 2018), well-being (Collie, 2022; Collie *et al.*, 2024), and future career development (Pellegrino *et al.*, 2025). Therefore, socio-emotional skills have attracted growing attention from both international organizations and the academic community (UNICEF, 2024).

Socio-emotional skills are formed over time through students' family experiences, schooling, and wider social interactions. SES has been identified as an important structural factor. SES is not just a measure of income or parents' education; it also captures differences in the economic, cultural, and social resources available to students and the extent to which these resources may be converted into developmental advantages (Tan, 2024). Previous studies of SES have mainly focused on educational outcomes, particularly academic achievement, educational access, and educational inequality (Sirin, 2005; Tan, 2024). Research on family SES and socio-emotional development has grown more recently, and students from socioeconomically advantaged families tend to report stronger performance in several socio-emotional domains (Wang *et al.*, 2025b). However, the evidence remains fragmented. Many studies examine particular skills or outcomes rather than a broader set of related socio-emotional domains (Wang *et al.*, 2025b). Recent Chinese higher-education research has documented variation in college students' social-emotional ability across student and institutional characteristics (Gao & Wang, 2025) and positive associations between school climate and college students' socio-emotional competence (Fang *et al.*, 2025). Existing university studies have also



examined outcomes such as emotion-regulation self-efficacy and prosocial behavior (Bian & Wu, 2023). Nevertheless, direct evidence specifically linking family SES to multiple socio-emotional skill domains among university students remains limited. The present study addresses this narrower gap by examining selected interpersonal and intrapersonal dimensions rather than claiming to represent the full socio-emotional domain.

Notably, the impact of SES on socio-emotional skills might not just happen directly; it could also involve students' experiences participating at university. SAP is an important mechanism worthy of attention. SAP provides space outside the classroom in which students can build a sense of belonging, promote well-being, and develop professional identity (Buckley & Lee, 2021; Winstone *et al.*, 2022; Griffiths *et al.*, 2021). SAP also creates settings in which students can practice cooperation, communication, and self-management (Eccles *et al.*, 2003; See *et al.*, 2017). More recent Chinese higher-education studies link volunteering, group music, and structured group activities with social-emotional competence or empathy (Lyu *et al.*, 2025; Jiang, 2025; Xu *et al.*, 2025). However, access to SAP often differs by students' SES. Taking part in student activities is not simply a matter of personal interest. It also depends on whether students have enough time, know where to find relevant opportunities, and can afford the possible costs of participation. These conditions are more accessible to students from higher-SES families. By contrast, students from less advantaged backgrounds often need to divide their time and energy among study, paid work, and other practical demands (Stuber, 2009; Stuart *et al.*, 2011). This is where the issue of educational stratification becomes evident. The expansion of formal education opportunities does not necessarily eliminate inequality; instead, SES advantages may persist through differences in the quality and value of opportunities available to students (Raftery & Hout, 1993; Lucas, 2001). In higher education, this means that research should focus not only on university admission opportunities themselves but also on the developmental experiences students can obtain after enrollment. From this perspective, SAP is not merely the result of personal interest or initiative. It may also help explain how family SES is associated with differences in students' socio-emotional development.

However, the relationship of family SES and SAP with socio-emotional skills in higher education has not been fully examined. The present study therefore examines the association between SES and socio-emotional skills among final-year undergraduates in public universities in Shandong, China, with particular attention to the mediating role of SAP. The study contributes to higher education inequality research by examining whether SES differences are linked to students' socio-emotional skills through unequal opportunities for SAP.

2. Literature Review

2.1 SES and University Students' Socio-Emotional Skills

The family can be considered one of the primary settings in which students develop at the micro level, while SES reflects differences in families' access to economic, cultural, and social capitals. In this study, SES is used to describe the family resources available to students, including household income, parents' education and occupational status (Tan, 2024). Family resource differences may continue to influence students' development even after they enter higher education. Compared with the extensive literature on SES, academic achievement, and education inequality, research on SES-related differences in socio-emotional skills emerged relatively late, although relevant evidence has grown in recent years (Sirin, 2005; Tan, 2024).

SES advantage also appears in students' socio-emotional development. For instance, across cultures, students with higher SES tend to report stronger performance in socio-emotional areas such as empathy, trust, sociability, and communication skills (Wang *et al.*, 2025b). Cross-national evidence further shows that students from higher-SES backgrounds tend to report stronger socio-emotional skills, suggesting that family background differences extend beyond academic outcomes to non-cognitive development (Gruijters *et al.*, 2024). This relationship has also been supported in the Chinese context. Evidence from the OECD Survey on Social and Emotional Skills shows that students' SES is positively associated with socio-emotional skills, while school resources can partly buffer this disparity (Shi *et al.*, 2023). Family differences further extend beyond academic achievement to developmental areas such as emotion regulation, interpersonal relationships, and social adjustment (Choi & Min, 2024; Lee *et al.*, 2024). Much of this evidence, however, comes from primary and secondary education. Recent higher-education studies in China have begun to document college students' social-emotional ability (Gao & Wang, 2025) and the association of university environmental conditions with socio-emotional competence (Fang *et al.*, 2025). The higher-education context may differ in important ways because university students have greater autonomy in organizing their learning,



social relationships, and extracurricular experiences. Direct evidence specifically linking family SES to multiple socio-emotional skill domains among university students therefore remains comparatively limited. Accordingly, this study examines this relationship among Chinese university students. The hypothesis is proposed as follows: H1: SES is positively related to socio-emotional skills.

2.2 SES and SAP in Higher Education

In higher education, SAP refers to students' participation in activities beyond formal classroom instruction. The term is used to capture a broader range of participation than conventional extracurricular activities, including on-campus activity participation (ONA) and off-campus activity participation (OFA). This section therefore examines how students' access to these activities may vary by SES in higher education. Beyond formal coursework, SAP offers contexts in which university students may develop campus connections, practical experience, and early career readiness (Jackson & Dean, 2023a). Access to these opportunities, however, varies across students. Recent evidence on internships and work placements also shows that social class is related to students' access to and experience of employability-building opportunities (Vines & Gobel, 2025). In addition, a recent study of college students found that family SES was associated with physical activity through family exercise-related pathways (Lou *et al.*, 2024), providing activity-specific evidence that family resources can be related to students' participation patterns. Research more broadly indicates that SES remains associated with the likelihood and extent of involvement in student activities. For students from lower-SES backgrounds, barriers are often practical: financial pressure, limited discretionary time, and extensive paid work can make it harder to join and sustain participation in other co-curricular or extracurricular activities (Hordósy *et al.*, 2018; Rubin & Wright, 2017). These patterns suggest that SAP is not simply a matter of individual preference; it is also associated with the time, financial support, social networks, and familiarity with university culture that students bring into higher education (Stuber, 2009; Stuart *et al.*, 2011).

SES may shape not only the extent of students' SAP, but also the types of activities they can access and sustain (Jackson & Dean, 2023b; Williams *et al.*, 2026). Recent evidence concerning internships and work placements similarly indicates that social class can shape access to employability-building experiences (Vines & Gobel, 2025). For students from lower-SES backgrounds, academic demands, financial concerns, and career preparation often have to be managed at the same time. Part-time employment may reduce immediate financial pressure, but it can also leave less time and energy for other developmental student activities, a pattern described by (Hordósy *et al.*, 2018) as a double deficit. These inequalities are particularly evident in high-impact and resource-dependent forms of SAP. These activities often require sustained time, financial resources, access to information, and relevant cultural capital, which may make them less accessible to students from less affluent backgrounds (Jackson & Dean, 2023a; Williams *et al.*, 2026). Thus, SES may shape students' SAP in both level and form. Therefore, we propose the second hypothesis: H2: SES and SAP are expected to be positively related.

2.3 SAP and University Students' Socio-Emotional Skills

In higher education, SAP has often been associated with students' sense of belonging, well-being, and social integration (Buckley & Lee, 2021; Winstone *et al.*, 2022; Hoang, 2025). These findings are relevant to socio-emotional skills. More direct recent evidence from Chinese higher education links community volunteering with the development of social-emotional competence (Lyu *et al.*, 2025), group singing participation with higher social-emotional competence (Jiang, 2025), and structured group activities with improvements in empathy among college students (Xu *et al.*, 2025). These benefits may depend on whether students can take part in student activities regularly and have access to the resources that make such participation meaningful (Winstone *et al.*, 2022). Since belonging, well-being, and the underlying processes of emotional connectedness and social adaptation are related to socio-emotional functioning, SAP may represent a meaningful developmental context for university students' socio-emotional skills.

The contribution of SAP to university students' socio-emotional skills is also reflected in more specific capability outcomes, particularly communication, leadership, resilience, and self-regulation. Sustained participation has been associated with graduate attributes such as leadership, teamwork, communication, and resilience (Foley *et al.*, 2024). Typical co-curricular experiences in undergraduate education have likewise been shown to strengthen students' communication skills and, under certain conditions, support the development of teamwork and leadership (Carter *et al.*, 2016). Student activities such as sport, music, volunteering, international group experiences, and



professional practice are also associated with stronger teamwork among university students (de Prada Creo *et al.*, 2021). Past and current SAP is linked to stronger goal-directed self-regulation strategies, which are in turn associated with higher academic success and emotional well-being (Guilmette *et al.*, 2019). Recent Chinese evidence also suggests that the relationship may be bidirectional: socio-emotional skills have been found to predict engagement in high-impact educational practices (Guo *et al.*, 2025). This possibility is important when interpreting cross-sectional evidence. Taken together, the literature supports a positive association between SAP and key qualities related to socio-emotional skills, while not establishing a single causal direction. Accordingly, this study proposes the following hypothesis: H3: SAP is positively associated with socio-emotional skills among final-year undergraduate students.

As discussed above, SES influences university students' opportunities to access and sustain SAP, while SAP is closely associated with socio-emotional outcomes such as belonging, communication and collaboration, self-regulation, and social adaptation. Accordingly, the influence of SES on university students' socio-emotional skills may not operate entirely through a direct pathway, but may also be transmitted in part through SAP. In other words, family socioeconomic background may first shape the extent to which students engage in SAP, and these differences in participation may in turn influence their socio-emotional development outcomes. Therefore, we propose the forth hypothesis as follows: H4: SAP mediates the relationship between SES and socio-emotional skills.

2.4 Theoretical Background

This study draws on Bourdieu's theory of capital and Astin's I-E-O model to explain the relationship among SES, SAP, and socio-emotional skills. Bourdieu's theory is used to explain how unequal family capital conditions shape students' access to extracurricular opportunities (Bourdieu, 1986), while Astin's I-E-O model helps position SAP as an educational experience linking student background to developmental outcomes (Astin, 1997).

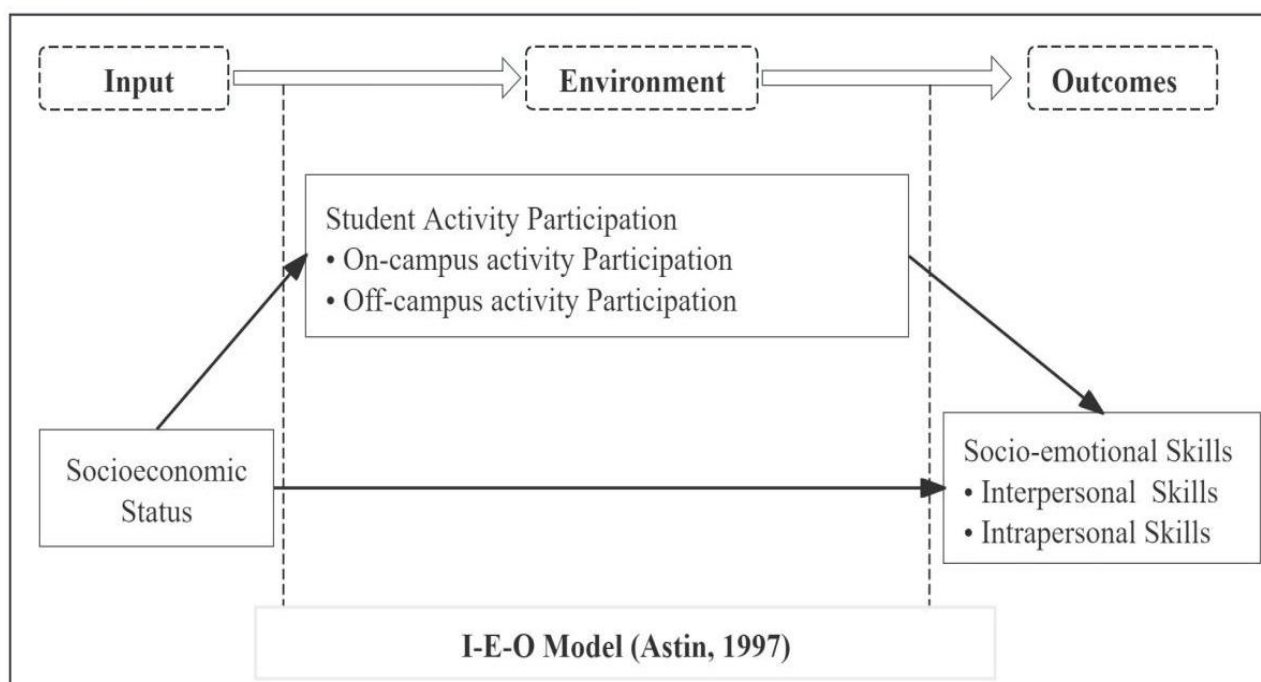


Figure 1. Proposed Research Model.

From Bourdieu's perspective, differences in family resources may influence students' access to SAP through financial support, educational background, available time, and familiarity with university expectations (Bourdieu, 1986). Such differences may affect students' access to SAP, the activities they choose, and the stability of their participation. Astin's I-E-O model helps clarify how this process operates within student development. In this study, SES is understood as the input, SAP as the education environment, and socio-emotional skills as the development outcome (Astin, 1997). This theoretical integration helps explain how unequal family resources may shape SAP and relate to students' socio-emotional skills. Figure 1 illustrates the research framework.

2.5 Analytical Context

Shandong Province provides a suitable context for this study. As an important coastal province in eastern China, Shandong has a large-scale public higher education system and a large number of undergraduate students. Focusing on final-year students in Shandong public universities helps to explore the relationships among SES, SAP, and university students' socio-emotional skills within a specific public higher education context.

3. Methods

3.1 Participants, Sampling and Procedures

The study used a cross-sectional survey design. Using Soper's a priori sample size calculator for SEM, the minimum sample size was estimated at 403 valid responses (Soper, 2020). In light of possible non-response, invalid questionnaires, and data loss during screening, questionnaires were distributed in excess of the minimum requirement (Bartlett et al., 2001). Using convenience sampling, the survey link was distributed to 630 final-year university students from 10 public universities in Shandong Province. The student affairs offices of the participating universities helped distribute the survey link through Wenjuanxing. Participation was described as voluntary and anonymous, and the data were used only for research purposes.

The questionnaire link was sent to 630 final-year undergraduates. After data screening, 571 responses were retained for analysis. Responses with very short completion times, highly uniform answers, or other indicators of invalid responding were removed. The retained sample represented 90.63% of the 630 questionnaires distributed. The participants consisted of 284 males (49.7%) and 287 females (50.3%). Detailed demographic characteristics of the sample are presented in Table 1.

Table 1. Demographic Characteristics of the Sample

Demographic Information	Categories	Frequency	Percentage (%)
Gender	Male	284	49.7
	Female	287	50.3
	Total	571	100

3.2 Measures

SES is commonly conceptualized as a composite of the educational, occupational, and economic resources available within the family rather than as a single indicator (Bradley & Corwyn, 2002; Sirin, 2005). SES in this study was operationalized using three indicators: parental education, parental occupational status, and annual household income (Bradley & Corwyn, 2002; Sirin, 2005). To capture the relatively higher educational and occupational resources available within the family, the higher level of parent education and the higher parent occupational status between the two parents were used. Parental education followed the Chinese education system and was coded into six levels. Annual household income was measured with seven ordered categories. Parental occupational status was coded according to Lu (2002) classification of social stratification in contemporary China. The occupational score ranged from 1 to 10. The three SES indicators were standardized before analysis. Principal component analysis was conducted on annual household income, parental education, and parental occupational status, and the first principal component was retained as the composite SES index. This component had an eigenvalue of 1.723 and explained 57.439% of the total variance, with component loadings of 0.546, 0.821, and 0.867, respectively. The SES score was calculated as $SES = (0.546 * Z_{income} + 0.821 * Z_{education} + 0.867 * Z_{occupation}) / 1.723$. Higher scores indicated higher family socioeconomic status.

SAP was operationalized as students' participation in activities beyond regular classroom instruction. SAP was measured through two related but distinguishable dimensions: on-campus activity participation (ONA) and off-campus activity participation (OFA). ONA included sports activities, arts-related activities, ideological or political learning activities, academic lectures, major-related competitions, and research projects. OFA included community service, off-campus internships or practicum programs, social practice activities, off-campus part-time jobs, and off-campus entrepreneurship. The inclusion of part-time employment within OFA requires cautious interpretation: paid



work may provide practical experience, while a high workload may simultaneously reduce the time available for other forms of SAP. The measure was developed by adapting and refining relevant items from existing instruments in light of the research purpose and the context of final-year undergraduate students in Chinese universities. ONA included six items; an example item is 'I participate in arts-related extracurricular activities.' OFA included five items; an example item is 'I participate in off-campus internship or practicum programs.' Students answered all items on a five-point frequency scale from 1 (never) to 5 (very frequently). The ONA items were adapted from the Chinese College Student Engagement Scale (Guo, 2018). The OFA items were adapted mainly from the National Survey of Student Engagement (NSSE) (National Survey of Student Engagement, n.d.). Both dimensions demonstrated satisfactory reliability, with $\alpha = 0.897$ for ONA and $\alpha = 0.860$ for OFA.

In this study, socio-emotional skills were operationalized through two closely related domains: interpersonal skills and intrapersonal skills. This definition refers to selected BESSI-based dimensions rather than the full socio-emotional domain. Based on Behavioral, Emotional, and Social Skills Inventory (BESSI) and its short form version, the present measure retained four dimensions: social engagement, cooperation, self-management, and emotional resilience (Soto *et al.*, 2022; Sewell *et al.*, 2025). The measure included 16 items. For the present study, social engagement and cooperation formed the interpersonal skills dimension. Self-management and emotional resilience formed the intrapersonal skills dimension. The items were introduced with the prompt, 'Please rate how well you can do each of the following activities.' Sample items included 'Lead a group of people,' 'Express my thoughts and feelings.' All items were rated on a five-point ability scale, with higher scores indicating higher levels of socio-emotional skills. In the present sample, both dimensions demonstrated good internal consistency, with Cronbach's alpha coefficients of .923 for interpersonal skills and .917 for intrapersonal skills.

3.3 Data Analysis

Data were analyzed using SPSS 26 and AMOS 24. First, SPSS 26 was used for preliminary data screening, organization, and descriptive characterization of the sample. Second, confirmatory factor analysis was conducted in AMOS 24 to examine the measurement model and assess internal consistency, convergent validity, and discriminant validity, consistent with established SEM practice (Kline, 2023). After an acceptable measurement model was established, structural equation modeling was performed in AMOS 24 to test the associations among SES, SAP, and socio-emotional skills. Finally, bootstrapping was used to examine the indirect association of SES with socio-emotional skills through SAP.

4. Results

4.1 Common Method Bias Test

Common method bias was examined using Harman's single-factor test. All 27 measurement items were entered into an unrotated principal component analysis. Four factors had eigenvalues greater than 1, explaining 64.82% of the total variance. The first factor accounted for 35.44% of the variance, below the commonly used 40% threshold. The results suggest that common method bias was unlikely to be a serious concern in this study.

4.2 Measurement Model Results

A CFA was conducted to examine the adequacy of the proposed measurement model. The analysis was based on the original item-level indicators, without item parceling or correlated residuals, and no items were removed on the basis of modification indices. The model showed good fit to the data: $\chi^2(318) = 411.950$, $p < .001$, $\chi^2/df = 1.295$, GFI = 0.948, AGFI = 0.938, IFI = 0.989, TLI = 0.988, CFI = 0.989, and RMSEA = 0.023 (Hair *et al.*, 2019).

Convergent validity was assessed using standardized factor loadings, composite reliability (CR), and average variance extracted (AVE). As shown in Table 2, all retained indicators loaded on their intended latent factors, with standardized factor loadings ranging from 0.728 to 0.789, exceeding the commonly recommended threshold of .50 (Hair *et al.*, 2019).

The CR values ranged from 0.860 to 0.923, meeting the 0.70 criterion for composite reliability (Hair *et al.*, 2019). AVE values were between 0.551 and 0.601, above the 0.50 threshold proposed for convergent validity (Fornell & Larcker, 1981). The results supported the convergent validity of the measurement model. Discriminant validity



was assessed using the Fornell–Larcker criterion. As reported in Table 3, the square root of the AVE for each dimension was greater than its correlations with the other dimensions, supporting acceptable discriminant validity (Fornell & Larcker, 1981).

Table 2. Reliability and convergent validity of the constructs

Construct	Dimensions	Items	Factor loadings	CR	AVE	Cronbach's a
Student activity participation	ONA	ONA1	0.783	0.897	0.591	0.897
		ONA2	0.759			
		ONA3	0.780			
		ONA4	0.771			
		ONA5	0.764			
		ONA6	0.755			
	OFA	OFA1	0.728	0.86	0.551	0.86
		OFA2	0.755			
		OFA3	0.750			
		OFA4	0.739			
		OFA5	0.741			
Socio-emotional skills	INTER	INTER1	0.783	0.923	0.601	0.923
		INTER2	0.769			
		INTER3	0.780			
		INTER4	0.785			
		INTER5	0.765			
		INTER6	0.772			
		INTER7	0.765			
		INTER8	0.781			
	INTRA	INTRA1	0.789	0.917	0.582	0.917
		INTRA2	0.750			
		INTRA3	0.761			
		INTRA4	0.755			
		INTRA5	0.767			
		INTRA6	0.761			
		INTRA7	0.761			
		INTRA8	0.757			

Table 3. Discriminant validity of the constructs

Variable	ONA	OFA	INTER	INTRA
ONA	0.769			
OFA	0.531	0.742		
INTER	0.372	0.368	0.775	
INTRA	0.371	0.332	0.547	0.763

Notes: Diagonal elements in bold indicate the square root of AVE for each construct. Off-diagonal elements are inter-construct correlations.



4.3 Path Model Results

The results of the path analysis are presented in Table 4. SES was positively associated with socio-emotional skills ($\beta = .219$, $B = .189$, $S.E. = .059$, $C.R. = 3.222$, $p < .001$), supporting H1. SES was also positively associated with SAP ($\beta = .586$, $B = .492$, $S.E. = .046$, $C.R. = 10.582$, $p < .001$), supporting H2. In addition, SAP was positively associated with socio-emotional skills ($\beta = .541$, $B = .555$, $S.E. = .097$, $C.R. = 5.712$, $p < .001$), supporting H3. Taken together, all three structural associations were significant, providing the statistical basis for the subsequent bootstrap test of the indirect association.

Table 4. Results of the structural path analysis

Hypothesis	Path	Unstandardized estimate (B)	S.E.	C.R.	Standardized estimate (β)	Result
H1	SES $\rightarrow$ SEO	0.189***	0.059	3.222	0.219	Supported
H2	SES $\rightarrow$ SAP	0.492***	0.046	10.582	0.586	Supported
H3	SAP $\rightarrow$ SEO	0.555***	0.097	5.712	0.541	Supported

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

4.4 Mediation effect result

The results of the mediation analysis are presented in Table 5. The indirect effect of SES on socio-emotional skills through SAP was significant, with an unstandardized estimate of 0.215 and a standardized estimate of 0.313. The bias-corrected 95% confidence interval was [0.152, 0.314], and the percentile 95% confidence interval was [0.148, 0.305]. As neither confidence interval included zero, SAP significantly mediated the relationship between SES and socio-emotional skills. At the same time, the direct effect of SES on socio-emotional skills remained significant, with an unstandardized estimate of 0.133 and a standardized estimate of 0.193. The bias-corrected 95% confidence interval was [0.048, 0.225], and the percentile 95% confidence interval was [0.045, 0.221]. These results indicate that SAP played a partial mediating role in the relationship between SES and socio-emotional skills. The total effect was 0.348. Based on the unstandardized estimates, the indirect effect accounted for 61.8% of the total effect ($0.215/0.348 = 61.8\%$). These results support H4.

Table 5. Bootstrap results for the mediating effect of SAP

Path Relationship	B	β	Boot SE	Z-value	Bootstrapping 1000 times 95% CI			
					Bias-corrected		Percentile	
					Lower	Upper	Lower	Upper
SES $\rightarrow$ SAP $\rightarrow$ SEO(IE)	0.215	0.313	0.040	5.375	0.152	0.314	0.148	0.305
SES $\rightarrow$ SEO(DE)	0.133	0.193	0.045	2.956	0.048	0.225	0.045	0.221
Total Effect(IE+DE)	0.348	0.506	0.037	9.405	0.276	0.421	0.271	0.491

Note: B=unstandardized estimate, β =standardized estimate, Boot SE=bootstrap standard error, IE=indirect effect, DE=direct effect. The mediation proportion was calculated as the unstandardized indirect effect divided by the unstandardized total effect: $0.215/0.348 = 61.8\%$.

5. Discussion

This study first found a positive association between SES and university students' socio-emotional skills. This finding suggests that socio-emotional development should not be understood as a purely individual attribute detached from students' social conditions. SES not only reflects visible differences such as family income, parental education and occupation status, but also reflects the inequality of economic, cultural and social resources that students can acquire (Bradley & Corwyn, 2002). SES may influence students' growth through parent support, socialization methods, daily interaction patterns, and the availability of development resources (Conger & Donnellan,



2007). The higher institutes offers new spaces for growth, but it does not necessarily erase the effects of earlier family resources and socialization. The finding is in line with Bourdieu's view that different forms of capital can be transformed into education and development advantages in specific fields (Bourdieu, 1986). Lareau's research also supports this view. She points out that family practices based on SES differences can affect students' interaction styles, the levels of confidence, and their familiarity with institutional expectations (Lareau, 2011). The findings help explain why SES may still matter for university students' socio-emotional skills. Recent Chinese higher-education research likewise shows that social-emotional ability varies across student background and institutional characteristics (Gao & Wang, 2025), while university environmental conditions are associated with socio-emotional competence (Fang *et al.*, 2025).

The positive association between SES and SAP suggests that family socioeconomic circumstances remain related to students' developmental experiences in higher education. Students from higher-SES backgrounds may have more stable financial support, greater schedule flexibility, wider access to information, and greater familiarity with university systems, all of which may reduce the practical costs of sustained participation. Students from lower-SES backgrounds may face greater constraints from economic pressure, employment demands, commuting, or family responsibilities. This interpretation is consistent with Rubin and Wright (2017), who describe unequal access to time and financial resources in university social integration, and with Hordósy *et al.* (2018), who show that economic need and paid work can restrict participation in employability-related activities. In the present measure, part-time employment is itself included within OFA because it can provide practical experience; however, the same employment may reduce participation in other activities when working hours are extensive. Recent work on social class and internships similarly indicates unequal access to employability-building experiences (Vines & Gobel, 2025). Family SES has also been linked to college students' physical activity through parental exercise habits and family sports climate (Lou *et al.*, 2024). The SES-SAP association should therefore be interpreted as relating to the overall pattern of activity participation rather than as evidence that every component of SAP operates identically across SES groups.

The findings also show that SAP is positively associated with the selected socio-emotional skill domains examined in this study. Compared with classroom learning, many student activities place students in practice-oriented situations that require role negotiation, communication, task management, responsibility, and responses to interpersonal or emotional tensions. Such experiences may provide repeated opportunities to practise communication, cooperation, self-management, and emotional resilience. This interpretation is consistent with Astin's view that student development is related to the time and psychological energy students invest in educational experiences (Astin, 1984). It also aligns with empirical research linking student activities with communication, teamwork, leadership, and self-regulation skills among university students (Carter *et al.*, 2016; de Prada Creo *et al.*, 2021; Guilmette *et al.*, 2019). More recent Chinese studies similarly link volunteering, group singing, and structured group activities with social-emotional competence or empathy (Lyu *et al.*, 2025; Jiang, 2025; Xu *et al.*, 2025). Because the present data are cross-sectional, these results should not be interpreted as demonstrating that SAP causes improvement in socio-emotional skills.

The mediation results further characterize the statistical relationship among SES, SAP, and socio-emotional skills. SAP can be viewed both as a context in which students practise relevant skills and as an opportunity structure associated with family SES. However, the significant indirect effect does not establish that SES temporally causes differences in SAP that subsequently cause differences in socio-emotional skills. Rather, the cross-sectional model is consistent with the theoretical proposition that family resources, participation opportunities, and socio-emotional development are interrelated. This interpretation is compatible with Bourdieu's discussion of the convertibility of economic, cultural, and social capital within educational fields (Bourdieu, 1986). From an unequal-opportunities perspective, participation cannot be attributed solely to individual effort because access and continuity may also be related to family resources, time, information, and social position (Roemer & Trannoy, 2016). As formal educational access expands, inequality may therefore also appear in the quality, depth, and accessibility of developmental opportunities (Lucas, 2001).

6. Conclusion

Among final-year undergraduates in public universities in Shandong Province, China, family socioeconomic status was positively associated with student activity participation and with the selected socio-emotional skill domains



examined in this study. SAP was also positively associated with socio-emotional skills, and the bootstrap analysis indicated a significant partial statistical mediation pattern between SES and socio-emotional skills through SAP. These findings extend the discussion of socioeconomic inequality in higher education beyond access and academic outcomes by showing that family background is also associated with students' participation experiences and with selected interpersonal and intrapersonal skills. The results are consistent with the theoretical view that unequal family resources may be linked to unequal access to developmental opportunities within higher education. At the same time, the findings should be interpreted cautiously. The cross-sectional design does not establish temporal ordering or causality, and the socio-emotional measure represents selected BESSI-based dimensions rather than the full socio-emotional domain. In addition, SAP includes diverse forms of participation, including part-time employment, which may provide practical experience while also competing with other activities for students' time. Accordingly, the results support an associational interpretation: SAP may be one statistically relevant pathway linking SES with socio-emotional development, but longitudinal or experimental evidence is required before causal claims can be made. Future research should test the model across regions and institution types and examine whether different forms, intensity, and quality of SAP show distinct relationships with SES and socio-emotional skills.

7. Implications

The findings identify SAP as a potentially important correlational pathway linking SES with students' socio-emotional skills. For higher education institutions, simply counting the number of available activities does not show whether developmental opportunities are equally accessible. Greater attention is needed to how SAP is organized, funded, promoted, and recognized, and to whether students from lower-SES backgrounds can access and sustain participation without disproportionate financial or time costs. Lower participation may reflect constraints such as paid work, commuting, family responsibilities, or limited access to informal networks rather than a lack of interest or initiative.

Practical support should start with the areas where lower-SES students are most likely to lose SAP opportunities. Universities should make SAP information more transparent and accessible, especially for opportunities that require early preparation, applications, or selection processes. They also need to provide more tailored guidance for students who are part-time, commuting, or have family responsibilities. When SAP involves transport, materials, competition fees or unpaid internship time, modest allowances or support from the department can make participation more feasible. Universities can also broaden the recognition of meaningful SAP, for example by acknowledging short-term, on-campus, community-oriented or credit-bearing activities. With these arrangements, lower-SES students would have a more realistic chance to benefit from the developmental value of SAP.

8. Limitation and Future Research

The cross-sectional design limits the explanatory scope of the model. The observed paths among SES, SAP, and socio-emotional skills represent statistical associations and cannot establish causality or temporal ordering. Related Chinese research has also modeled the opposite ordering, with socio-emotional skills predicting engagement in high-impact educational practices (Guo et al., 2025), which reinforces the need for longitudinal evidence on directionality. The reliance on student self-report is another limitation. Although Harman's single-factor test did not indicate a serious common-method-bias problem, data collected from a single source may still inflate some observed relationships. Generalizability is also limited because participants were drawn from public universities in Shandong Province. The results should therefore not be generalized automatically to all undergraduates in China, private institutions, or universities in other regions. Future research should use longitudinal designs, incorporate additional data sources such as institutional records or peer/teacher assessments where appropriate, distinguish the intensity and type of SAP, and test whether the results remain stable when paid employment is analyzed separately from other off-campus activities.

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Author Contribution Statement

Xiaoyu Li: Conceptualization, Methodology, Software, Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing-Original Draft, Visualization. Mohd Mahzan Bin Awang: Conceptualization, Validation, Writing-Review & Editing, Visualization, Supervision, Project Administration. Syafiqah Abdul Rahim: Conceptualization, Validation, Writing-Review & Editing, Visualization, Supervision, Project Administration. All the authors have read and agreed to the published version of the manuscript.

Does this article screen for similarity?

Yes

Conflict of Interest

The authors have no conflicts of interest to declare. There is also no financial interest to report. The author certifies that the submission is original work and is not under review at any other publication.

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