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RESEARCH ARTICLE

Beyond Academics: the impact of co-curricular activities on career development among LIS students

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Abstract

Purpose

This study investigates the impact of co-curricular activities on career development, academic performance, and employability among students of the Department of Information Science and Library Management at Noakhali Science and Technology University. It examines students' perceptions, participation patterns, skill development, and career-related outcomes associated with involvement in co-curricular activities.

Design/methodology/approach

A quantitative research approach was employed using a structured online questionnaire distributed via social media and email between June and December 2025.Through simple random sampling, 199 valid responses were collected from 220 LIS students. Data were analyzed using SPSS and Excel. Descriptive statistics, skewness and kurtosis tests, Pearson correlation, Mann–Whitney U, and Kruskal–Wallis tests were applied.

Findings

The findings reveal that students hold positive perceptions regarding the role of co-curricular activities in career development and academic success. Leadership development (r = .845), campus satisfaction (r = .825), and venue adequacy (r = .729) showed strong positive correlations with participation. Debate and science clubs emerged as the most popular activities. Participation significantly enhanced communication, leadership, teamwork, and academic skills, while also contributing to CV development and interview preparation. Gender and academic year influenced perceived benefits, with academic year showing the strongest impact.

Research limitations/implications

The study was limited to a single institution and employed a cross-sectional design, which may restrict the generalizability of the findings and limit causal interpretation. Future research should adopt multi-institutional and mixed-method approaches.

Keywords

Career development; co-curricular activities; Library and Information Science (LIS); academic performance; employability

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1. Introduction

University life offers students more than just academic instruction—it provides a foundation for developing essential life and career skills. While classroom learning, laboratory work, and library use are vital components of academic success, students also benefit immensely from engaging in co-curricular and career development activities. These experiences help shape well-rounded individuals equipped for the modern workforce. Co-curricular activities—such as participation in clubs, student organizations, workshops, volunteerism, and professional development programs serve as practical learning opportunities that foster teamwork, leadership, communication, and time management skills (Kisango, 2016; Yousaf Zada & Alamzeb, 2021). A growing body of research supports the positive relationship between co-curricular involvement and academic achievement. Zehner (2011), analyzing over 190,000 records at Purdue University, found that students involved in structured co-curricular activities and music groups consistently outperformed their peers academically. Likewise, Acquah and Partey (2014) reported that involvement in co-curricular programs significantly improved performance in economics, suggesting that such activities should be better coordinated to enhance participation. Similarly, Aliu and Aigbavboa (2023) demonstrated that student teachers engaged in co-curricular tasks during their class showed enhanced teaching readiness and professional confidence. These activities are particularly valuable in disciplines such as Library and Information Science (LIS), where practical skills and professional development are central to career success (Mulrooney, 2017). Nacházelová & Reissová (2020) highlighted that committed, skilled employees often drive innovation and organizational success. Employers actively seek candidates with hands-on experience and the soft skills that co-curricular participation cultivates. Thus, co-curricular engagement serves not only as personal enrichment but also as preparation for the job market. Despite these benefits, many students in Bangladesh are reluctant to participate in co-curricular programs. Cultural attitudes, lack of awareness, and fear that such activities may negatively impact academic performance contribute to low participation rates (Rahman et al., 2021). Some parents and educators believe these engagements are distractions rather than complementary learning experiences. This perception leads to confusion among students about the value of participating in non-academic programs, even though evidence suggests otherwise. This research focuses on students in the Department of Information Science and Library Management under the Institute of Information Science at Noakhali Science and Technology University. It aims to examine student involvement in co-curricular and career development activities, the benefits they derive from participation, the impact on academic and job performance, and barriers to engagement. The study also seeks to offer practical strategies for increasing participation among LIS students. As Bergen-Cico &Viscomi (2012) and Singh (2017) suggested, structured co-curricular programming can significantly enhance student motivation, retention, and learning outcomes. By investigating these dimensions, the study contributes to understanding how co-curricular and career development activities influence students' academic and professional trajectories. The findings will help educators, administrators, and policymakers enhance student engagement and better align LIS education with real-world demands. The primary aim of this study is to examine the role of career development and co-curricular activities in enhancing students' academic performance and job readiness within the Department of Information Science and Library Management at Noakhali Science and Technology University (NSTU). This study seeks to understand how student engagement in co-curricular and developmental

programs contributes to the acquisition of essential skills relevant to academic achievement and professional performance. The subsidiary objectives of this study are-

- To explore student perceptions regarding the value and impact of career development and co-curricular activities at NSTU.
- To assess the level of student participation in career development and co-curricular activities on the NSTU campus.
- To identify the types of co-curricular activities commonly available and pursued by students for career enhancement.
- To evaluate how participation in co-curricular activities contributes to the development of essential soft and professional skills among NSTU students.
- To examine the relationship between student engagement in co-curricular activities and their academic performance.
- To investigate the extent to which co-curricular experiences support students' job performance and employability after graduation.

2. Literature Review

Career development and co-curricular activities play a pivotal role in fostering students' academic success, personal growth, and professional readiness. McIntyre (1998) emphasized the importance of comprehensive databases in enhancing career education and counselling in New Zealand secondary schools, suggesting that effective data systems can inform policies and improve decision-making in educational settings. Miles (2008) and Sung, Turner, & Kaewchinda (2013) underscored the value of structured and tailored career development programs in improving students' academic motivation and career maturity. The Integrative Contextual Model of Career Development, in particular, highlights how psychological factors such as hope contribute to positive career behaviors. Wallace (2009) and Mundy et al., (2012) further affirmed that ongoing professional development for educators directly impacts student engagement and academic outcomes, demonstrating the interrelatedness of instructional quality and career preparedness. Various studies have explored practical strategies for career advancement, such as work-integrated learning (Smith et al., 2009) and targeted support for marginalized groups (Doyle, 2011), highlighting the need for inclusive and context-sensitive interventions. McIlveen (2009) contributed a practitioner-focused framework for effective career counselling in Australia, while Nacházelová & Reissová (2020) examined global career aspirations among students in the Czech Republic, linking internship preferences to broader labor market concerns. Donald Super's developmental theory continues to serve as a foundational model in understanding career progression, emphasizing the influence of self-concept, life stages, and personal experiences. Foong-ming (2008) examined how perceived organizational support mediates the relationship between long-term career development practices and turnover intentions among Malaysian knowledge workers, highlighting the role of career orientation and cultural values in shaping workforce outcomes. Yurtseven & Bademcioglu (2016) provided a comprehensive analysis of professional development literature, identifying professional learning communities as a dominant theme and emphasizing the prevalence of qualitative methodologies and English-language publications in this domain. Lahti (2013) delved into the persistent underrepresentation of women in leadership roles, particularly in Finland, attributing it

to entrenched gender norms and organizational culture while advocating institutional change to support women's career advancement. Therefore, we formulated the following hypotheses

H_1: *There is a significant association between gender and participation in NSTU co-curricular clubs such as the Debating Society, Dhrupod, Chitrokrit, and the Dance Club.*

H_2: *There is a significant difference in participation in co-curricular activities such as the NSTU Dance Club and NSTU Model United Nations Association based on residential status.*

H_3: *Students' age significantly influences participation in clubs such as Dhrupod, Chitrokrit, and Shobdakutir.*

In parallel, co-curricular activities have been consistently recognized as integral to holistic student development. Marais (2011) explored the role of student teachers' engagement in co-curricular activities during their teaching practice within an open distance learning (ODL) framework, revealing how such involvement significantly enhanced their teaching competencies and professional readiness. Yousaf Zada & Alamzeb (2021) reported that structured involvement in co-curricular activities enhanced leadership skills among university students in Pakistan, advocating for institutional mechanisms to support greater participation. Vos et al., (2018) demonstrated that pharmacy students involved in leadership and service-based co-curricular initiatives recorded substantial professional development hours, with reflection playing a key role in their growth. Guo & Liem (2023), employing Self-Determination Theory, highlighted how the quality of co-curricular experiences mediated by supportive peer and faculty relationships—promotes youth development in Singapore. Shehata (2015) confirmed that experiential learning through engineering competitions enriched students' understanding of academic content and employability. Hence, we anticipated the following-

H_3: *There is no significant influence of students' age on their participation in clubs such as Dhrupod, Chitrokrit, and Shobdakutir.*

H_4: *There is no significant improvement in academic performance due to participation in co-curricular activities, regardless of students' gender or residential status.*

H_5: *There is no significant association between gender, residential status, or academic year and the belief that co-curricular activities positively affect students' future careers.*

Acquah and Partey (2014) investigated the correlation between students' participation in co-curricular activities and their academic performance in economics among 920 Ghanaian students, finding a positive impact and recommending structured coordination to ensure active student involvement. Zehner (2011) further supported this connection by analyzing over 190,000 academic records at Purdue University, showing that students engaged in structured co-curricular groups, such as ROTC or musical organizations, consistently demonstrated stronger academic performance. Rahman et al., (2021) posed a crucial inquiry into the reasons behind student disengagement from co-curricular activities, aiming to uncover the barriers and affirm the multifaceted benefits—academic, professional, and personal—that such participation can bring, ultimately urging a reevaluation of how these programs are perceived and integrated into student life. Hence, we formulated the following hypotheses in light of the discussion above:

H_6: *There is no significant impact of participation in co-curricular activities on students' job performance.*

H_7: *There is no significant variation in students' perception that co-curricular activities help with*

Kanar and Heinrich (2024) expanded this narrative by illustrating how learning goal orientation and career exploration contribute to students' ability to articulate competencies. In the context of Bangladeshi higher education, Siddiky (2019) linked co-curricular engagement with Sustainable Development Goals, emphasizing benefits across personal, cognitive, civic, and social domains. Additional research (Batool and Ahmad, 2020; Sami & Irfan, 2020; Singh, 2017) has associated co-curricular participation with improved academic performance, self-confidence, and communication skills. Bergen-Cico & Viscomi (2012) presented a nuanced view, revealing that moderate levels of engagement yielded the highest academic gains, while Kariyana et al., (2012) pointed out that positive outcomes depend heavily on the effective management and integration of such activities within academic settings. Although these studies provide valuable insights, there is a notable lack of research specific to Library and Information Science (LIS) students. Existing literature often generalizes findings across broader student populations, overlooking the unique educational pathways, career needs, and professional competencies required within LIS. There is also limited empirical evidence on how co-curricular involvement directly impacts LIS students' career readiness, leadership development, and academic achievement. Furthermore, the intersection of structured career counselling and co-curricular programming within LIS curricula remains underexplored, particularly in developing countries like Bangladesh. While theoretical models such as Super's Life-Span Theory and Self-Determination Theory have been employed in broader contexts, their application to LIS education is rare. This gap calls for targeted, longitudinal, and context-sensitive research to better understand and support career development and co-curricular engagement among LIS students.

Methodology

The research technique for this study was primarily quantitative to examine the impact of career development and co-curricular activities on Library and Information Science (LIS) students of a public university. Data collection was conducted between June and December 2025 through a structured online questionnaire. The questionnaire was distributed via email and social media platforms such as Facebook Messenger and WhatsApp to maximize accessibility and response rates. Additionally, secondary data were collected from professional publications, academic journals, and conference proceedings were also utilized. A simple random sampling technique was used to select participants, resulting in a sample of 220 LIS students. Out of these, 199 valid responses were received, yielding a strong response rate. The questionnaire consisted of two main sections: the first captured demographic information, while the second assessed students' involvement in co-curricular activities and aspects of career development. Data were analyzed using SPSS and Microsoft Excel. Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize the dataset. To assess the normality of the data distribution, skewness and kurtosis tests were conducted. Inferential statistical techniques such as the Mann-Whitney U test, Kruskal-Wallis test, and Pearson correlation were employed to examine differences and relationships among variables, with significance set at the 0.05 level. Ethical considerations were strictly adhered to throughout the study. Participants were provided with informed consent, participation was entirely voluntary, and confidentiality of responses was maintained. While the findings offer valuable insights into the role of career development and co-curricular engagement in student development, the study's scope is limited to a single institution, which may affect the generalizability of the results.

4. Findings

The study surveyed 199 LIS students at Noakhali Science and Technology University. Of them, 117 (58.8%) were male and 82 (41.2%) females. Residential status was nearly equal, with 101 (50.8%) residents and 98 (49.2%) non-residents. Most students were aged 22–25 years (127, 63.8%), followed

Demographic characteristics	Categories	No. of participants (n = 199)	%
Gender	Male	117	58.8
	Female	82	41.2
Residential Status	Resident	101	50.8
	Non-resident	98	49.2
Age Group	16-18 years	1	0.5
	19-21 years	61	30.7
	22-25 years	127	63.8
	Above 25 years	10	5
Education Level	1st Year	33	16.6
	2nd Year	44	22.1
	3rd Year	32	16.1
	4th Year	90	45.2

by 19–21 years (61, 30.7%). Only 10 (5%) were above 25, and 1 (0.5%) was 16–18. In terms of academic year, 4th-year students made up the largest group (90, 45.2%), followed by 2nd-year (44, 22.1%), 1st-year (33, 16.6%), and 3rd-year (32, 16.1%). These demographics highlight the varied backgrounds influencing students' career and co-curricular involvement (see Table 1).

Figure 1 shows that most students (112, 56.3%) had less than one year of co-curricular experience, while 52 (26.1%) had 2–5 years, 27 (13.6%) had 6–10 years, and only 8 (4%) had over 10 years, indicating early-stage involvement for most.

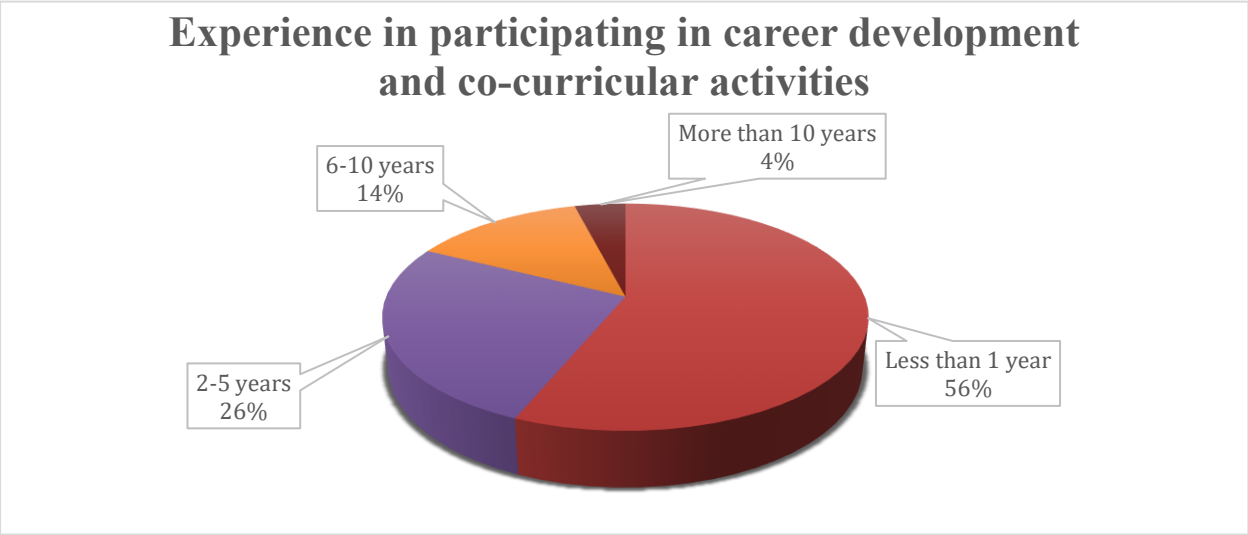

Figure 1. Experience in participating in career development and co-curricular activities

Figure 2 highlights highest participation in "Others" (0.30), NSTU Debating Society (0.29), and Science Club (0.25), with lower engagement in clubs like Adventure (0.12), Chitro Kolpo (0.11), Dhrupod (0.10), and Dance (0.05), suggesting more interest in communication-based groups. Figure 3 detailed the extent of student participation in terms of the number of activities joined. Most students (134, 67.3%) engaged in 1–3 activities, reflecting limited involvement. Moderate participation (4–8 activities) was seen among

50 students (25.2%), while only 15 students (7.5%) reported high engagement by participating in 9 or more activities. This distribution indicates that although a small, highly active group exists, the majority of students remain minimally involved, underscoring the need to motivate broader participation.

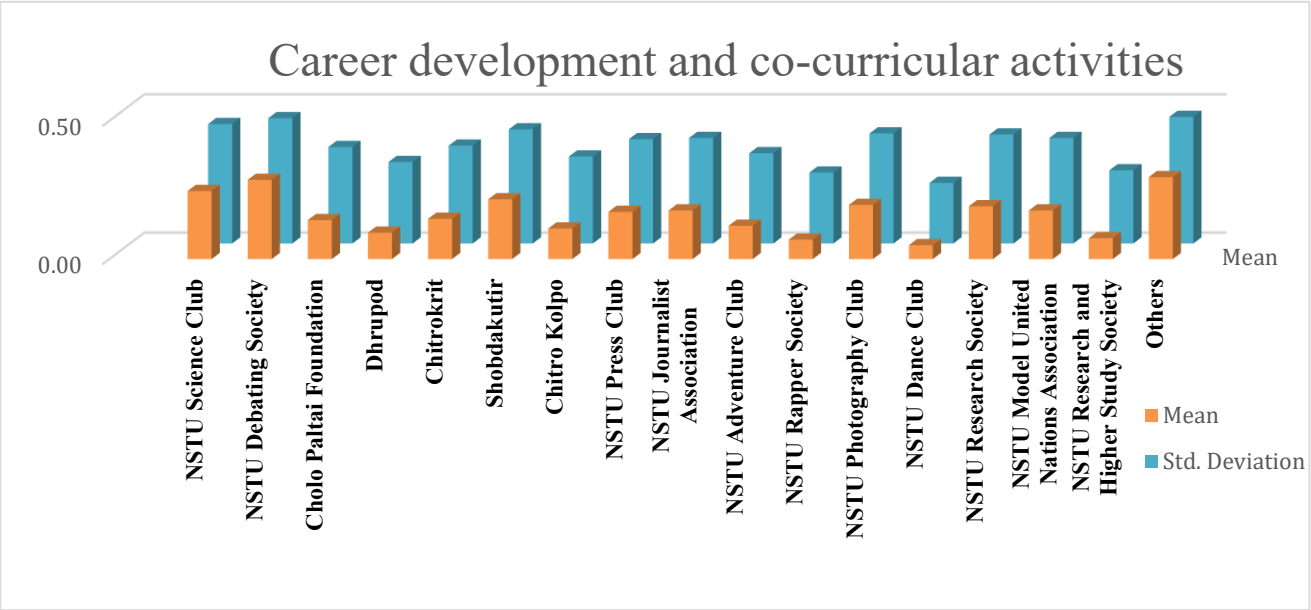

Figure 2. Career development and co-curricular activities

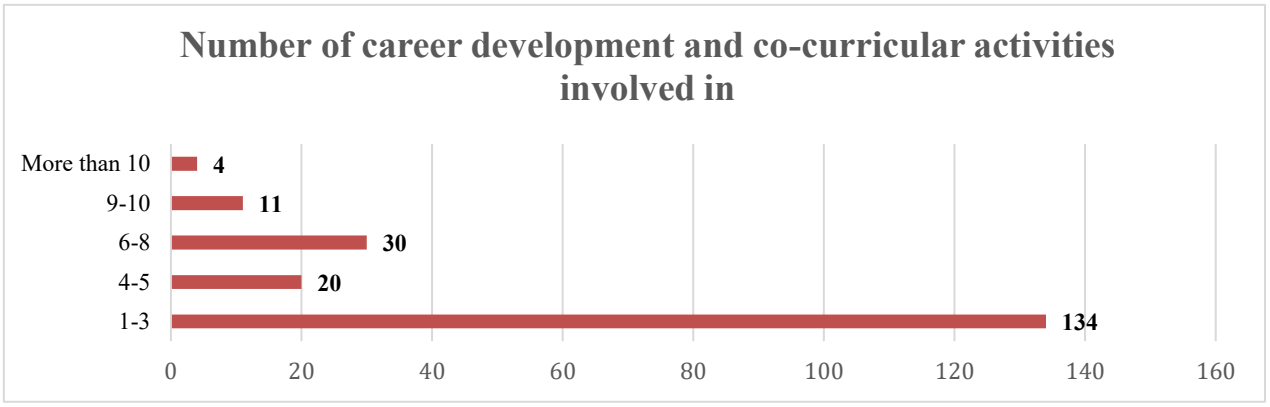

Figure 3. Number of career development and co-curricular activities involved in

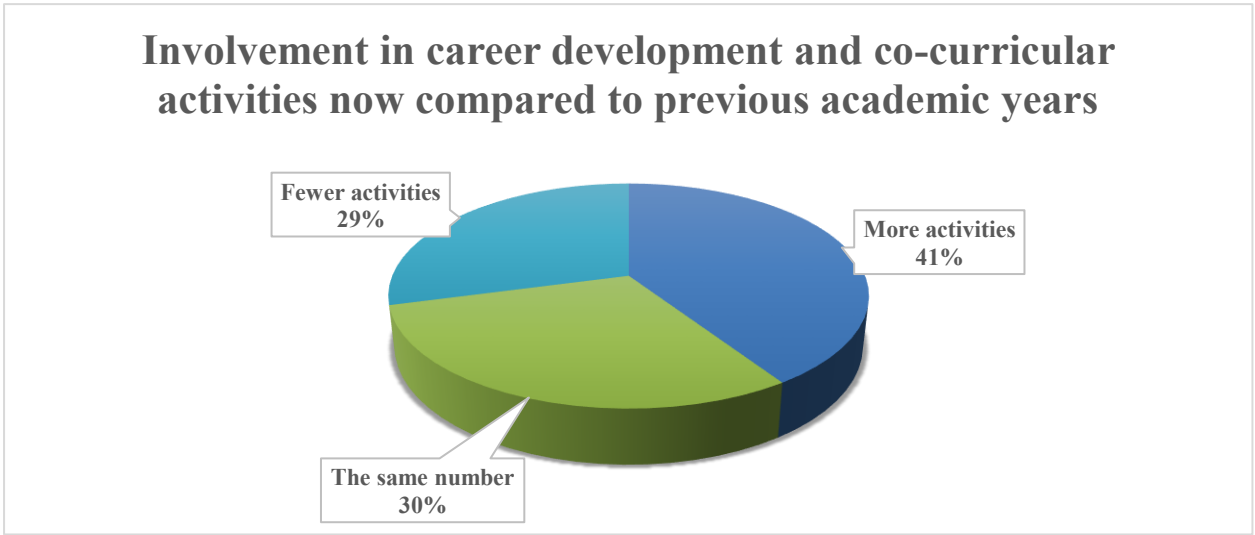

Figure 4. Involvement in career development and co-curricular activities now compared to previous academic years

Figure 4 presented a dynamic perspective on changes in student engagement over time. A notable portion (81, 40.7%) reported an increase in their involvement, signaling growing interest and proactive

participation in career development. However, 60 students (30.2%) reported no change in activity levels, and 58 students (29.1%) noted a decline, possibly due to academic workload, scheduling conflicts, or lack of motivation.

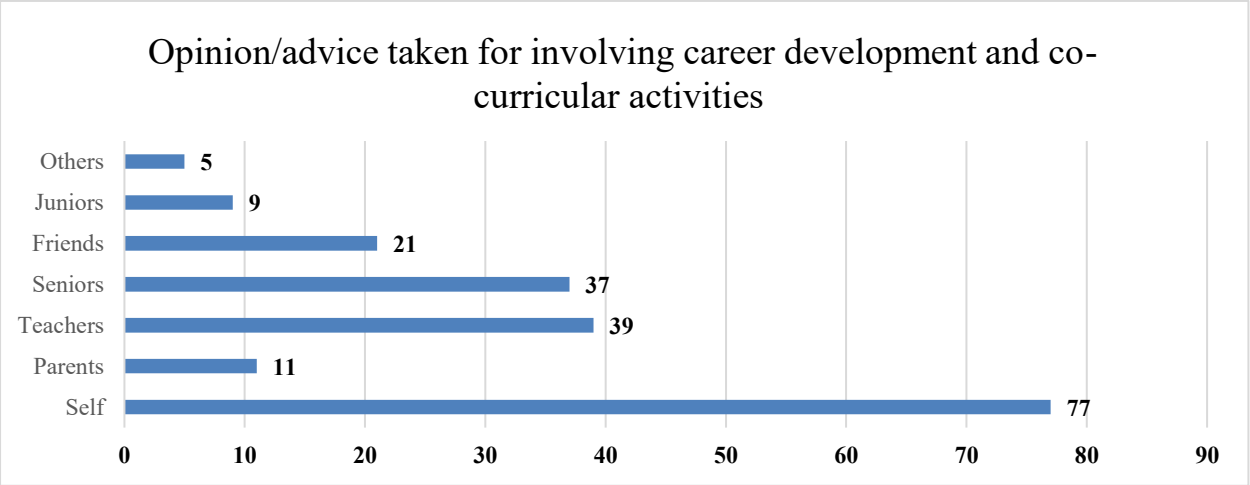

Figure 5. Opinion/advice taken for involving career development and co-curricular activities

Figure 5 highlights that a considerable portion of LIS students at Noakhali Science and Technology University demonstrated high autonomy in decision-making regarding participation in career development and co-curricular activities, with 77 students (38.7%) relying on their own judgment. This reflects a strong sense of personal initiative and self-directed involvement. In addition, 39 students (19.6%) turned to teachers for advice, underlining the pivotal role educators play in shaping students' extracurricular choices. Advice from seniors was also significant (37 students, 18.6%), suggesting that upperclassmen serve as influential role models. Fewer students sought guidance from friends (21, 10.6%), parents (11, 5.5%), juniors (9, 4.5%), or other sources (5, 2.5%), indicating that family and peer influence is comparatively less decisive in this context.

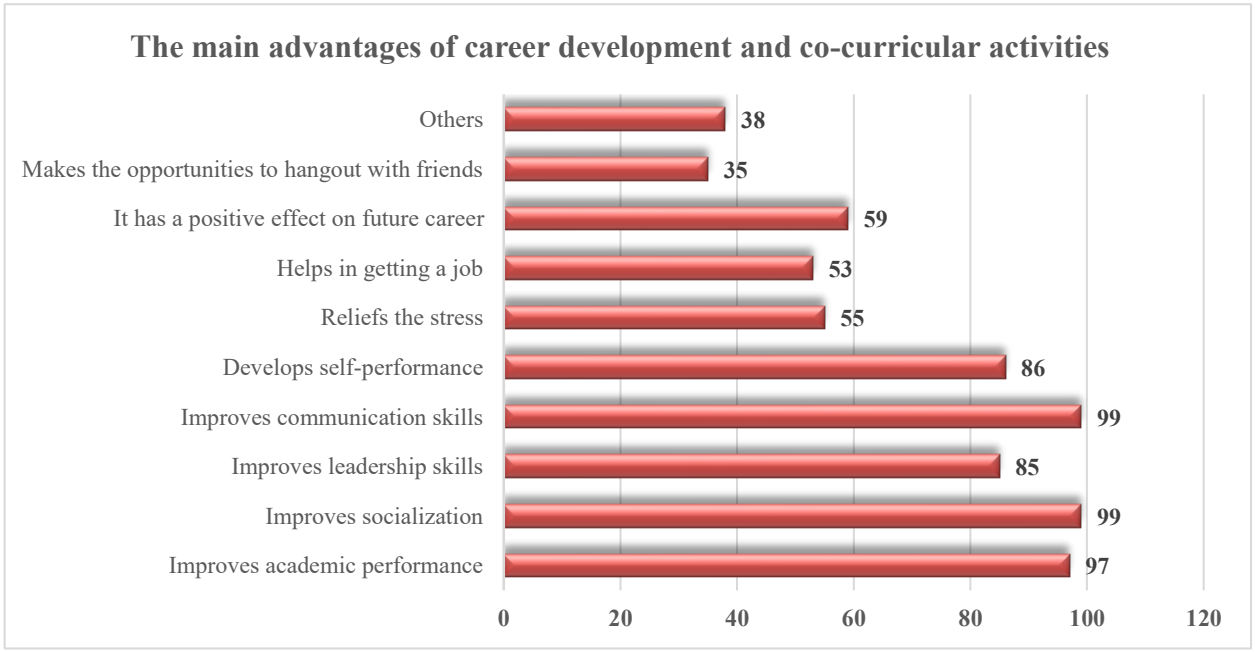

Figure 6. The main advantages of career development and co-curricular activities

Figure 6 revealed that a majority of students (122, 61.3%) reported feeling comfortable with their current level of engagement in career and co-curricular activities. This suggests a high degree of satisfaction among participant. Meanwhile, 54 students (27.1%) expressed uncertainty, and 23 students

(11.6%) reported dissatisfaction. These groups may represent students experiencing challenges in balancing academic commitments with extracurricular activities or those who lack access to opportunities that align with their interests and goals.

Table 2. Career development and co-curricular activities help students develop different skills contributing to academic/career performance

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean (SD)
Co-curricular activities are helpful for career development.	37 (18.6%)	6 (3.0%)	23 (11.6%)	89 (44.7%)	44 (22.1%)	3.49 (1.37)
Career development and co-curricular activities are helping to build leadership skills.	5 (2.5%)	36 (18.1%)	14 (7.0%)	99 (49.7%)	45 (22.6%)	3.72 (1.08)
Career development and co-curricular activities are helping social development.	5 (2.5%)	1 (0.5%)	52 (26.1%)	98 (49.2%)	43 (21.6%)	3.87 (0.84)
Activities available at the university are various.	5 (2.5%)	6 (3.0%)	23 (11.6%)	126 (63.3%)	39 (19.6%)	3.94 (0.81)
I like to participate in the same activity more than one time to improve myself.	4 (2.0%)	6 (3.0%)	30 (15.1%)	91 (45.7%)	68 (34.2%)	4.07 (0.89)
I speak about activities that I participated and I tell colleagues about the positives of these activities.	7 (3.5%)	4 (2.0%)	40 (20.1%)	118 (59.3%)	30 (15.1%)	3.80 (0.85)
I follow advertising activities.	4 (2.0%)	10 (5.0%)	79 (39.7%)	74 (37.2%)	32 (16.1%)	3.60 (0.89)
The place of activities is appropriate.	6 (3.0%)	42 (21.1%)	33 (16.6%)	85 (42.7%)	33 (16.6%)	3.49 (1.09)
I am satisfied with the activities held at the campus.	37 (18.6%)	17 (8.5%)	29 (14.6%)	84 (42.2%)	32 (16.1%)	3.29 (1.35)
Activities available at the university are suitable for my tendencies.	8 (4.0%)	39 (19.6%)	34 (17.1%)	88 (44.2%)	30 (15.1%)	3.47 (1.09)
Activities available at the university serve my needs.	8 (4.0%)	9 (4.5%)	67 (33.7%)	89 (44.7%)	26 (13.1%)	3.58 (0.92)

Table 2 shows that students generally view co-curricular activities positively for career development and skill-building. The statement "Co-curricular activities are helpful for career development" had a mean of 3.49 (1.37), while leadership and social development scored higher, with means of 3.72 (1.08) and 3.87 (0.84), respectively. Activity diversity (3.94), repeated participation (4.07), and peer sharing (3.80) were also well-rated. Advertising engagement (3.60) and activity location (3.49) received moderate feedback. Satisfaction (3.29) and personal relevance (3.47) indicated mixed views. Overall, students see co-curricular activities as beneficial, with some areas needing improvement.

The data on the table 3 showed that students recognize the significant impact of career development and co-curricular activities on their job placement and job performance. The statement "Career development and co-curricular activities help you find jobs" had the highest mean of 4.08 (0.91), indicating strong agreement with the idea that such activities play a critical role in securing employment. Similarly, "Career development and co-curricular activities influence students' future careers" scored 3.92 (0.78), reflecting a strong belief in the long-term benefits of these activities for career advancement. Career development and co-curricular activities also contribute to job security with a mean of 3.79 (0.81) and job availability with 3.75 (0.88), both showing positive perceptions. The statement "Career development and co-curricular activities impact job performance" scored 3.59 (1.04), suggesting that students believe these activities improve their workplace performance. The

contribution of these activities to CV development and job interviews was also positively rated, with means of 3.84 (0.83) and 3.66 (1.03), respectively. However, while most students agreed that co-curricular activities help with job applications, they seemed to feel slightly less certain about the direct influence of these activities on securing jobs or improving job performance.

Table 3. Identifying the extent how much career development and co-curricular activities contribute to job placement and job Performance.

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	M(SD)
Career development and co-curricular activities contribute to job placement.	38 (19.1%)	6 (3.0%)	21 (10.6%)	96 (48.2%)	38 (19.1%)	3.45(1.36)
Career development and co-curricular activities impact job performance.	5 (2.5%)	37 (18.6%)	24 (12.1%)	102 (51.3%)	31 (15.6%)	3.59(1.04)
Career development and co-curricular activities help to make job availability.	6 (3.0%)	4 (2.0%)	59 (29.6%)	94 (47.2%)	36 (18.1%)	3.75(0.88)
Career development and co-curricular activities offer job security.	3 (1.5%)	12 (6.0%)	37 (18.6%)	119 (59.8%)	28 (14.1%)	3.79(0.81)
Career development and co-curricular activities help you to find jobs.	6 (3.0%)	6 (3.0%)	20 (10.1%)	101 (50.8%)	66 (33.2%)	4.08(0.91)
Career development and co-curricular activities influence students' future careers.	5 (2.5%)	7 (3.5%)	18 (9.0%)	138 (69.3%)	31 (15.6%)	3.92(0.78)
Career development and co-curricular activities impact your CV.	5 (2.5%)	4 (2.0%)	45 (22.6%)	109 (54.8%)	36 (18.1%)	3.84(0.83)
Career development and co-curricular activities help with the job interview.	4 (2.0%)	36 (18.1%)	17 (8.5%)	108 (54.3%)	34 (17.1%)	3.66(1.03)
Good co-curricular activities help with a job application.	35 (17.6%)	4 (2.0%)	22 (11.1%)	101 (50.8%)	37 (18.6%)	3.51(1.31)
Career development and co-curricular activities help to Improve my performance at work.	5 (2.5%)	35 (17.6%)	12 (6.0%)	116 (58.3%)	31 (15.6%)	3.67(1.02)

Scale Measurements

This section elaborates on the results of the normality tests, which are conducted to assess the normality of the distribution of the study data and to verify the reliability of the questionnaire used in the research.

Multivariate normality test

The results of the multivariate normality test presented in Table 4 indicate that most variables satisfy the recommended skewness (±3) and kurtosis (±10) thresholds suggested by Demir (2022). However, three variables slightly violate these assumptions: NSTU Dance Club (skewness = 4.149; kurtosis = 15.366), NSTU Research and Higher Study Society (skewness = 3.241; kurtosis = 8.593), and NSTU Rapper Society (skewness = 3.386; kurtosis = 9.558). These variables exhibit highly peaked and positively skewed distributions, suggesting that participation in these activities was generally low, with only a few students reporting high levels of engagement. Despite these deviations, the study employed non-parametric statistical techniques, which are robust against violations of normality assumptions; therefore, the validity of the subsequent analyses remains unaffected.

The skewness and kurtosis analysis further reveals varied distribution patterns across student responses pertaining to career development and co-curricular activities at NSTU. Most participation-related items demonstrate positive skewness and elevated kurtosis, reflecting unequal participation patterns among students. In contrast, items measuring the perceived benefits of co-curricular involvement such as

"Improves academic performance" (skewness = 0.051; kurtosis = −2.018), "Improves socialization" (skewness = 0.010; kurtosis = −2.020), and "Improves communication skills" (skewness = 0.010; kurtosis = −2.020) exhibit nearly symmetrical and platykurtic distributions, indicating broad consensus among respondents with relatively moderate variability. Furthermore, items related to job placement and career outcomes generally display negative skewness; for example, "Career development and co-curricular activities help you to find jobs" (skewness = −1.393; kurtosis = 2.559) and "Career development and co-curricular activities influence students' future careers" (skewness = −1.595; kurtosis = 4.146), suggesting that the majority of participants strongly agreed with these statements. Overall, the findings indicate that although participation levels vary across clubs and organizations, students broadly acknowledge the academic, social, and professional benefits of career development and co-curricular activities, particularly their contribution to employability and workplace performance.

Differences in career development and co-curricular activities based on demographic factors

Table 5 presents the results of Mann–Whitney U and Kruskal–Wallis H tests examining the influence of demographic factors gender, residential status, age, and academic year on student participation in co-curricular activities and perceptions of career development at NSTU, with findings evaluated against seven null hypotheses at a significance threshold of $p < 0.05$. Regarding $\boldsymbol{H_1}$, gender significantly influenced participation in the Debating Society ($p = 0.039$), Dhrupod ($p = 0.018$), and Chitrokrit ($p = 0.014$); however, no significant association was found for the Dance Club ($p = 0.217$), leading to the *partial rejection of* H_1. Concerning H_2, residential status significantly differentiated participation in both the Dance Club ($p = 0.046$) and the Model United Nations Association ($p = 0.032$), resulting in the *rejection of* H_2. With respect to H_3, age significantly influenced participation in Dhrupod ($p = 0.019$), Chitrokrit ($p = 0.017$), and Shobdakutir ($p = 0.021$), thereby warranting the *rejection of* H_3. Pertaining to H_4, the perceived improvement in academic performance through co-curricular participation was significantly associated with both gender ($p = 0.001$) and residential status ($p = 0.009$), leading to the *rejection of* H_4. As regards H_5, the belief that co-curricular activities positively affect future careers was significantly associated with gender ($p = 0.006$), residential status ($p = 0.032$), and academic year ($p = 0.012$), resulting in the *rejection of* H_5. In relation to H_6, the perception that co-curricular activities impact job performance was highly significant across all four demographic variables gender ($p = 0.001$), residential status ($p = 0.000$), age ($p = 0.025$), and academic year ($p = 0.000$) providing robust and consistent evidence for the *rejection of* H_6. Finally, concerning H_7, significant variation in the perception that co-curricular activities assist with job interviews was observed across gender ($p = 0.002$), residential

Table 4. Skewness and Kurtosis Test Scores for LIS students Career development and co-curricular activities and perceived benefits.

Statements		Skewness	Kurtosis
Career development and co-curricular activities	NSTU Science Club	1.187	-0.597
	NSTU Debating Society	0.952	-1.105
	Cholo Paltai Foundation	2.082	2.360
	Dhrupod	2.774	5.753
	Chitrokrit	2.023	2.115
	Shobdakutir	1.390	-0.068
	Chitro Kolpo	2.503	4.307
	NSTU Press Club	1.762	1.117
	NSTU Journalist Association	1.716	0.953
	NSTU Adventure Club	2.348	3.547
	NSTU Rapper Society	3.386	9.558
	NSTU Photography Club	1.543	0.386
	NSTU Dance Club	4.149	15.366
	NSTU Research Society	1.585	0.516
	NSTU Model United Nations Association	1.716	0.953
	NSTU Research and Higher Study Society	3.241	8.593
	Others	0.898	-1.206
The main advantages of career development and co-curricular activities	Improves academic performance	0.051	-2.018
	Improves socialization	0.010	-2.020
	Improves leadership skills	0.297	-1.931
	Improves communication skills	0.010	-2.020
	Develops self-performance	0.276	-1.943
	Relieves stress	1.008	-0.995
	Helps in getting a job	1.065	-0.874
	It has a positive effect on future career	0.898	-1.206
	Makes the opportunities to hang out with friends	1.716	0.953
	Others	1.585	0.516
Identifying the extent how much career development and co-curricular activities contribute to job placement and job Performance.	Co-curricular activities are helpful for career development.	-0.848	-0.559
	Career development and co-curricular activities are helping to build leadership skills.	-0.769	-0.349
	Career development and co-curricular activities are helping social development.	-0.822	1.611
	Activities available at the university are various.	-1.388	3.298
	I like to participate in the same activity more than one time to improve myself.	-1.092	1.556
	I speak about activities that I participated and I tell colleagues about the positives of these activities.	-1.238	2.606
	I follow advertising activities.	-0.272	0.188
	The place of activities is appropriate.	-0.427	-0.784
	I am satisfied with the activities held at the campus.	-0.597	-0.919
	Activities available at the university are suitable for my tendencies.	-0.494	-0.649
	Activities available at the university serve my needs.	-0.705	0.846
Identifying the extent	Career development and co-curricular activities contribute to job placement.	-0.863	-0.555

	Career development and co-curricular activities impact job performance.	-0.659	-0.428
	Career development and co-curricular activities help to make job availability.	-0.760	1.222
	Career development and co-curricular activities offer job security.	-0.957	1.455
	Career development and co-curricular activities help you to find jobs.	-1.393	2.559
	Career development and co-curricular activities influence students' future careers.	-1.595	4.146
	Career development and co-curricular activities impact your CV.	-0.969	1.949
	Career development and co-curricular activities help with the job interview.	-0.760	-0.274
	Good co-curricular activities help with a job application.	-0.975	-0.258
	Career development and co-curricular activities help to Improve my performance at work.	-0.882	-0.039

status (p = 0.000), and academic year (p = 0.000), although age did not attain significance (p = 0.116); nevertheless, since all three demographic variables specified in the hypothesis reached significance, H_7 *is rejected*. Collectively, these findings demonstrate that demographic characteristics particularly academic year and residential status are significant determinants of both co-curricular participation and career-related perceptions among NSTU students, with six hypotheses fully rejected and one partially rejected, underscoring the need for demographically inclusive and accessible co-curricular programming at the university level.

Table 5. Differences in career development and co-curricular activities based on demographic factors

Statements	Gender	Residential status	Age	Academic Year
Career development and co-curricular activities				
NSTU Science Club	0.546	0.010*	0.009*	0.060
NSTU Debating Society	0.039*	0.064	0.418	0.000*
Cholo Paltai Foundation	0.546	0.368	0.607	0.000*
Dhrupod	0.018*	0.429	0.019*	0.037*
Chitrokrit	0.014*	0.034*	0.017*	0.027*
Shobdakutir	0.655	0.531	0.021*	0.000*
Chitro Kolpo	0.976	0.940	0.464	0.052
NSTU Press Club	0.706	0.221	0.245	0.122
NSTU Journalist Association	0.035*	0.777	0.118	0.105
NSTU Adventure Club	0.031*	0.344	0.821	0.025*
NSTU Rapper Society	0.070	0.086	0.859	0.042*
NSTU Photography Club	0.266	0.667	0.029*	0.125
NSTU Dance Club	0.217	0.046*	0.825	0.026*
NSTU Research Society	0.392	0.057	0.215	0.035*
NSTU Model United Nations Association	0.084	0.032*	0.345	0.086
NSTU Research and Higher Study Society	0.520	0.836	0.965	0.641
Others	0.000*	0.005*	0.060	0.000*
The main advantages of career development and co-curricular activities				
Improves academic performance	0.001*	0.009*	0.117	0.004*
Improves socialization	0.008*	0.009*	0.342	0.085
Improves leadership skills	0.043*	0.369	0.462	0.011*
Improves communication skills	0.000*	0.040*	0.023*	0.029*
Develops self-performance	0.057	0.700	0.047*	0.000*
Relieves stress	0.164	0.357	0.144	0.016*

Helps in getting a job	0.304	0.212	0.847	0.115
It has a positive effect on future career	0.006*	0.032*	0.153	0.012*
Makes the opportunities to hang out with friends	0.873	0.305	0.560	0.875
Others	0.000*	0.000*	0.007*	0.000*
Career development and co-curricular activities help students develop different skills contributing to academic/career performance.				
Co-curricular activities are helpful for career development.	0.000*	0.001*	0.000*	0.000*
Career development and co-curricular activities are helping to build leadership skills.	0.000*	0.006*	0.002*	0.000*
Career development and co-curricular activities are helping social development.	0.000*	0.017*	0.019*	0.000*
Activities available at the university are various.	0.210	0.086	0.342	0.000*
I like to participate in the same activity more than one time to improve myself.	0.007*	0.000*	0.474	0.014*
I speak about activities that I participated and I tell colleagues about the positives of these activities.	0.983	0.141	0.333	0.142
I follow advertising activities.	0.001*	0.304	0.032*	0.000*
The place of activities is appropriate.	0.029*	0.002*	0.001*	0.000*
I am satisfied with the activities held at the campus.	0.001*	0.000*	0.000*	0.000*
Activities available at the university are suitable for my tendencies.	0.005*	0.001*	0.007*	0.000*
Activities available at the university serve my needs.	0.060	0.065	0.002*	0.000*
Identifying the extent how much career development and co-curricular activities contribute to job placement and job Performance.				
Career development and co-curricular activities contribute to job placement.	0.000*	0.000*	0.033*	0.000*
Career development and co-curricular activities impact job performance.	0.001*	0.000*	0.025*	0.000*
Career development and co-curricular activities help to make job availability.	0.000*	0.004*	0.034*	0.000*
Career development and co-curricular activities offer job security.	0.774	0.009*	0.619	0.869
Career development and co-curricular activities help you to find jobs.	0.115	0.026*	0.223	0.065
Career development and co-curricular activities influence students' future careers.	0.413	0.508	0.245	0.038*
Career development and co-curricular activities impact your CV.	0.000*	0.000*	0.015*	0.000*
Career development and co-curricular activities help with the job interview.	0.002*	0.000*	0.116	0.000*
Good co-curricular activities help with a job application.	0.000*	0.000*	0.030*	0.000*
Career development and co-curricular activities help to Improve my performance at work.	0.000*	0.000*	0.047*	0.000*

[a] Mann–Whitney test; [b] Kruskal–Wallis test.; * p <0.05

Correlational Analysis of the Impact of Co-curricular Activities on Career Development

The correlation analysis reveals strong, statistically significant positive relationships among most variables related to career development and co-curricular activities ($p<0.01$). The statement "Co-curricular activities are helpful for career development" demonstrates particularly robust correlations with building leadership skills ($r=.845^{**}$), satisfaction with campus activities ($r=.825^{**}$), and appropriateness of activity locations ($r=.729^{**}$). These high correlation values indicate that students who perceive co-curricular activities as valuable for career advancement also report enhanced leadership abilities, social development, and overall satisfaction with university offerings. A notable pattern emerges where variables related to satisfaction, appropriateness, and perceived developmental benefits form a coherent cluster of highly correlated items, suggesting these elements work synergistically in students' experiences. Additionally, the suitability of activities for students'

tendencies (r=.722**) and awareness of activity advertisements (r=.513**) show moderate to strong positive relationships with perceived career benefits. Interestingly, repeatedly participating in the same activity shows a non-significant correlation with career development perceptions (r=-0.028), suggesting that activity variety may be more valuable than repetition. These findings highlight the importance of providing diverse, well-structured, accessible, and appropriately marketed co-curricular activities to foster essential skills for students' academic and professional advancement (See table 6).

Table 6. Correlational Analysis of the Impact of Co-curricular Activities on Career Development

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Co-curricular activities are helpful for career development.	1	.845**	.729**	.374**	-0.028	.292**	.513**	.729**	.825**	.722**	.573**
2. Career development and co-curricular activities are helping to build leadership skills.	.845**	1	.773**	.499**	0.068	.381**	.520**	.749**	.757**	.766**	.639**
3. Career development and co-curricular activities are helping social development.	.729**	.773**	1	.573**	.335**	.510**	.627**	.652**	.655**	.688**	.648**
4. Activities available at the university are various.	.374**	.499**	.573**	1	.544**	.654**	.510**	.481**	.370**	.469**	.553**
5. I like to participate in the same activity more than one time to improve myself.	-0.028	0.068	.335**	.544**	1	.596**	.471**	.204**	0.038	.164*	.401**
6. I speak about activities that I participated and I tell colleagues about the positives of these activities.	.292**	.381**	.510**	.654**	.596**	1	.563**	.515**	.390**	.494**	.585**
7. I follow advertising activities.	.513**	.520**	.627**	.510**	.471**	.563**	1	.645**	.648**	.647**	.647**
8. The place of activities is appropriate.	.729**	.749**	.652**	.481**	.204**	.515**	.645**	1	.817**	.869**	.719**
9. I am satisfied with the activities held at the campus.	.825**	.757**	.655**	.370**	0.038	.390**	.648**	.817**	1	.818**	.701**
10. Activities available at the university are suitable for my tendencies.	.722**	.766**	.688**	.469**	.164*	.494**	.647**	.869**	.818**	1	.782**
11. Activities available at the university serve my needs.	.573**	.639**	.648**	.553**	.401**	.585**	.647**	.719**	.701**	.782**	1
Variables	1	2	3	4	5	6	7	8	9	10	11
12. Co-curricular activities are helpful for career development.	1	.845**	.729**	.374**	-0.028	.292**	.513**	.729**	.825**	.722**	.573**
13. Career development and co-curricular activities are helping to build leadership skills.	.845**	1	.773**	.499**	0.068	.381**	.520**	.749**	.757**	.766**	.639**
14. Career development and co-curricular activities are helping social development.	.729**	.773**	1	.573**	.335**	.510**	.627**	.652**	.655**	.688**	.648**
15. Activities available at the university are various.	.374**	.499**	.573**	1	.544**	.654**	.510**	.481**	.370**	.469**	.553**
16. I like to participate in the same activity more than one time to improve myself.	-0.028	0.068	.335**	.544**	1	.596**	.471**	.204**	0.038	.164*	.401**

17. I speak about activities that I participated and I tell colleagues about the positives of these activities.	.292**	.381**	.510**	.654**	.596**	1	.563**	.515**	.390**	.494**	.585**
18. I follow advertising activities.	.513**	.520**	.627**	.510**	.471**	.563**	1	.645**	.648**	.647**	.647**
19. The place of activities is appropriate.	.729**	.749**	.652**	.481**	.204**	.515**	.645**	1	.817**	.869**	.719**
20. I am satisfied with the activities held at the campus.	.825**	.757**	.655**	.370**	0.038	.390**	.648**	.817**	1	.818**	.701**
21. Activities available at the university are suitable for my tendencies.	.722**	.766**	.688**	.469**	.164*	.494**	.647**	.869**	.818**	1	.782**
22. Activities available at the university serve my needs.	.573**	.639**	.648**	.553**	.401**	.585**	.647**	.719**	.701**	.782**	1

**Correlation is significant at the 0.05 level (2-tailed).*

Discussion

The primary aim of the present study was to reveal significant insights into the role of career development and co-curricular activities among LIS students (n=199) at Noakhali Science and Technology University (NSTU). The present study result found that majority of the respondents was male participant as of 117 (58.8%) male and 82 (41.2%) female participants. The sample consists of the majority of students were aged 22-25 years (127, 63.8%), followed by 19-21 years (61, 30.7%). Furthermore, this study provides a solid and detailed theoretical concept to thoroughly examine the connections between various components. To shed light on the potential relationships between these ideas, 7 hypotheses were created. Results from the 1st objective revealed a moderately favorable perception of co-curricular activities in enhancing career development, evidenced by an overall mean score of 3.49, with strong positive correlations between perceived career benefits and leadership development (r = .845), satisfaction with campus activities (r = .825), and venue suitability (r = .729), career developmental theory and the Integrative Contextual Model (Foong-ming, 2008; Nacházelová & Reissová, 2020); although 71.9% of respondents intended to increase future participation and 61.3% expressed satisfaction, the 27.1% who remained uncertain and 11.6% who were dissatisfied highlight persistent engagement barriers that align with Rahman et al.'s (2021) call for structural reform, leading to the partial rejection of **H_1**, and the rejection of **H_2** and **H_3**, as gender, residential status, and age significantly influenced participation patterns and benefit perceptions across specified clubs and activities.

Findings from the 2nd objective demonstrated that the majority of students (67.3%) participated in one to three co-curricular activities, with most reporting less than one year of involvement, while 40.7% noted increasing participation over time and 29.1% reported a decline, reflecting the motivational fluctuations documented by Rahman et al. (2021), which collectively support the rejection of **H_4**, confirming that academic year significantly shapes the frequency, nature, and trajectory of co-curricular engagement across different stages of academic progression. Results from the 3rd objective indicated that students most frequently participated in informal activities, followed by the NSTU Debating Society and the NSTU Science Club, reflecting a preference for intellectually stimulating platforms consistent with Yousaf Zada and Alamzeb's (2021) observation that debate-based activities foster transferable professional competencies, while comparatively low participation in performance-based groups such

as Dhrupod and the NSTU Dance Club, despite broad satisfaction with the diversity of offerings, underscores the importance of interest-based and accessibility-focused programming advocated by Vos et al. (2018) and Jackson and Rowe (2023) As for the 4th objective provided compelling evidence that co-curricular participation meaningfully contributes to professional competency development, with students reporting improvements in communication skills, socialization, academic performance, and leadership, validating the findings of Mulrooney (2017) and Singh (2017); notably, 38.7% of students joined activities on their own initiative, reflecting intrinsic motivational orientations theoretically associated with deeper learning and sustained engagement (Guo & Liem, 2023), thereby supporting the rejection of $\mathbf{H_6}$ and further affirming the partial rejection of $\mathbf{H_1}$ and rejection of $\mathbf{H_2}$, as gender and residential status significantly moderated the relationship between participation and competency outcomes. As for the 5th objective demonstrated a significant association between co-curricular involvement and academic performance, with gender differences in academic benefit perceptions ($p = .001$) supporting the rejection of $\mathbf{H_4}$ within the academic domain and aligning with Kariyana et al.'s (2012) finding that participation outcomes are mediated by demographic characteristics and institutional quality, while the moderate level of engagement reported by most students corroborates Bergen-Cico and Viscomi's (2012) assertion that balanced participation optimally supports academic achievement without compromising formal study obligations. Findings related to the 6th objective revealed strong student consensus regarding the employability benefits of co-curricular engagement, with "Helps find jobs" receiving the highest mean score (4.08), followed by anticipated impacts on future careers, CV development, and job interview performance (mean = 3.66), consistent with Shehata (2015), and Batool and Ahmad (2020); strong correlations between co-curricular participation and perceived job performance ($r = .845$) and job application support ($r = .881$) were identified, though comparatively weaker correlations with active job searching echo Siddiky's (2019) critique regarding the misalignment of co-curricular programming with labor market demands, collectively supporting the rejection of $\mathbf{H_5}$ and $\mathbf{H_7}$, as beliefs regarding career-enhancing value and job interview preparation varied significantly across gender ($p = .002$), residential status ($p = .000$), and academic year ($p = .000$); across all objectives, academic year consistently emerged as the most pervasive demographic determinant of both participation and career-related perceptions, which suggests that career awareness deepens progressively as students advance toward professional employment, thereby reinforcing the rejection of $\mathbf{H_7}$ and underscoring the imperative for institutions such as NSTU to design demographically responsive, stage-appropriate co-curricular programming that equitably maximizes student engagement and supports graduate employability in the twenty-first century labor market.

Conclusion

The present study highlights the crucial role of career development and co-curricular activities in enhancing the academic, personal, and professional growth of Library and Information Science (LIS) students at Noakhali Science and Technology University. Findings from the study confirm that participation in structured, meaningful co-curricular programs such as club involvement, leadership roles, and volunteer initiatives can significantly improve students' communication, teamwork, leadership skills, and job readiness. These results resonate with prior research affirming that co-curricular involvement fosters essential soft skills and boosts academic performance (Kausar et al.,2024). In particular, the study supports the notion that co-curricular activities enhance students' ability to articulate competencies and prepare effectively for job interviews and employment opportunities, echoing findings by Kanar and Heinrich (2024) and Vos et al., (2018). Furthermore, the

observed influence of demographic factors such as gender, residential status, and academic year on both participation patterns and perceived benefits aligns with previous work by Ahmad et al., (2019). However, despite these proven benefits, a considerable number of students remain hesitant to participate due to cultural perceptions, academic pressure, or lack of institutional encouragement. The study also reaffirms the need for integrating structured career development frameworks into LIS curricula. Models such as Super's Life-Span Theory (Foong-ming, 2008) and Self-Determination Theory (Guo & Liem, 2023) could be effectively applied in the LIS context to foster deeper engagement and tailored support for students. As previous studies have shown (Mulrooney, 2017), career development initiatives that are inclusive, well-managed, and responsive to students' needs lead to better educational outcomes and workforce readiness. Nonetheless, this research reveals a noticeable gap in LIS-specific literature and calls for further empirical investigation into how co-curricular and career development strategies can be optimized for LIS students, particularly in developing countries like Bangladesh. Addressing this gap will require longitudinal, context-sensitive studies that consider the unique challenges and opportunities within the LIS domain. Effective institutional policies, professional learning communities (Yurtseven & Bademcioglu, 2016), and reflective experiential learning are also vital to ensure sustained student engagement and meaningful learning experiences (Shakil et al., 2024). This study has several limitations that must be acknowledged. First, the research was confined to a single institution Noakhali Science and Technology University which restricts the generalizability of the findings to broader student populations or other higher education institutions in Bangladesh and beyond. Another limitation is the narrow scope of club activities analyzed; only a select number of co-curricular clubs were examined, possibly excluding other relevant forms of student engagement. Future research should consider expanding the scope to include multiple universities across Bangladesh to capture a more comprehensive and representative picture of co-curricular and career development activities among Library and Information Science (LIS) students. Additionally, verifying students' academic or employment data through official records could strengthen the validity of future findings. Comparative studies between LIS students in developing and developed countries could also illuminate global best practices and context-specific challenges in fostering student engagement and employability.

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