

Original Paper

Exploring The Role of the Alumni Association in Developing Educational Service Quality Through Social Responsibility (An Applied Study on Alumni of Lebanese Universities)

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Abstract

This article examines the Alumni Association's influence on the quality of educational services through the mediating effect of social responsibility in Lebanese universities. A quantitative method measured variables using a questionnaire-based survey. The scales were established under the Churchill paradigm to purify constructs and validate their structure through structural equation modeling (SEM). Data from 174 graduates were collected via convenience sampling. Principal Component Analysis (PCA) highlighted key elements for conceptual clarity. Cronbach's alpha and the Kaiser-Meyer-Olkin (KMO) measure confirm acceptable reliability thresholds, supporting the scales' internal consistency. Convergent validity analysis further strengthens these findings. Positive correlations exist among the three variables, particularly between social responsibility and educational service quality ($r = 0.815, p < 0.01$). SEM confirms the Alumni Association's positive direct effect on educational service quality ($\beta = 0.129, p < 0.01$) and a stronger effect on social responsibility ($\beta = 0.709, p < 0.001$). Social responsibility significantly impacts educational service quality ($\beta = 0.723, p < 0.001$), confirming its role as a vital mediating variable. Alumni act as stakeholders, showing attachment, accountability, and engagement with their university, and serve as brand ambassadors, enhancing educational services through socially oriented initiatives.

Keywords

Alumni, Association, Stakeholders, Ambassadors, Social, Lebanese universities, Quality, Services

1. Introduction

Higher education plays a crucial role in the progression of modern societies. Beyond the impartation of knowledge, higher education institutions are instrumental in cultivating civic virtues, promoting sustainable development, and fostering social unity. Given this expanded role, universities are encouraged to reevaluate their missions, strengthen connections with their socio-economic contexts, and adopt practices that align with the growing expectations of stakeholders (Zavyalova et al., 2016). Alumni, a vital yet often overlooked group, are gaining prominence through the emergence of Alumni Associations. These associations leverage social networks, transforming informal relationships into structured platforms to enhance educational standards and advance academic social responsibility. This latter concept serves as a framework that facilitates integrating various pedagogical, professional, and ethical strategies into cohesive academic initiatives (Amani, 2022).

A substantial concern in higher education pertains to the quality of educational services (Rozak et al., 2022). This quality is contingent upon the availability of resources, governance policies, and internal dynamics; however, it is also influenced by external factors, often overlooked, such as the engagement of alumni networks (Winarti & Indriyawati, 2023). As actors from the academic world and integrated into professional life, alumni represent a strategic bridge between the university and society.

Numerous institutions, particularly in nations facing economic and institutional difficulties, are not completely capitalizing on their potential for guidance, material or symbolic support, and engagement in social initiatives (Ganbold et al., 2023). Faced with a climate marked by budgetary constraints and increased competition in the higher education sector, the need for an inclusive and collaborative Alumni Association has become more pressing (Campbell & Baxter, 2019). However, several obstacles persist. First, there is a lack of a structured framework for alumni participation and a strategic vision pertaining to their potential role. Additionally, challenges persist in integrating social responsibility as a developmental tool within academic institutions (Coelho & Menezes, 2021). Secondly, the unavailability of official statistics presents a considerable obstacle to establishing alumni associations. Most graduates are unreachable due to the unavailability of an active database with up-to-date addresses. University guides are not updated regarding the number of graduates or the number of up-to-date addresses (Wiranto & Slameto, 2021; Daly, 2013). Alumni Associations, through the lens of Social Responsibility, could be transformed into active catalysts for improving the quality of educational services within Lebanese universities.

The Lebanese context is a little-known laboratory. Lebanese universities are underexplored, and empirical studies are lacking. Alumni associations constitute a little-known but strategic link in the university ecosystem. In Lebanon, where educational challenges intertwine with socioeconomic pressures, their potential role in improving the quality of educational services through the lens of social accountability merits in-depth analysis (El-Kassar et al., 2021). Lebanese universities are challenged with a triangular challenge. Lebanese universities are pressured by stakeholders to integrate principles of social responsibility, meeting the needs of students, staff, and society as a whole, ethically and

sustainably. On the other hand, the ongoing pursuit of tangible educational quality goes beyond the simple transmission of knowledge to encompass the overall student experience, the alignment of programs with market needs, and the societal relevance of teaching (Badran & Badran, 2018). Lastly, there is the specific role that Alumni Associations, those vibrant networks of dispersed but often deeply attached alums to their alma mater (Sharma et al., 2022), can play in bridging these two requirements. This leads to the question of this study: to what extent can the Alumni Association, through social responsibility actions, contribute to developing the quality of educational services in Lebanese universities? Hence, this research examines the role that alum associations can play in improving the quality of educational services by integrating academic social responsibility. This research aims to shed light on this potential transformation and its concrete impact on the quality of services provided to current students.

This article questions the theoretical concrete operationalization of social responsibility in Lebanese higher education. It questions the mechanisms through which external stakeholders, in this case, organized alumni, can positively influence an academic institution's internal policies and practices. This study advances knowledge about participatory governance models, the operationalization of social responsibility in Lebanese higher education, and the impact of alumni on internal policies.

It contributes to a broader discourse regarding shared responsibility within higher education and the interconnections between universities and the ecosystem. Recognizing and utilizing the Alumni Association represents a significant opportunity for Lebanese universities that aspire to enhance their reputation through innovative means. These institutions stand to gain from the Association's unwavering commitment, extensive expertise, diverse career pathways, and robust networks.

Transitioning from a philanthropic role to that of a strategic partner enables these associations to collaboratively develop meaningful, inclusive, and pertinent educational programs, thereby substantially elevating the services provided to current students.

2. Literature Review

A fundamental tension endures within the realm of higher education. Universities face relentless pressure to enhance educational quality, even as resources diminish and societal expectations become increasingly complex (Malhotra et al., 2023). They are tasked with cultivating critical thinkers, preparing students for evolving careers, and serving the common good, all while under the scrutiny of demanding stakeholders. Beneath these challenges lie issues such as the exhaustion of funding models, the difficulties in implementing ethical principles, and the disconnection between academic instruction and professional realities. Alumni associations intricately intertwine the past, present, and future. Frequently neglected and undervalued, these associations significantly influence the educational landscape, cultivate connections, and propel institutional development. These engaged alumni networks extend beyond a mere directory or financial resource; they embody an essential link between the institution and its broader impact (Ye & Zhang, 2024).

The alumni network is a school's greatest asset. Its reputation is built on this foundation, with graduates being the primary influencers. Thus, the larger the active network, the stronger the school's reputation among recruiters (Bonaminio et al., 2020). Universities may need to call upon a former student to gather information about a company to get a helping hand with an internship, or even to be co-opted. Co-opting is a common practice in universities, and it includes auditing, networking, and management consulting (Chen, 2018).

2.1 Alumni Associations: Role and Functions

Alumni associations transcend mere nostalgia; they serve as potent catalysts for career advancement (Wang & Zhang, 2023). These networks readily offer job referrals, industry insights, and mentorship opportunities. Iskhakova et al. (2016) argued that graduates take solace in the knowledge that their university community continues to be invested in their success after completing their studies.

Drezner & Pizmony-Levy (2021) mentioned that Alumni associations actively promote philanthropy through rigorous fundraising efforts to secure scholarships, research grants, and improve infrastructure. Grateful alumni contribute financially, thus supporting the institution's overarching mission. Rozak et al. (2022) explained that the historical evolution of college alumni associations reflects significant societal transformations, transitioning from modest gatherings to expansive global networks, which fortify connections and enhance the educational vitality of the institution. Their influence transcends temporal and geographical boundaries. Career services serve as a vital resource for graduates by providing personalized support, facilitating professional connections, and advocating for a commitment to lifelong learning essential for career success. Mentorship programs foster meaningful relationships, disseminate practical knowledge, and cultivate talent, thereby contributing to the holistic development of students. The role of alumni mentors is pivotal in ensuring the success of future generations (Xia, 2024).

Jonbekova (2024) added that Alumni contributions extend beyond mere financial support; they embody reciprocity, gratitude, and future investment principles. By engaging with their alma mater (Sharma et al., 2022), alumni create a tapestry of support that fortifies connections after graduation. Their contributions significantly influence educational institutions globally through scholarships, mentorship, or networking initiatives.

This section of the review explores three key dimensions: the direct influence of AAEs on educational quality, their impact on the implementation of SA, and the latter's mediating role in institutional transformation.

2.2 Alumni Associations and the Quality of Educational Services: From Symbolic Network to Structured Action

Pasaribu et al. (2020) and Sun et al. (2007) specify a paradigmatic shift in alumni roles, transitioning from a commemorative function to a dynamic of active engagement. Universities leverage alumni's professional experience, with alumni associations serving as "living skills banks." They formalize the transfer of expertise through structured mentoring, curriculum adaptation, and professional integration.

Iskhakova et al. (2021) exemplified the influence of alumni as external actors on stimulating alternative learning methods. Pradana (2022) emphasizes that the alumni association revolutionized the quality of education services by creating “bridges between theory and practice.”

Alumni associations strengthen educational resources. Banka (2019) studies on school life show that the effectiveness of educational programs (homework assignments, citizenship programs) depends on the synergy between internal and external stakeholders. These associations are becoming active architects of the educational experience, particularly in resource-constrained contexts.

2.3 Alumni Associations and Social Responsibility: From Philanthropy to Systemic Engagement

Rozak et al. (2022) and Ganbold et al. (2023) conclude that Alumni associations provide on-the-ground legitimacy and a concrete scope of action, where university social and academic responsibility risks remain a slogan. University social responsibility goes beyond mere charity to encompass its overall societal impact. Alumni associations contribute to this through three levers. First, Alumni associations combat educational inequalities through personalized support for disadvantaged students (Green et al., 2021).

Associations embody territorial anchoring and equity promotion. Through its agreements with educational institutions, Kelly et al. (2023) demonstrate how a social network formed by associations can reach neglected areas (rural areas, priority neighborhoods). Glasmann’s work on academic support highlights that after-school programs serve as “institutional mediation” spaces for marginalized families. Alumni exemplify operational responses, where social responsibility principles may be rendered ineffective. Their network, grounded in local socioeconomic contexts, actively promotes inclusion and equity. They translate social responsibility into practical actions by facilitating access for marginalized groups, such as refugees and rural communities, through mentoring programs (Jamil et al., 2022). Their comprehension of cultural divides is crucial in dismantling barriers, whether addressing self-censorship among disadvantaged students or establishing legal clinics in underserved areas. They position the university as a pivotal player within its ecosystem, distinguishing it from traditional academic settings (Mazambani et al., 2017).

2.4 Mediating Role of Social Responsibility: When Social Responsibility “Translates” Alumni Expertise into Educational Quality

Social Responsibility is not a simple “receptacle” for alumni actions; it creates an alchemy where alumni engagement becomes a lever for institutional transformation. Social responsibility is not merely an objective; it is a mechanism that enables alumni associations to have a lasting impact on educational quality (Velooso et al., 2021). Social responsibility operates as a “third-party facilitator.” School Support Contracts formalize the mediation between the association as stakeholders and social responsibility. Associations play a “bridging” role between teachers, parents, and communities. It embodies this role by facilitating dialogue between students and employers, transforming disparate expectations into collaborative projects (joint educational innovation committees) (Leal Filho et al., 2025).

External assessment mechanisms show that transparency strengthens educational quality. Through their independence, alumni associations could co-construct social responsibility indicators (social impact, employability, diversity), requiring universities to be accountable beyond traditional academic criteria. These associations catalyze institutional identity. Kundu (2017) stipulates that their actions have transformed the institution's perception from preservation to a space of "living transmission." Social responsibility serves as a vital third-party facilitator, enabling the translation of alumni expertise into tangible improvements in educational services. It establishes a common language articulating seemingly disconnected logics: student expectations, pedagogical imperatives, and societal needs. This mediation materializes through concrete mechanisms—joint alumni-faculty committees, co-created diversity indicators, or mobilization during crises. Social responsibility transforms graduates' emotional loyalty into collective intelligence by catalyzing institutional identity around shared values (equity, resilience, community impact). It elevates alumni associations beyond mere resource providers, turning them into architects of an academically rigorous and deeply responsible university (Rababah et al., 2021).

2.5 Conceptual Framework: The Lebanese Context

Alumni associations are transforming their traditional role, evolving from custodians of institutional memory to vibrant skill banks. Their strength is effectively utilizing their members' diverse professional experiences to enhance educational programs. Contributions from graduates assist in bridging the gap between theory and practice. Haj Youssef et al. (2024) stated that graduates help align curricula with market demands, transcending mere knowledge transmission. They integrate pedagogy with practical experience through mentorship and workshops, addressing resource limitations within Lebanon's privatized educational framework. Quality enhancement is a societal concern in the culturally rich yet challenging Lebanese context, extending beyond the academic sphere. The Lebanese university system is subject to considerable privatization and geopolitical fragmentation, leading to deficits in curriculum harmonization, challenges in professional integration, and instances of political interference.

In this context, alumni associations emerge as key actors capable of forging links between the institution and society, transforming emotional loyalty into a strategic lever for educational quality and social responsibility. Universities are on the front lines, pillars of the training of future elites and actors of national development. They are called upon to do more with less, innovate while preserving their heritage, and demonstrate their real impact beyond the campus walls. While this approach remains embryonic in Lebanon, isolated initiatives demonstrate how alumni feedback helps align training with market needs (El-Kassar et al., 2021).

Lebanese alumni associations could co-construct practical workshops or social innovation laboratories by drawing inspiration from alumni contributions to academic innovation and educational service quality. As partners, Alumni associations could supplement Lebanese universities' limited resources through targeted funding (scholarships, equipment) or skills sponsorship.

If applied to Lebanon, Alumni associations could help Lebanese universities expand their recruitment (scholarships for refugees), thus strengthening their social legitimacy by ensuring the democratization of

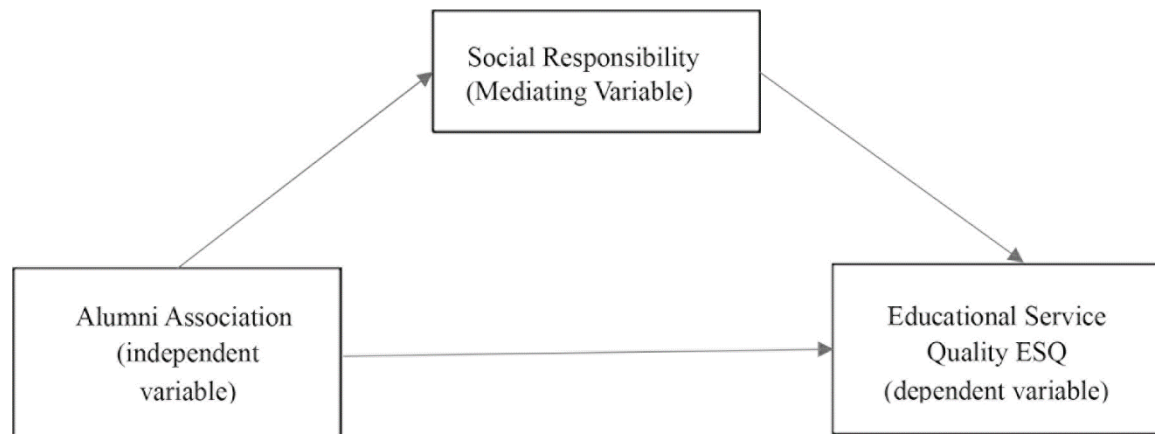
access. In Lebanon, where geographical divides are pronounced, these associations could facilitate the establishment of satellite campuses or community projects (legal clinics, technical consultations) (Möller, 2016). Through their knowledge of local realities, Lebanese associations could help universities defuse cultural or socioeconomic barriers (raising awareness among parents, combating self-censorship). Through social responsibility, Alumni associations help Lebanese universities embody a societal mission (alumni as ambassadors of inclusive values), thus strengthening their attractiveness and internal cohesion. Based on the analysis, four hypotheses were deduced.

H1. The Alumni Association statistically influences Educational Service Quality in Lebanese universities.

H2. The Alumni Association statistically influences Social Responsibility in Lebanese universities. H3.

Social Responsibility statistically influences Educational Service Quality in Lebanese universities.

H4. Social Responsibility statistically mediates the relationship between Alumni Association and Educational Service Quality in Lebanese universities.



3. Methodology

This study used a quantitative approach to examine the relationship between the role of alumni associations, university social responsibility, and Educational Service Quality. Primary data were collected online from alumni of Lebanese universities (public and private). An online questionnaire (survey tool) was conducted using Google Forms. The quantitative survey was conducted from December 1st, 2024, to January 30th, 2025. The questionnaire was developed in English and translated into Arabic to ensure respondents understood the questions. The questionnaire items were adopted from past studies that were verified. These statements were evaluated on a five-point Likert scale, thus gradually assessing participants' responses.

The targeted sampling technique was the simple random sampling formula to ensure generalization. The sample size should be calculated with a margin of error of 5% and a 95% confidence level ($z = 1.96$), and a detailed list of graduates as the population. Due to the lack of updated graduate lists (alums) from each institution, conducting a purely random selection was impossible. Therefore, convenience sampling was the only applicable sampling design. For this method, the sampling units are accessible,

easy to assess, and cooperative. However, this convenience method has limitations, such as social desirability bias or the possibility that respondents may give answers in line with expectations. Despite these limitations, the 174 collected responses are a sufficiently representative sample to analyze the relationship between the variables studied.

Table 1. Demographics

		Frequency	Valid Percent
Gender	Male	88	50.6
	Female	86	49.4
Age	Between 18 and 25 years	23	13.2
	Between 26 and 35 years	66	37.9
	Between 36 and 45 years	52	29.9
	Between 46 and 55 years	24	13.8
	Over 55 years	9	5.2
Degree	Bachelor's	54	31.0
	Diploma	2	1.1
	Master's	93	53.4
	Ph.D.	25	14.4
	Total	174	100.0

The data reveal a sample that is both balanced and rich in diversity, in terms of age, gender, and academic background. The distribution is almost perfectly balanced in terms of gender. Of the 174 graduates surveyed, 88 are men (50.6%), and 86 are women (49.4%). Regarding age, the age group that is most represented is the 26-35 age group, with 66 individuals (37.9%). Next come graduates aged 36 to 45 (29.9%), whose professional careers are generally more advanced, which could strengthen their ability to contribute to the development of their former institution. Young people aged 18 to 25 represent 13.2%. The older age groups—between 46 and 55 (13.8%) and over 55 (5.2%) possess valuable experience that can potentially be used in social responsibility initiatives. Regarding academic level, most respondents (53.4%) hold a master's degree, reflecting a qualified population. Bachelor's degree holders represent 31%, while doctoral holders comprise 14.4% of the sample. Graduates' legitimacy to play an active role in improving educational services, particularly through their involvement in alum associations. To reduce the number of items in the theoretical scale and keep only the most informative, this study uses exploratory factor analysis and confirmatory factor analysis, respectively, facilitated by SPSS 25 and AMOS 25 software. The exploratory factor analysis, conducted and presented in the form of the principal component analysis (PCA), allowed us to define and verify the structure of the constructs in the research. Confirmatory factor analysis (CFA) is a complementary technique to confirm the factor structure already defined a priori by the PCA. The CFA is achieved using the structural equation method. Several indicators are important to ensure the goodness-of-fit of measurement models to the collected data.

These include the measurement model's fit indices and the reliability and validity of these models. Three families of indices are distinguished: absolute indices, incremental indices, and parsimony indices (Maaliky et al., 2025).

A model's accuracy in reproducing data is checked using absolute indices like Root Mean Square Error of Approximation (RMSEA), Adjusted Goodness of Fit (AGFI), and Goodness of Fit (GFI). These indices evaluate the expected mean difference in fit in the entire population, the proportion of variance-covariance explained by the model, and the relative proportion of variance-covariance adjusted by the number of variables relative to the number of degrees of freedom. Models can be compared using incremental indices like the Normal Fit Index (NFI) and Comparative Fit Index (CFI). These indices are the most stable, statistically robust, and insensitive to sample size and model complexity. Parsimony indices, for their part, compare the tested model to a reference model called the saturated model. Among these indices, the Chi-square and the χ^2/df ratio (Chi-square to degrees of freedom) test the null hypothesis that the model fits the collected data well (Bchennaty et al., 2024).

4. Results and Analysis

A series of statistical analyses examines the associations between alumni associations' role, social accountability, and the quality of educational services in Lebanese universities. These tests examined the collected data's reliability and assessed the proposed models' validity. The objective was to ensure that the hypotheses proposed were statistically sound using rigorous methods such as factor analysis, structural equation modeling, and regression testing.

The statistical analysis of the descriptive data allows us to sketch a comprehensive picture of the perceptions of Lebanese university graduates regarding three key dimensions. Quality of Educational Services averages 3.7 out of 5; this variable falls within the favorable range, reflecting an overall positive perception of the services provided by higher education institutions. The moderate standard deviation (0.90) and a variance of 0.82 specify responses' homogeneity. Alumni share a similar opinion, reinforcing credibility. Social Responsibility averages 3.7, endorsing that graduates recognize a perceived responsibility to act beyond academic boundaries in community service. However, a higher standard deviation (1.09) and a variance of 1.20 reflect a greater diversity of opinions.

Some graduates are very involved, while others adopt a more reserved stance. The results call for reflection on the Role of the Alumni Association. The mean is lower (3.1), indicating that alumni are more reserved or critical about the actual impact of their association. The standard deviation (1.00) and variance (1.00) also show significant opinion variability.

Table 2. Descriptive Statistics

	Mean	Std. Deviation	Variance	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Educational Service Quality	3.7	0.90	0.82	0.152	0.184	0.628	0.366
Social Responsibility	3.7	1.09	1.20	0.275	0.184	1.034	0.366
Alumni Association	3.1	1.00	1.00	0.211	0.184	0.659	0.366

The skewness (0.15) and kurtosis (0.63) values for the Quality of Educational Services are slightly positive but remain within acceptable ranges. This indicates that the responses are fairly well distributed, without excessive concentration around the extremes. However, the skewness (0.27) and kurtosis (1.03), slightly higher than those for educational quality, confirm a less uniform distribution of opinions. Exploratory factor analysis (EFA) facilitates data reduction by identifying the most informative discriminating variables and their relationships. The EFA ensures that the data supports an iterative approach for purifying scale 5. The Kaiser-Meyer-Olkin (KMO) goodness-of-fit index is above 0.8, and the significant Bartlett approximate chi-square (0.000) is excellent. Indeed, the KMO index indicates that the data exhibit good factorability and a coherent structure. This study favors factor extraction through principal components analysis, determining the number of components to extract. Hence, the eigenvalue criterion illuminates the information captured by each factor. The eigenvalue must exceed 1 for a dimension (factor) to be retained. The variance percentage criterion ensures that the extracted factors explain at least 60% of the total variance, along with the commonality criterion (greater than or equal to 0.50). The statistical analysis is based on a second-order model validated by psychometric indicators, ensuring the reliability of the results. The role of the Alumni Association is measured through four retained indicators (AA3, AA5, AA6, AA7). Four retained elements (SR2, SR3, SR5, SR6) reflect social responsibility, demonstrating alumni engagement in actions with societal impact. Educational Services Quality is assessed using four retained indicators (ESQ2 to ESQ5).

Table 3. PCA results (Discriminant validity)

	Ex	loadings
The Role of the Alumni Association		
Alpha Cronbach = ; KMO = .831; TVE = 75%; AVE = 0.73		
AA7. The Alumni Association fosters effective professional networking among alums.	0.780	0.883
AA5. The Alumni Association effectively organizes activities, strengthening ties between alums and the university.	0.776	0.881
AA6. I feel that the university values my contributions as an alumnus.	0.764	0.874
AA3. The Association's activities strengthen their sense of belonging to the university.	0.682	0.826

Social Responsibility

Alpha Cronbach = ; KMO =.827; TVE = 85%; AVE = 0.73

SR5. I would like to participate in charitable or social activities in cooperation with the Alumni Association.	0.896	0.947
SR3. Alumni would like to collaborate with the university to improve local life.	0.870	0.933
SR2. Alums participate in environmental initiatives by promoting sustainable development within the university.	0.842	0.918
SR6. The association raises my awareness of current social and environmental issues.	0.830	0.911

Educational Service Quality

Alpha Cronbach = ; KMO =.841; TVE = 85%; AVE = 0.82

ESQ4. I would like to contribute to the feedback or evaluation of the quality of teaching at the university.	0.904	0.951
ESQ5. I would like to support scientific research within the educational institution.	0.883	0.940
ESQ3. After graduation, I want to serve on advisory committees or the university's governing board.	0.879	0.938
ESQ2. I would like to present ideas or projects to develop teaching methods and learning approaches at the university.	0.738	0.859

EX Extraction

The Role of the Alumni Association indicators for this dimension reveal a coherent and well-constructed structure. With a KMO of 0.831, the sample is considered adequate for factor analysis. The total variance explained (TVE) reaches 75%, meaning that the selected items capture the majority of the variance in the data. Internal reliability, measured by Cronbach's alpha, is high, as is the average variance extracted (AVE) of 0.73, ensuring good convergent validity. The most representative indicators show a strong factor loading: graduates notably recognize the usefulness of professional networking (0.883) and the effectiveness of organized activities (0.881). A sense of belonging (0.826) and recognition by the university (0.874) complete this involvement profile. Social Responsibility results are even more robust in this second dimension. The KMO of 0.827 validates the adequacy of the sample. The TVE reaches 85%, and the AVE is 0.73, demonstrating a good representativeness of the selected items. The factor loading values range between 0.911 and 0.947, indicating that graduates are largely sensitive to social and environmental issues when integrated into a clear and motivating associative framework. The

strongest indicators concern participation in charitable activities (0.947), collaboration with the university for the good of the community (0.933), and environmental commitment (0.918).

The dimension of quality of educational services is also statistically well-established. The KMO of 0.841 demonstrates excellent fit for the analysis, with an explained variance of 85% and an AVE of 0.82, the highest in the model, reflecting very good convergence between the observed elements. The graduates surveyed demonstrate a genuine desire to remain involved in their university, particularly through support for research (0.940), participation in governance bodies (0.938), and contribution to the evaluation of teaching quality (0.951). Their interest in educational improvement is also notable (0.859).

Table 4. Convergent Validity (Correlations and VIF)

	AA	SR	ESQ	Tolerance	VIF
AA. The Role of the Alumni Association	1			0.664	1.505
SR. Social Responsibility	0.579**	1		0.664	1.505
ESQ. Educational Service Quality	0.525**	0.815**	1	---	----

** . Correlation is significant at the 0.01 level (2-tailed).

Examination of the bilateral correlations reveals significant relationships between the model's three dimensions, with a high confidence threshold ($p < 0.01$). In particular, table 4 notes a moderate correlation between the role of the Alumni Association and social responsibility ($r = 0.579$). Table 4 validates a strong correlation between social responsibility and the quality of educational services ($r = 0.815$). Lastly, the relationship between alumni's role and the quality of educational services is also significant ($r = 0.525$). Still, it remains more moderate.

To ensure that the independent variables do not interfere with each other, the tolerance and variance inflation factor (VIF) indicators were examined. Tolerance: 0.664; VIF: 1.505 values show an absence of collinearity, since results did not exceed the critical thresholds (tolerance < 0.1 or VIF > 5). These results thus reinforce the model's robustness and fully justify further structural analysis.

The second-order structural equation modeling (SEM) analysis explores in detail the complex relationships between three key concepts emerging from the university experience: the role of the Alumni Association (AA), social responsibility (SR), and educational service quality (ESQ). This model does not merely observe superficial correlations; rather, it seeks to understand the deeper dynamics that shape alumni's contribution to the qualitative development of Lebanese universities.

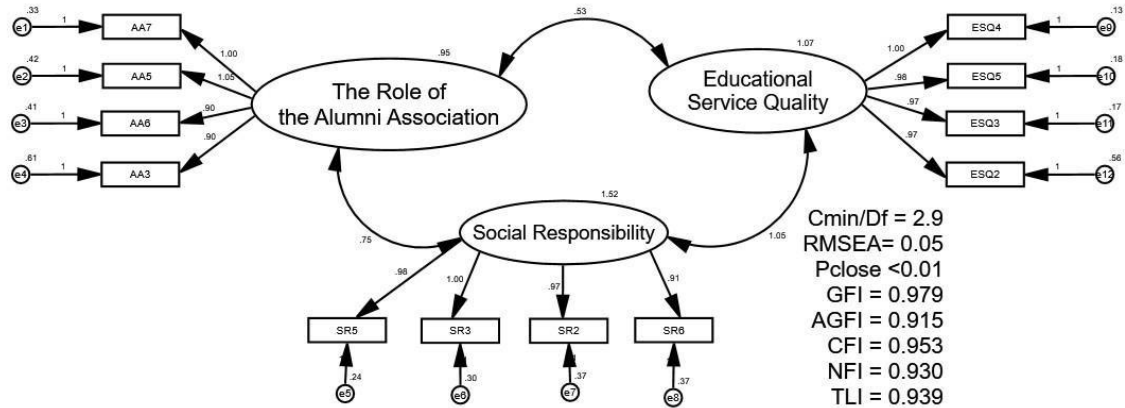


Figure 1. Structural Equation Modelling (Second Order)

The fit indices confirm that the statistical model fits the collected data well. Chi-square/df (Cmin/df) = 2.9: a value less than 3 is generally considered acceptable. RMSEA = 0.05: This specifies an excellent approximation of the model to reality. GFI = 0.979, AGFI = 0.915, CFI = 0.953, NFI = 0.930, TLI = 0.939: all these indices exceed the thresholds of 0.90, demonstrating an excellent fit.

The role of the Alumni Association directly influences social responsibility with a magnitude of 0.75, meaning that the more active and engaged the association is perceived to be, the more graduates tend to get involved in socially responsible initiatives. This social responsibility, in turn, plays a central role in improving the quality of educational services, with a strong relationship of 1.05. Furthermore, the direct association between the association’s role and the quality of educational services is significant (0.53), but less strong than the indirect effect mediated by social responsibility.

Second-order analysis, performed after data purification, validates the factorial structure of the proposed theoretical model while ensuring that the relationships between dimensions and items are statistically significant and consistent. This step focuses on measuring the effective contribution of each observed variable to constructing its latent dimensions.

Table 5. Regression Weights

		Estimate	S.E.	C.R.	P
AA7	<--- Alumni Association	1.000			
AA5	<--- Alumni Association	1.048	0.077	13.566	0.00
AA6	<--- Alumni Association	.905	0.071	12.738	0.00
AA3	<--- Alumni Association	.900	0.079	11.350	0.00
ESQ4	<--- Educational Service Quality	1.000			
ESQ5	<--- Educational Service Quality	.979	0.042	23.172	0.00

ESQ3	<---	Educational Service Quality	.968	0.042	23.095	0.00
ESQ2	<---	Educational Service Quality	.966	0.063	15.439	0.00
SR6	<---	Social Responsibility	.914	0.051	18.063	0.00
SR2	<---	Social Responsibility	.966	0.052	18.650	0.00
SR3	<---	Social Responsibility	1.000			
SR5	<---	Social Responsibility	.978	0.047	20.827	0.00

The regression weights verify that all estimates are statistically significant, with p-values below 0.001, confirming the model's reliability. The standardized factor loadings, which significantly exceed the conventional threshold of 0.5, illustrate the considerable explanatory power of the selected items. For example, the indicators consistently demonstrate strong impacts concerning the function of the Alumni Association. In particular, the item related to the organization of activities intended to cultivate connections (AA5) possesses a high weighting of 1.048 and a Critical Ratio (C.R.) of 13.566, underscoring its pivotal role in shaping perceptions of the association's influence. The same logic applies to the quality of educational services, where the weightings associated with contribution intentions (ESQ5, ESQ3, ESQ2) are close to 0.97, with critical ratios exceeding 15 and even reaching 23. This indicates that alumni actively evaluate their education and engage in its improvement. The results for social responsibility reveal a balance among the indicators, with strong weightings, particularly for environmental commitment (SR2) and awareness of current issues (SR6). These variables reflect a desire to enhance the university experience through actions with a collective impact.

Table 6. Hypotheses Testing

		Estimate	S.E.	C.R.	P	Results
H1	Alumni Association → Educational Service Quality	0.129	0.046	2.817	.005	Supported
H2	Alumni Association → Social Responsibility Educational	0.709	0.076	9.351	0.00	Supported
H3	Social Responsibility → Educational Service Quality	0.723	0.037	19.345	0.00	Supported
H4	Alumni Association X Social Responsibility → Educational Service Quality	0.019	0.007	2.516	.012	Supported

The first-order statistical analysis conducted to test the hypotheses of the theoretical model facilitated an evaluation of the strength and significance of the relationships among key variables. The

four primary hypotheses of the model were statistically validated, revealing significant regression coefficients ($p < 0.05$) and illustrating a coherent and robust framework within the collected data.

H1 signifies that the Alumni Association is pivotal and beneficial in shaping perceptions of educational services ($\beta = 0.129$; $p = 0.005$). Consequently, alumni regard their involvement as an effective avenue for improving the university's offerings.

H2 highlights a stronger connection between the alumni association and social responsibility ($\beta = 0.709$; $p < 0.001$). In other words, the association catalyzes raising awareness and promoting social action among graduates.

H3 indicates that social responsibility, in turn, strongly influences the quality of educational services ($\beta = 0.723$; $p < 0.001$). This result illustrates how alumni social engagement enhances the perceived level of teaching beyond strictly academic content.

Finally, H4 emphasizes a mediation effect. The combination of alumni engagement and social responsibility significantly impacts the quality of educational services ($\beta = 0.019$; $p = 0.012$). This interaction demonstrates a virtuous, circular dynamic in which the relationship with the university, strengthened by shared values, generates tangible quality benefits.

Results showed that all structural coefficients are high, and their t-values are all > 1.96 , demonstrating that each item significantly correlates with the dimension it was already assigned since the CFA. These results confirm that the measurement scale exhibits internal consistency (Winarti & Indriyawati, 2023; Campbell & Baxter, 2019).

Results endorsed that the scale effectively evaluates the concept under examination. The data reveal a positive correlation between alumni associations' active involvement and the quality of educational services. This situation aligns with prior research that emphasizes the importance of alumni engagement in the development of institutions. For example, studies have illustrated that alumni associations can evolve into advocates for social change, influencing educational policy and strengthening community connections.

Alumni's social responsibility is closely connected to community engagement and the quality of education. Initiatives such as charitable and sustainable projects significantly enrich the educational environment. Nauffal & Skulte-Ouaiss (2018) and Hitti et al. (2022) support the idea that alumni participation in social activities enhances loyalty to the institution and promotes positive behaviors within the university community.

The findings observed in Lebanon are consistent with those identified in other nations. Purwaningtyas & Syauqillah's (2020) study, conducted in middle-income countries, has demonstrated that alumni associations can catalyze social change by fostering robust personal connections, even without substantial financial support. Furthermore, research indicates that the quality of educational services significantly influences student satisfaction and academic success, thereby underscoring the critical importance of a quality educational environment (El-Kassar et al., 2021; Badran & Badran, 2018).

5. Conclusion and Recommendations

This article aims to analyze how the alumni association contributes to enhancing the quality of educational services by mediating through social responsibility. The statistical findings indicate a significant interaction among alumni engagement, social responsibility, and the perceived quality of educational services at Lebanese universities. These connections reflect a global trend where alumni associations play a more prominent role in enriching the university experience. Behind the statistics lies a common belief: alumni are not just remnants of the past but partners in shaping the future. The analysis reveals three main insights. First, graduates are willing to engage actively if they feel valued, included, and systematically involved. Second, social responsibility is a crucial factor that demonstrates how alumni engage in activities with a collective impact. Third, the perceived quality of education is influenced by this dynamic and is not only determined by internal institutional factors.

The interplay between the role of alumni associations, social responsibility, and the quality of educational services highlights the importance of an integrated approach to institutional development. Lebanese universities have the opportunity to strengthen their educational and social impact by actively mobilizing their alumni network. These findings suggest Lebanese universities could benefit from a strengthened alumni engagement strategy, emphasizing social responsibility. By developing programs that encourage alumni to participate in social and educational initiatives, institutions can improve the quality of their services and strengthen their position within the community. International examples show that targeted programs, such as continuing education modules for alumni, can strengthen the bonds between graduates and their alma mater (Sharma et al., 2022).

Lebanese universities should build stronger alumni partnerships through active associations. This is not just about maintaining contact, but also about integrating them into decision-making and university development processes. Lebanese universities should encourage and support alumni social initiatives, such as volunteering, environmental projects, or community outreach, which can strengthen their sense of belonging and, in turn, improve the perceived quality of educational services. They should create a collaborative environment. Establishing advisory committees composed of alumni, faculty, and current students would foster a participatory approach to quality management while informing the institution's development strategy.

These results go beyond simple correlations: they highlight the role of postgraduate engagement and social and institutional involvement as a true lever for continuous improvement for higher education institutions. These invisible connections profoundly shape the perception of educational quality over time. Graduates can become essential partners. Their contribution becomes structured, social, and impactful when well mobilized and organized through a dynamic association.

This study enhances the literature on alumni's roles in the university ecosystem by highlighting their engagement as essential for improving educational quality. It also emphasizes the mediating role of social responsibility, which has been underexplored in university contexts within developing countries. The results give university decision-makers an empirical foundation for developing policies integrating

alumni into governance and Corporate Social Responsibility (CSR) strategies. The study presents a clear roadmap for creating quality programs based on the interaction between community engagement and continuous improvement.

This study recognizes specific limitations. The convenience sample is composed solely of graduates from Lebanese universities, suggesting that the findings may not be generalizable to other countries without requisite cultural or contextual modifications. Furthermore, the study utilizes a cross-sectional design, which restricts its ability to observe changes over time or to establish robust causal relationships. The data depends on respondents' self-reported perceptions, which may introduce social desirability bias, particularly concerning social engagement and responsibility.

These results pave the way for enhancing the university-graduate relationship to benefit the common good and improve academic performance. Future research should focus on expanding the analysis to encompass other cultural or academic contexts within the Arab world. Potential pathways include investigating the temporal aspect through longitudinal studies to monitor alumni's influence on educational quality over time. Ultimately, incorporating qualitative methods, such as interviews and focus groups, could provide deeper insights into the motivations underlying alumni's social and institutional engagement.

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