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Influence of Social, Financial and Economic Factors on Academic Performance: A Case of Institut Supérieur Technique De Lubumbashi (ISTL)

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Abstract: This study investigates the influence of economic factors (EF), financial factors (FF), and social factors (SF) on academic performance (AP) among students at the Institut Supérieur Technique de Lubumbashi (ISTL), using a Structural Equation Modelling (SEM) approach. The SEM examined the direct effects of EF, FF, and SF on AP, as well as the interrelationships among these factors. Results reveal that SF has the strongest impact on AP (0.42), followed by EF (0.28) and FF (0.16), highlighting the pivotal role of social support in students' academic success. Strong correlations among EF, FF, and SF indicate that these factors complement each other and jointly influence AP. Based on these findings, recommendations for ISTL include strengthening social support systems through mentorship, peer support groups, and counselling services, providing targeted financial assistance, and implementing programs to enhance students' economic resilience. Policy implications suggest that ISTL should adopt integrated student support strategies that address social, financial, and economic challenges holistically to improve academic outcomes. This study contributes to advancing our understanding of the multi-dimensional determinants of academic performance in higher education, particularly in the Congolese context.

Keywords: academic performance; socioeconomic factors; structural equation modelling (SEM); ISTL

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Introduction

Higher education is globally recognised as a driver of sustainable development, human capital formation, innovation and economic growth. Universities and technical institutes are not only engines of skills development, but also essential vehicles for social mobility, technological progress, and economic competitiveness (Krstić et al., 2020; Kyrylov et al., 2021; Wu & Zhang, 2021). However, access to these benefits is uneven, particularly in low- and middle-income countries, where underfunding, infrastructural constraints, and socioeconomic inequalities hinder both equity and the quality of educational outcomes. Extensive international research indicates

that students' success in higher education depends not only on their intellectual ability or cognitive skills, but also on the broader interplay of economic, financial, and social conditions (Mishra 2020; Rodríguez-Hernández et al. 2020; Roksa and Kinsley 2018). Further, household income stability, parental education, community environmental conditions, and the need to balance study with paid work, especially for under-resourced learners, have been shown to affect academic performance (Langensee et al. 2024; Raj and Chand 2023; Sentosa 2023).

Across Sub-Saharan Africa, these challenges are magnified by rapid enrolment growth, limited public investment, and the prevalence of financial precarity, which collectively undermine the institutional capacity to support students (Awad, 2020; Oketch, 2016; Zickafoose et al., 2024). In the Democratic Republic of Congo (DRC), although higher education occupies a central role in citizens' development aspirations, this sector continues to grapple with chronic underfunding, wide disparities across provinces, and inconsistent quality standards (De Herdt & Titeca, 2016). National realities, such as economic volatility, high household dependency ratios, and limited state investment in tertiary education, mean that non-academic factors, especially financial and social pressures, can exert an outsized influence on academic outcomes.

These dynamics are also visible in Lubumbashi, one of the major cities of Haut-Katanga, a historic mining and commercial hub, with a concentration of numerous higher-education institutions. The city's economy is based on natural resources, which creates education, training, and job opportunities through links with local industries. However, this same environment also exposes students to unstable household incomes, unreliable public services, and pressure to work in the informal sector, which can interfere with their studies. Within this context, the Institut Supérieur Technique de Lubumbashi (ISTL) occupies a distinctive role. Established in 2018, ISTL aims to empower students, particularly in Haut-Katanga and surrounding regions, with opportunities for technical and higher education, thereby potentially advancing personal and community development. ISTL has since expanded its academic offerings to include bachelor's and master's programs across diverse fields. These include management information systems, commercial sciences, finance, customs and excise, geomining, electromechanics, industrial chemistry, metallurgy, health sciences, and hospitality management. In addition to teaching, ISTL actively promotes scientific research, thereby furthering knowledge production and ensuring adaptation to evolving market demands.

Despite the promising institutional mandate, empirical research is limited on how ISTL students' academic performance is shaped by the interaction among their social backgrounds, household financial realities, and Lubumbashi's economic environment. This gap provides the rationale for this paper.

Research problem and relevance

Although research highlights the critical role of social, financial, and economic conditions in shaping academic outcomes (Andrews et al., 2024; Baker & Montalto, 2019; Considine & Zappalà, 2002; Kim et al., 2019; Oyefuga & Shakeshaft, 2023; Rodríguez-Hernández et al. (2020)), little is known about how these factors operate within the specific institutional and local context of ISTL. This apparent gap limits policymakers' and institutional leaders' ability to design appropriate measures that effectively address students' challenges and enhance their performance. This study addresses this gap by examining how social backgrounds, household finances, and local economic conditions jointly influence academic performance at ISTL.

The paper is organised as follows. Section Two reviews the international and regional literature on socioeconomic determinants of tertiary academic performance and highlights studies relevant to Sub-Saharan Africa and the DRC. Section Three presents the theoretical framework and hypotheses, followed by a detailed description of the methodology, data sources and measurement strategies. Section Four reports empirical results and robustness checks. Section Five discusses findings in the Lubumbashi and DRC policy contexts and concludes with institutional and policy recommendations.

Literature review

The relationship between socioeconomic conditions and academic performance in higher education has been widely documented across international and regional literature. While multiple determinants intersect, three broad categories emerge as particularly influential: economic conditions, financial resources, and social factors. These dimensions are especially relevant in Sub-Saharan Africa and the DRC, where systemic challenges in governance, economic stability, and education financing amplify their effects on human capital development, economic growth performance and poverty reduction (Todaro & Smith, 2020).

From a macroeconomic perspective, the African Development Bank (AfDB, 2025) noted that the DRC's environment remains fragile, with economic growth decreasing from 8.8% in 2022–7.5% in 2023, mainly due to fluctuations in the extractive industries. Additionally, inflation remains high at roughly 20% due to a weak Congolese franc and higher food and energy costs, prompting the central bank to keep its key interest rate at 25% (Trésor, 2025). Moreover, the country's budget deficit widened to 1.7% of GDP due to higher security spending, while debt remained moderate, and the current account deficit increased to 6.3% of GDP in 2023. Financial stability improved slightly, with non-performing loans declining and reserves rising to 2.8 months of imports. Despite efforts to promote inclusive growth, poverty and inequality remain high, with poverty above 56% and a Gini index of 0.511 (AFDB, 2025). Politically, persistent governance challenges, institutional instability and periodic tensions continue to undermine investor confidence and long-term development efforts.

Economic factors (Efs) and Academic performance

Economic conditions at both the macro and local levels exert a profound influence on higher-education outcomes (Liu et al., 2022; Munir et al., 2023; Selvitopu & Kaya, 2023). Macroeconomic instability, manifested in high unemployment, inflation, and stagnant or negative growth, constrains households' ability to invest in education and limits the government's capacity to fund universities adequately (Realinho et al., 2022). Insufficient public expenditure results in deteriorating infrastructure, poorly resourced laboratories and libraries (Agyei et al., 2024; Mom et al., 2025), underpaid teaching staff (McCulloch & Leonard, 2024), and limited student support services (Lumadi, 2021), all of which directly affect the quality of learning environments.

Economic inequalities further exacerbate disparities in access and success. Students from lower-income households face higher barriers to entry, as they often lack the material and technological resources needed for effective learning. Limited access to electricity, internet connectivity, and reliable transportation often restricts students' study time and class attendance, particularly for learners in peri-urban or rural areas (King et al., 2024; Poon, 2020). In such contexts, the economic environment shapes not only tangible resources but also students' motivation and academic engagement. Perceptions of limited returns on educational investment arising from fragile labour markets or sectoral volatility can diminish students' academic commitment and persistence, creating a feedback loop in which economic hardship translates into underperformance.

Empirical evidence from certain African higher-education contexts indicates that economic pressures, both at the household and regional levels, are robust predictors of academic outcomes, interacting with financial and social constraints to shape performance trajectories further (Nja et al. (2022); Hanushek et al. 2023). From a macroeconomic stability viewpoint, for instance, when the economy experiences output expansions, low unemployment, low inflation, and stable exchange rates, households enjoy more predictable incomes and living costs. This stability allows families to invest in essential educational resources, ensuring students can access the materials they need to advance their learning. Moreover, when economic conditions are favourable, students are more likely to attend school regularly and concentrate on their studies without the distractions of financial instability.

Furthermore, a stable, growing economy can generate higher government revenues, which can be channelled into educational investments, such as infrastructure enhancements, improvements in teacher quality, and better access to technology, learning media and transportation. All these factors contribute to a more robust educational system (Jansen, 2024). While macroeconomic stability lays the groundwork for better academic outcomes, the realisation of these potential benefits requires strategic and equitable investment in education (Todaro & Smith, 2020). We therefore hypothesise that:

- *H_1: Economic factors (EFs) have a significant and positive influence on students' academic performance at ISTL.*

Financial factors (Ffs) and Academic performance

At the micro level, financial factors (FFs) consistently influence students' academic performance. Limited household income constrains families' ability to cover tuition, textbooks, digital tools, and other essential learning resources, thereby creating structural barriers to effective participation in higher education (Baker & Montalto, 2019). In the DRC, despite being a mineral-rich country, public funding for higher education is limited, and household poverty rates remain high; these barriers can limit individuals' potential and their academic and non-academic achievements (Sen, 2001; Todaro & Smith, 2020). Studies across Sub-Saharan Africa and

beyond indicate that financial pressures are among the strongest predictors of student dropout, absenteeism, and underperformance, as students from lower-income families often lack not only material support but also the stability necessary for sustained academic focus (Stiglitz, 2025).

The unequal distribution of scholarships, grants, and loans further compounds disparities between students from privileged and disadvantaged backgrounds. In the DRC, where formal student aid systems remain underdeveloped, families are the primary financiers of higher education (Bank 2023). This reliance places heavy burdens, particularly on low- and middle-income households, many of whom struggle with irregular earnings due to dependence on the informal sector and resource-sector volatility in mining-dominated provinces, such as Haut-Katanga. Beyond tuition, financial precarity extends to unstable housing, food insecurity, and limited access to healthcare, which directly undermine students' physical and psychological well-being (Wilkinson & Pickett, 2019).

Financial stress thus operates not only as a material constraint but also as a cognitive burden, reducing students' capacity to concentrate, plan, and persist academically. Evidence from African universities shows that many students are compelled to engage in part-time or informal work to support household income while studying. Navigating the trade-offs in time and energy between work and study is not easy; this often compromises academic performance and increases the risk of dropout (Langensee et al. (2024); Rahman et al., 2023). In the DRC, these trade-offs are intensified by weak institutional safety nets, meaning students bear the brunt of balancing resource sustainability with study pressures. Consequently, students from lower-income households face a double disadvantage: resource deprivation limits their access to academic opportunities, while the accompanying stress of financial insecurity undermines resilience and cognitive performance. This dual impact underscores FF as a central mechanism that explains academic inequality in higher education and highlights the urgency of localised research in institutions such as ISTL.

Students' financial conditions are crucial in influencing academic performance, especially when factors such as parental income adequacy (Mutisya & Mutilu, 2024), access to scholarships and grants (Rattini, 2023), manageable student loan debt, and low tuition fees are adequately considered and managed. In such a case, while students experience less financial stress, they can focus on their studies rather than worry about basic survival. Additionally, investments in educational resources, stable housing, accessible healthcare, and manageable family financial pressures contribute to a supportive learning environment. This environment helps to enhance students' focus and perseverance. Financial stability is essential for achieving academic performance (Jansen, 2024), and we therefore hypothesise that:

- *H_2: Financial factors (FFs) have a significant and positive influence on students' academic performance at ISTL.*

Social factors (Sfs) and Academic performance

Beyond economic and financial dimensions, social factors are central to understanding disparities in academic performance. Decades of research, including Coleman 1988 seminal work, demonstrate that the family environment, including parental involvement, encouragement, and household stability, remains one of the strongest predictors of student achievement. Supportive family structures provide students with emotional resilience, role modelling, and moral guidance that help them navigate financial and institutional or social challenges. Conversely, students facing family instability due to limited resources, separation, divorce, or absent fathers, and those with excessive household responsibilities, or unrealistic expectations, often experience heightened stress, reduced motivation, and a weaker persistence in their studies (Ramphele, 2017).

Peer influence adds a further dimension to academic outcomes. Positive peer networks foster collaborative learning, resource exchange, and mutual accountability, while negative peer pressure can promote disengagement, absenteeism, or anti-academic behaviours. The broader academic community also matters, as mentors and instructors are key agents in shaping attitudes towards learning. High-quality mentorship and teacher commitment enhance student motivation, confidence, and perseverance; poor supervision or disengaged teaching, however, can deepen academic hardships, often making it hard for students to complete their studies on time or to score high (Abdolalipour et al., 2024). Beyond family and institutional ties, participation in structured social activities, such as sports, student associations, and volunteering, contributes to a learner's holistic development and provides psychological balance. Yet, when involvement becomes excessive, it risks reducing the time and energy available for study. Moreover, exposure to insecurity or violence, whether within the home, school, or

neighbourhood, creates psychosocial stressors that undermine concentration, attendance, and overall academic stability (Wilkinson & Pickett, 2019).

Taken together, the literature suggests that social factors operate as both enablers and constraints. Supportive families, peers, and mentors provide critical scaffolding for academic success, while instability, poor mentorship, or negative peer influences exacerbate vulnerabilities already shaped by economic and financial pressures. This dual role underscores the need to empirically assess which social dimensions most strongly predict academic outcomes in a specific institutional context, such as ISTL. We therefore hypothesise that:

- *H_3: Social factors (SFs) have a significant and positive influence on students' academic performance at ISTL.*

Critical interplay of economic, social, and Financial factors

While economic, financial, and social factors individually influence academic performance, their interactions are particularly consequential. Macroeconomic instability, characterised by high unemployment, inflation, and constrained public expenditure, not only reduces government capacity to fund scholarships, education and research budgets, and institutions of higher learning, but it also increases household financial pressures. In the absence of stable formal employment opportunities, households in areas like Lubumbashi have to cope with financial constraints through social networks, altruism, assistance from NGOs and church-based organisations, and informal-sector employment (Todaro & Smith, 2020). These pressures often compel students to engage in part-time paid work, diminishing their study time, increasing stress, and ultimately undermining academic performance. Economic and financial factors thus operate in a tightly linked nexus**,** where broader adverse economic conditions directly amplify household-level financial constraints (Robeyns, 2025).

Social conditions further moderate these dynamics. Supportive families, committed teachers, and constructive peer networks can buffer the adverse effects of financial hardships, enabling students to maintain engagement and focus, despite constrained resources. Conversely, environments marked by insecurity, excessive household responsibilities, or negative peer influences exacerbate stress, reduce concentration, and hinder learning (Levitin, 2024). This highlights that financial and social factors are interdependent**,** as social support can mitigate the adverse consequences of limited household resources, whereas its absence compounds financial stress.

The literature from Sub-Saharan Africa, including Nigeria, South Africa, and the DRC, reinforces these patterns. Wealth disparities translate into unequal access to books, digital tools, learning opportunities, stable housing and a flourishing quality of life (Wilkinson & Pickett, 2019). Meanwhile, students' ability to cope with these structural challenges depends heavily on familial, peer, and institutional support (Nja et al. 2022; Oketch 2016). In the DRC, systemic underinvestment in education, reliance on volatile mining revenues, and infrastructural gaps create an environment in which students' academic success is strongly linked to learner resilience, household resourcefulness, and social networks rather than solely to institutional provisions. Even in resource-poor contexts, students who benefit from strong social capital often outperform peers who do not face similar financial and economic hardships (Levitin, 2021).

Collectively, these insights suggest that the cumulative and interacting effects of economic, financial, and social factors may influence academic performance at the ISTL. Understanding these interplays is crucial for developing context-sensitive interventions that address structural barriers, strengthen social support systems, and align financial aid with local realities at a tertiary level. Hence, the following hypotheses are deduced:

- *H_{4a} (Economic–Financial Interplay): There is a significant, positive relationship between economic and financial factors.*
- *H_{4b} (Financial–Social Interplay): There is a significant, positive relationship between financial and social factors.*
- *H_{4c} (Economic–Social Interplay):There is a significant and positive relationship between economic and social factors*.

Taking cognisance of the above literature review, the following framework is conceptualised:

Methodology

Data were collected online via a structured Google Forms questionnaire between 24 September and 30 October 2025, yielding 240 completed responses. To ensure methodological transparency, the sampling frame comprised all registered undergraduate students at ISTL during the 2025 academic year, randomly recruited via institutional communication channels, such as class WhatsApp groups. The questionnaire items were based on constructs identified in the literature and aligned with the study objectives; content validity was enhanced through expert review by two academics in education and economics. The instrument was prepared in French (the official language), and clarity was verified through a pilot test with a small group of students ($n \approx 20$), resulting in minor wording adjustments. Participation was voluntary and anonymous, and all respondents provided informed consent. Ethical approval for the study was obtained from ISTL's research ethics committee (Ref 12/CER/PR/AKM/08/2025), ensuring that the rights and confidentiality of participating students were protected. We handled incomplete responses using listwise deletion, and missing data were minimal in Google Forms prior to statistical analysis.

The analysis occurred in two stages. First, using STATA, we applied a confirmatory factor analysis (CFA) with three clusters, as presented in Table 2, Social Factors (SF_1-SF_6), Economic Factors (EF_1–EF_{10}) and Financial Factors (FF_1–FF_{11}). These were conceptualised as independent constructs to test whether the three-factor measurement model fits the data, by assessing reliability and convergent and discriminant validity. Second, we tested the influence of these factors on academic performance (AP_1-AP_{12}) – conceptualised as the dependent construct using Structural Equation Modelling (SEM).

The measurement of academic performance is of value to both institutions of higher learning, as service providers (supply-side), and to learners, as recipients of institutional services (demand-side). Institutions compete to attract students and use their resources to offer market-relevant academic programmes, thus preparing students for the labour market. For institutions to improve, they need to measure whether the organisation's desired outcomes have been achieved, and where there are repeated gaps in goal achievement and strategic planning, take corrective measures to improve the institution's academic standing and integrity/reputation, which, in turn, affects students' performance. Without students and resources, there cannot be an effective institution. Financial and non-financial resources are needed for both the institution and learners to fulfil their desired outcomes. Not all students come from an affluent background. Although students are not equally resourceful, socially, financially, or economically advantaged, they are homogenous' in their quest for good academic performance. On this academic journey toward skill acquisition and performance, students must make various sacrifices, some of which are context-specific.

Traditionally, students' academic performance has been measured by marks scored, throughput and graduation rates, credits passed for a study course, and transitions to postgraduate studies. An institutional academic architecture, which includes the quality of lecturers, teaching methods, access to library resources, and e-learning facilities, is also critical to student performance (Jansen, 2024). Thus, as early as 2002, Hussain and Hoque (2002) in South Africa strongly argued that non-financial performance measures are important for improving academic performance. Accordingly, in this study, performance was measured in an integrative, 'unconventional' mode using 12 items.

Demographic information

As shown in Table 1 (below), the sample comprised 240 registered students at ISTL. Almost 26% were female, and the rest were male students. Regarding age, about 52% were between 23 and 27 years old, and almost 42% were in the 18–22 age group. A small proportion of the respondents (6%) were in the 28–39 age group. The surveyed students came from various suburbs. The largest proportion of respondents resided in Annexe (29.58%), followed by Kampemba (21.25%) and Lubumbashi city centre (19.17%). Almost 16% came from Ruashi. ISLT offers various programmes, as shown in Table 1, spanning the Arts to the Sciences. In the nursing programme, 77.14% studied general care. About 35% were enrolled in Accounting & Management and Management Information Systems, and almost 34% in electromechanics.

Table 1. Descriptive statistics of the demographic variables

		Frequency	Per cent (%)	Cum Per cent (%)
Gender	Female	62	25.83	25.83
	Male	178	74.17	100
	Total	240	100	
Age	18–22 years	100	41.67	41.67
	23–27 years	124	51.67	93.33
	28–32 years	12	5.00	98.33
	33–38 years	1	0.42	98.75
	39 years and more	3	1.25	100
	Total	240	100	
Suburb	Annexe	71	29.58	29.58
	Kamalondo	4	1.67	31.22
	Kampemba	51	21.25	52.50
	Katuba	10	4.17	56.67
	Kenya	4	1.67	58.34
	Lubumbashi (City center)	46	19.17	77.51
	Ruashi	38	15.83	93.34
	Others	16	6.67	100
	Total	240	100	
Art & Craft	Cutting & Sewing	1	12.50	2.50
	Aesthetics	4	50.00	62.50
	Fashion design	3	37.50	100
	Total	8	100	
IT & Networking	Network admin.	4	13.79	13.79
	Design & Multimedia	2	6.90	20.69
	Software Engineering	4	13.79	34.48
	Management Information System	10	34.48	68.97
	Network & Telecom.	9	31.3	100
	Total	29	100	
Business Amin. & Management	Banking, Microfinance & Insurance	1	2.50	2.50
	Accounting & Management	14	35.00	37.50
	Entrepreneurship & SME Management	5	12.50	50.00
	Taxation, Customs & Excise	8	20	70.00
	Human Resource Management	7	17.8	87.50
	Marketing	5	12.50	100
	Total	40	100	
Nursing Programme	Midwifery	3	8.57	8.57
	General care	27	77.14	85.71
	Paediatric care	3	8.57	94.29
	Laboratory Technology	2	5.71	100
	Total	35	100	
Sciences & Techniques	Industrial Chemistry	4	3.01	3.01
	Industrial construction	9	6.77	9.77
	Electromechanics	45	33.83	43.61
	Geology	5	3.76	47.69
	Mines	39	29.77	76.69
	Metallurgy	9	6.77	83.46
	Industrial electricity	22	16.54	100
	Total	133	100	

Confirmatory factor analysis (Cfa)

A Confirmatory Factor Analysis (CFA) was conducted to validate the measurement model. All items were measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), which provided standardised quantitative data for analysis, as presented in Table 2. The quality of the measurement instruments was first assessed using Cronbach's alpha to assess internal consistency. The Cronbach coefficients for Social Factors (SF

= 0.75), Financial Factors (FF = 0.89), Economic Factors (EF = 0.93), and Academic Performance (AP = 0.92) all exceeded the recommended threshold of 0.70, indicating strong reliability (Field, 2009).

Table 2. Description of predictor items for the dependent and independent constructs

Items	**Academic Performance APs – (dependent construct)**	**Measurement**
H_1	Intrinsic motivation and academic achievement (student grades such as marks or exam results reflecting personal drive and interest in subjects)	5-Likert scale
H_2	Teaching methods (quality, strategies, teacher engagement)	5-Likert scale
H_3	Qualification and availability of teachers	5-Likert scale
H_4	Organisational skills (time management, task organisation)	5-Likert scale
H_5	Access to academic resources (libraries)	5-Likert scale
H_6	Learning environment (equipped classrooms, teaching resources)	5-Likert scale
H_7	Academic workload (too many assignments, frequent exams, dense content, stress)	5-Likert scale
H_8	Quality of teaching materials (updated textbooks, libraries, digital resources)	5-Likert scale
H_9	Organisation of the academic calendar (interruptions, postponed exams, poor structure)	5-Likert scale
H_{10}	Physical and mental health of students	5-Likert scale
H_{11}	Language of instruction (poor mastery affects success)	5-Likert scale
H_{12}	Access to internships and practical work	5-Likert scale
Items	**Economic Factors EFs – (Independent construct)**	**Measurement**
H_1	Low unemployment	5-Likert scale
H_2	Low Inflation (transport, housing, food, school supplies)	5-Likert scale
H_3	Stable exchange rate of the Congolese Franc against the Dollar	5-Likert scale
H_4	Economic growth	5-Likert scale
H_5	Low economic inequalities (the gap between advantaged and disadvantaged students)	5-Likert scale
H_6	National budget allocated to education	5-Likert scale
H_7	Improving national and regional economic conditions	5-Likert scale
H_8	Access to electricity	5-Likert scale
H_9	Access to the Internet connection	5-Likert scale
H_{10}	Access to transport and mobility	5-Likert scale
Items	**Financial Factors FFs – (Independent construct)**	**Measurement**
H_1	Parental income	5-Likert scale
H_2	Access to student scholarships	5-Likert scale
H_3	Access to student grants	5-Likert scale
H_4	low tuition fees	5-Likert scale
H_5	Investment in educational tools (books, computers, etc.)	5-Likert scale
H_6	Looking for a part-time job to finance studies	5-Likert scale
H_7	stable or adequate housing	5-Likert scale
H_8	Accessing healthcare	5-Likert scale
H_9	Management of family financial pressures	5-Likert scale
H_{10}	Management of student debt	5-Likert scale
H_{11}	Access to student loans (banks, etc.)	5-Likert scale

(*Continued*)

Table 2. (Continued)

Items	**Academic Performance APs – (dependent construct)**	**Measurement**
Items	**Social Factors SFs – (Independent construct)**	**Measurement**
H_1	Family environment (moral support, stability, parental involvement in education)	5-Likert scale
H_2	Peer influence (close friends, classmates)	5-Likert scale
H_3	Social or family pressure (high expectations, family responsibilities, stress)	5-Likert scale
H_4	Influence of mentors (teachers, tutors, assistants)	5-Likert scale
H_5	Participation in social activities (sports, volunteering, community projects)	5-Likert scale
H_6	Safety in the neighbourhood or at school	5-Likert scale

Convergent and discriminant validity were assessed for the constructs EF, FF, and SF. Composite reliability (CR) values were 0.93 for EF, 0.89 for FF, and 0.75 for SF, all exceeding the recommended threshold of 0.70, indicating strong internal consistency. These values were calculated using the CR calculator by Colwell (2016). Corresponding average variance extracted (AVE) values were 0.72 for EF, 0.68 for FF, and 0.52 for SF, confirming that each construct explains a substantial portion of the variance in its indicators. Discriminant validity was also established: the square roots of the AVE (EF = 0.85, FF = 0.82, SF = 0.72) were greater than the inter-construct correlations (EF↔FF = 0.75, EF↔SF = 0.54, FF↔SF = 0.54), demonstrating that EF, FF, and SF are distinct constructs measuring separate dimensions of influence on academic performance. These results confirm that the measures are both reliable and valid, supporting their use in the SEM analysis.

Structural Equation Model (SEM), model estimation and model fit assessment

SEM was conducted to examine the influence of Social Factors (SF), Financial Factors (FF), and Economic Factors (EF) on Academic Performance (AP), as illustrated in Figure 1. The sample size of 240 respondents was deemed sufficient for SEM, meeting recommended minimum requirements and ensuring adequate statistical power for path analyses. To improve the overall model fit, we removed items AP7 (under Academic Performance), FF10 (under Financial Factors), and SF2 and SF6 (under Social Factors) because their factor loadings were below the acceptable threshold of 0.60. The removal of low-loading items is a common practice in SEM, ensuring that only reliable indicators contribute to the measurement of constructs, and thereby enhancing both the reliability and validity of the final model (Field, 2009). Regarding the model fit assessment, Table 3 summarises the findings.

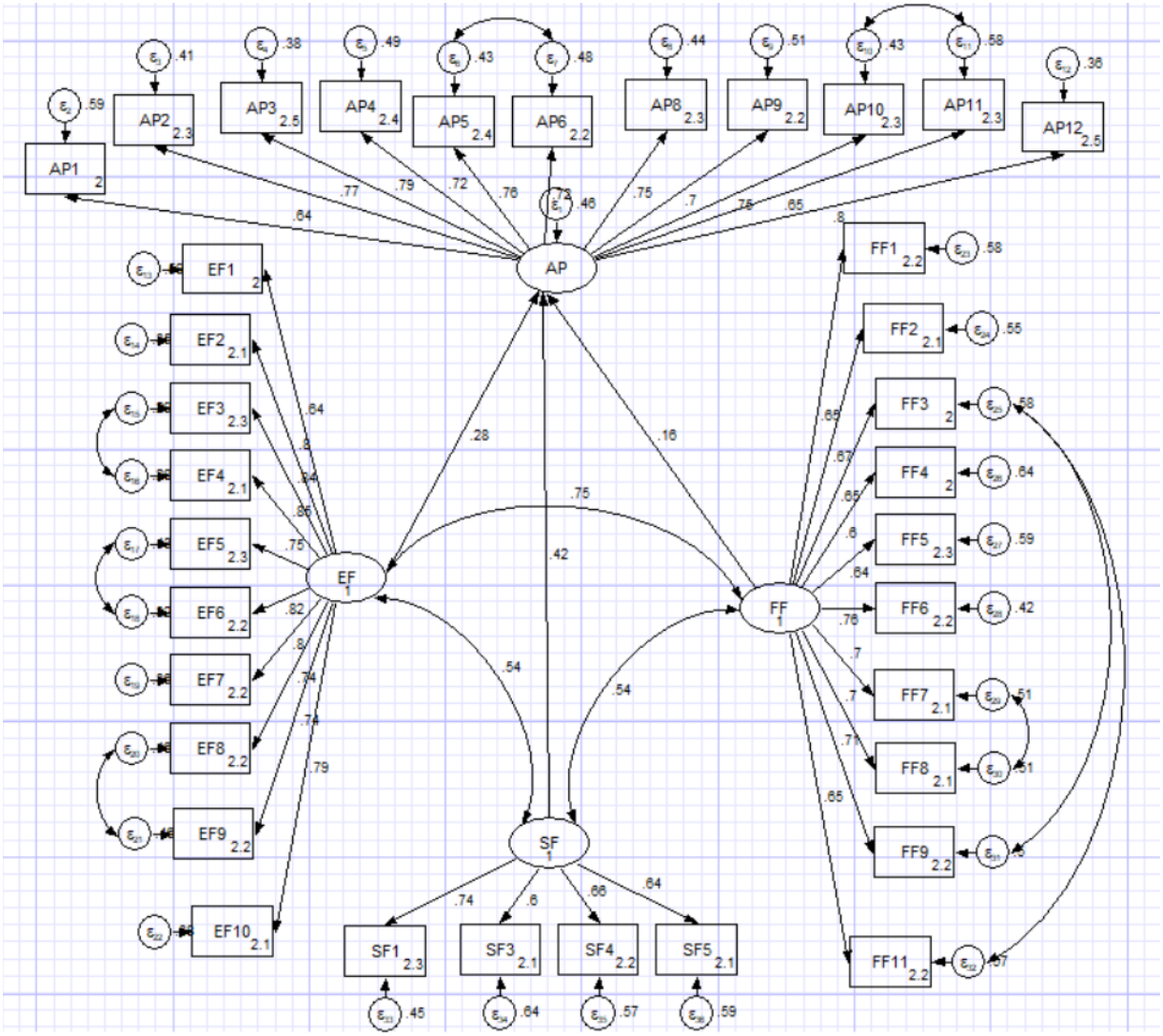

Figure 1. SEM results framework

Table 3. Analysis of the structural model using multiple reflective indicators

Measure	Threshold	Indices for Model	Comment
p- value	>0.05	0.000	Not acceptable
CFI	>0.95	0.953	Acceptable
TLI	> 0.90	0.944	Acceptable
RMSEA	<0.08	0.072	Acceptable
Standardised RMR	>0.05	0.054	Acceptable
CD		0.997	

The overall fit indices indicate that the proposed SEM model demonstrates an acceptable-to-good fit with the data. Although the chi-square test was significant, which is common with larger samples, the alternative indices provide a more precise assessment. The RMSEA value of 0.072 (90% CI = 0.067–0.077) suggests a reasonable fit, while the CFI (0.953) and TLI (0.944) fall within the acceptable to excellent range, indicating a strong comparative fit. In addition, the SRMR value of 0.054 falls well below the 0.08 threshold, further supporting the adequacy of the model (Shi & Maydeu-Olivares, 2020).

The coefficient of determination (CD = 0.697) shows that the model explains a substantial proportion of the variance in the observed variables. Taken together, these indices confirm that the model in Figure 1

(below) provides a satisfactory representation of the underlying constructs and can be considered appropriate for confirmatory analysis.

Results and discussion

The measurement results for Academic Performance (AP) revealed that several items loaded strongly on the construct, with coefficients ranging from 0.64 to 0.80 (Table 4). The highest contribution came from access to internships and practical work (AP12 = 0.80), underscoring the importance of experiential learning in enhancing students' comprehension and motivation. This aligns with literature emphasising the role of practical exposure in bridging theory and practice, particularly in technical institutions such as ISTL, where applied skills are critical for graduate employability. Teacher qualification and availability (AP3 = 0.79) and teaching methods (AP2 = 0.77) also emerged as significant contributors, reflecting that effective pedagogy and competent teaching staff remain central to academic success. Other factors, such as access to academic resources (AP5 = 0.76), quality of teaching materials (AP8 = 0.75), and students' physical and mental health (AP10 = 0.75), were equally important, consistent with prior studies showing that adequate infrastructure and student well-being create a conducive environment for learning. Even though organisational skills (AP4 = 0.72), the learning environment (AP6 = 0.72), and the academic calendar (AP9 = 0.70) showed relatively lower loadings, they still play a critical role in maintaining academic continuity. Overall, the results highlight that at ISTL, practical exposure, qualified teaching staff, and resource availability are the most salient drivers of academic performance. This corroborates previous findings in higher education research that emphasise the interaction between pedagogy, resources, and applied learning opportunities.

Table 4. Standard regression weight results

Constructs	Path Analysis		Estimate	P-value	Label
AP	←	AP_1	0.64	0.04	Sig
	←	AP_2	0.77	***	Sig
	←	AP_3	0.79	***	Sig
	←	AP_4	0.72	***	Sig
	←	AP_5	0.76	***	Sig
	←	AP_6	0.72	***	Sig
	←	AP_8	0.75	***	Sig
	←	AP_9	0.70	***	Sig
	←	AP_{10}	0.75	***	Sig
	←	AP_{11}	0.65	***	Sig
	←	AP_{12}	0.80	***	Sig
EF	←	EF_1	0.64	***	Sig
	←	EF_2	0.80	***	Sig
	←	EF_3	0.84	***	Sig
	←	EF_4	0.86	***	Sig
	←	EF_5	0.75	***	Sig
	←	EF_6	0.82	***	Sig
	←	EF_7	0.80	***	Sig
	←	EF_8	0.74	***	Sig
	←	EF_9	074	***	Sig
	←	EF_{10}	0.79	***	Sig
FF	←	FF_1	0.65	0.04	Sig
	←	FF_2	0.67	***	Sig
	←	FF_3	0.65	***	Sig
	←	FF_4	0.60	***	Sig
	←	FF_5	0.64	***	Sig
	←	FF_6	0.76	***	Sig
	←	FF_7	0.70	***	Sig
	←	FF_8	0.70	***	Sig
	←	FF_9	0.71	***	Sig
	←	FF_{11}	0.65	***	Sig
SF	←	SF_1	0.74	0.03	Sig

(*Continued*)

Table 4. (Continued)

Constructs	Path Analysis		Estimate	P-value	Label
	←	SF_3	0.60	***	Sig
	←	SF_4	0.66	***	Sig
	←	SF_5	0.64	***	Sig
AP	←	**EF**	0.28	***	Sig
	←	**FF**	0.16	***	Sig
	←	**SF**	0.42	***	Sig
EF	↔	**FF**	0.75	***	Sig
FF	↔	**SF**	0.54	***	Sig
EF	↔	**SF**	0.54	***	Sig

(***) p-value of 0.05; ↔ representing the correlation between constructs

The responses obtained from ISTL students on economic factors (EFs) reveal an urgent need to maintain stronger economic growth (EF4 = 0.86), stabilise the exchange rate of the Congolese Franc against the dollar (EF3 = 0.84), and improve government budget allocation to education (EF6 = 0.82) to enhance academic performance. A thriving economy can increase public revenue, enabling more substantial investments in essential resources (Karimu et al., 2017), such as state-of-the-art laboratories, advanced technical equipment, and highly qualified instructors at ISTL. Additionally, a stable exchange rate at the national level affects household purchasing power and students' prospects, aligning with evidence that currency stability can alleviate financial stress and strengthen academic persistence (Banerjee & Duflo, 2019). The stability of the exchange rate is particularly vital for an institution like ISTL, which requires many scientific tools, software, and spare parts to be imported and denominated in a particular reference currency, such as the dollar or the Euro. This stability can help mitigate the institution's financial strain. Moreover, targeted government funding can significantly improve physical and teaching infrastructure (Ibrahim et al., 2023; Oluyemi et al., 2025), boost research capabilities (Emeka & Asongu, 2025), and enhance student support systems, thereby improving educational outcomes (Lumadi, 2021).

Other EF items, such as low inflation (EF2 = 0.80), improved national and regional economic conditions (EF7 = 0.80), and enhanced access to transport and mobility (EF10 = 0.79), also consolidate the economic construct, which influences student performance. The findings suggest that reducing expenses for transport, housing, food, and academic materials can help ease the financial strain on students, leading to better attendance and increased focus on learning. Stable economic conditions also contribute to improved overall quality of life, which, in turn, supports cognitive performance and perseverance. This situation resonates with Becker 1964 Capital Theory, which underlines the connection between economic conditions, human capital investment, and educational outcomes. Similarly, Hanushek (2023) posits that broader economic factors significantly affect educational quality and student performance. Additionally, Sen (1999) and Susskind (2024) emphasise that improvements in living conditions and mobility broaden individuals' capabilities, facilitating their attainment of educational success and productivity benefits. Ultimately, stable economic conditions provide the essential socioeconomic framework for stronger academic performance at ISTL.

The result further reveals that reducing economic inequalities (EF5 = 0.75) and improving access to electricity (EF8 = 0.74) and access to the internet (EF9 = 0.74) explain how EF, as a construct, enhances students' performance in this paper, where applied learning depends heavily on a stable energy supply and digital infrastructure. Economic disparities constrain students' ability to afford learning materials, transport, and connectivity, thereby reinforcing unequal educational outcomes (Bourdieu & Passeron, 1990; OECD, 2019). Moreover, unreliable electricity disrupts laboratory work and practical sessions, and limits access to e-learning platforms, while limited internet access deepens the digital divide and restricts participation in blended and research-based learning (UNESCO, 2021; World Bank, 2020). If not well addressed, these structural constraints can directly undermine skill acquisition, innovation capacity, and overall academic achievement.

The analysis on financial factors (FFs) reveals that seeking part-time employment while studying (FF6 = 0.76) had the highest coefficient loading, helping to understand how FFs affect academic performance. This item (FF6) particularly indicates that juggling work for income gains and academic activities is a trade-off that can lead to reduced study time, increased fatigue, and higher stress levels, ultimately detracting from learning outcomes. These insights align with Tinto's (2017) student persistence model, which suggests that outside financial pressures can hinder academic integration and commitment. Consequently, the findings emphasise the

need for structured paid internships and enhanced entrepreneurial education, so that income-generating activities support rather than hinder academic outcomes. Furthermore, ISTL students view managing family financial pressures (FF9 = 0.71), ensuring access to adequate housing (FF7 = 0.70), and improving access to healthcare (FF8 = 0.70) as crucial for financial stability. This result supports existing evidence indicating that students' material conditions significantly influence their educational success (Oketch, 2016; World Bank, 2020).

The analysis of social factors (SFs) shows that the family environment (SF1 = 0.74) has the highest loading, indicating that SFs influence academic performance, and underscoring the importance of parental involvement, emotional support, and stability in fostering student success. This finding is consistent with research demonstrating that supportive family structures enhance persistence and motivation in higher education (Eccles & Wigfield, 2020; Wilkinson & Pickett, 2019). Social or family pressure (SF3 = 0.60) loaded lower but remains essential, as high expectations and household responsibilities often generate stress that can hinder students' concentration and performance—an issue particularly relevant in the DRC, where students frequently balance academic work with significant family obligations. The influence of mentors, such as teachers and tutors (SF4 = 0.66), also emerged as a relevant factor, corroborating evidence that effective mentorship provides guidance and encouragement that enhances student engagement (Tinto, 2017). Participation in social activities (SF5 = 0.64) is less prominent but still contributes positively by reducing stress and promoting holistic development, aligning with studies showing the role of extracurricular activities in improving student well-being and resilience (Jansen, 2024; Kahu & Nelson, 2018).

The study examined the effects of economic factors (EF), financial factors (FF), and social factors (SF) on academic performance (AP) at ISTL. The results show that all three factors significantly influence AP, with SF exerting the strongest effect (0.42), followed by EF (0.28) and FF (0.16). This highlights that social support, such as family involvement and peer influence, plays a pivotal role in students' academic success, corroborating literature on the importance of social environments in learning outcomes (Best, 2011; Spiegel et al., 2021).

Correlational analyses revealed strong, significant and positive interrelationships among the three factors: EF and FF have the highest correlation (r = 0.75). The correlation between EF and SF was 0.54, and between FF and SF was also 0.54, indicating that these factors complement each other in shaping AP. Economically stable students often experience fewer financial constraints, while strong social support further enhances their capacity to perform academically. This synergy aligns with research emphasising that cognitive, financial, and social resources jointly foster academic achievement (Cortés Pascual et al., 2019; Perpiñá Martí et al., 2023). Overall, while there is support for all the articulated hypotheses, one should exercise caution when generalising the results, as they are based on a single institution in the DRC.

Policy directions

The development of human capital through education and training is a critical objective for every society in its quest for economic advancement. Effective investment in education enhances individuals' productivity, enabling them to broaden their employability, earn a decent income, and escape poverty (Parker, 2018; Susskind, 2024). Limited availability and access to resources at the personal, institutional, social, and national levels often adversely affect learners' academic performance. In the specific context of ISTL, this study shows that SF, FF and EF have a significant influence on AP. However, of these factors, SF emerges as the most critical determinant in the ISTL context. Hence, interventions aiming to improve student performance should focus not only on alleviating financial and economic challenges but also, importantly, on strengthening social support systems, which collectively enhance students' learning outcomes.

Based on these findings, it is recommended that ISTL implement integrated support strategies that address social, financial, and economic needs simultaneously. Strengthening social support systems through mentorship programs, peer support groups, and counselling services can directly improve student performance. Providing financial assistance, scholarships, and work-study opportunities can alleviate economic pressures, allowing students to concentrate on learning. Additionally, initiatives aimed at building students' economic resilience, such as personal finance workshops or entrepreneurship training, can indirectly enhance academic outcomes and future employability. Regular monitoring and assessment of students' social, financial, and economic challenges will enable timely interventions and ensure that the combined influence of these factors continues to effectively support academic success.

Improvements at the national level in DRC, such as higher employment and economic growth, greater budget allocations to education, and better investment in physical infrastructure, may yield collaborations that strengthen institutional capacity to deliver better support and outcomes for learners. While these institutional support measures are desirable, the individual learner's cognitive talents and efforts are indispensable.

Originality of the study and some limitations

The study offers a contextualised contribution by extending existing models of how socioeconomic factors influence student academic performance. The findings should be interpreted with caution due to limited generalisability from a single institution. Replicating the study at other institutions in the DRC may be desirable. Additionally, the cross-sectional design limits causal inference, though the results remain relevant for understanding student experiences in similar Sub-Saharan African institutions and for informing locally tailored interventions.

Conclusion

This study examined the influence of economic factors (EF), financial factors (FF), and social factors (SF) on academic performance (AP) at ISTL. The findings demonstrate that all three factors significantly contribute to AP, with social factors emerging as the most influential, followed by economic and financial factors. These results underscore the critical role of social support, including family involvement, peer networks, and mentorship, in fostering academic success. At the same time, economic stability and financial resources enhance students' ability to focus on their studies, and their effects are magnified when strong social support is present. The strong correlations among EF, FF, and SF further highlight that these factors are interdependent, jointly shaping student outcomes and corroborating the existing literature that emphasises the multi-dimensional nature of academic performance. Thus, an integrated, holistic interventionist approach, underpinned by the interaction of economic, social, and financial factors, is needed to achieve an 'optimal' outcome for academic performance.

While addressing external limitations in a learner's environment can positively impact cognitive development, one should be reminded that achievement is not just a matter of socioeconomic or institutional issues. Performance is a combination of resources, skill and effort (Robeyns, 2025). For a normatively desirable academic outcome, there should also be maximum effort at the individual learner level, failing which support resources would not be utilised effectively at the societal level.

Declarations

Interdisciplinary Scope: This study adopted an interdisciplinary approach by weaving together insights from economics, sociology, education, and finance to analyse the factors affecting academic performance at ISTL. Although the focus was on gaining insights from students, the study also gathered perspectives from academic staff and administrative personnel across various departments to explore how factors such as social background, financial barriers, and broader economic conditions converge to shape learning outcomes. By merging quantitative data on socioeconomic and financial indicators with educational context, the study provides a comprehensive understanding of the complex factors influencing academic success. By integrating these disciplinary viewpoints, the research presents comprehensive, evidence-based recommendations to enhance student achievement in higher education settings facing resource constraints.

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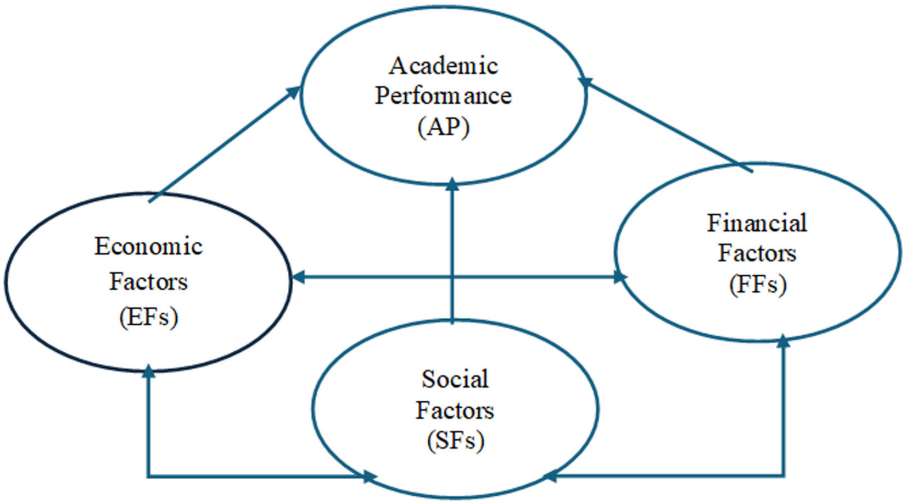

Figure 2. Conceptualisation of the relationship between SF, EF, FF and AP

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