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Cost Calculation of Senior High School Students' Education Per Strand Using Activity-Based Costing: A Case Study at the International Philippine School in Al-Khobar (IPSA)

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Abstract

This study examines the financial requirements of delivering Senior High School (SHS) education under the K to 12 Basic Education Program at the International Philippine School in Al-Khobar (IPSA). With strands in Accountancy, Business, and Management (ABM); Science, Technology, Engineering, and Mathematics (STEM); Humanities and Social Sciences (HUMSS); and Arts and Design (AD), the research aimed to determine the actual cost per strand and assess the school's financial sustainability. An Activity-Based Costing (ABC) framework was applied to IPSA's SHS operations for School Year 2021–2022. Data were gathered from enrollment records, payroll, departmental expenses, and administrative reports. Costs were allocated to activity pools such as registration, training and education, school activities, clinic, library, and administrative support. Average cost per student per strand was computed and compared with traditional costing and current school fees. Findings revealed a total SHS departmental expenditure of SR 1,384,636.71, averaging SR 8,600.23 per student annually. Training and education accounted for 70.57% of costs, while administrative support comprised 18.15%. Strand-specific costs varied: AD had the highest average cost per student (SR 13,645.29), followed by HUMSS (SR 11,681.58), ABM (SR 9,593.41), and STEM (SR 7,736.41). Comparisons with traditional costing showed significant variances, particularly in AD (89.91%) and HUMSS (62.58%). Fee analysis indicated that STEM generated a surplus, while ABM, HUMSS, and AD operated at deficits. The study demonstrates that ABC provides a more accurate reflection of strand-specific educational costs compared to traditional costing. Results highlight the need for IPSA to realign tuition and miscellaneous fees with actual expenditures, optimize resource allocation, and strengthen financial sustainability. Institutionalizing ABC as a continuous monitoring tool is recommended to guide budgeting, cost control, and strategic planning.

Keywords: Activity-Based Costing, Senior High School Education, cost calculation, financial sustainability, K to 12 Program, educational management, Al-Khobar, KSA

INTRODUCTION

This study aimed to determine the educational cost per strand for Senior High School (SHS) students at the International Philippine School in Al-Khobar (IPSA), given the importance of the K to 12 Basic Education Program and the need to assess the financial requirements of offering SHS curricula. IPSA began implementing its SHS program in School Year 2016–2017, offering Grade 11 classes under the Academic Track and the Arts and Design Track. Under the K to 12 system, SHS represents Grades 11 and 12, during which students complete a core curriculum before selecting a specialization based on their interests, aptitude, and the school's capacity.

Since its initial implementation, IPSA has offered three strands under the Academic Track – Accountancy, Business, and Management (ABM); Science, Technology, Engineering, and Mathematics (STEM); and Humanities and Social Sciences (HUMSS) – as well as the Arts and Design (AD) strand. As the Finance Officer during the conduct of the study, the researcher recognized, along with the School Management and School Governing Board, the need for an accurate computation of the actual cost of SHS

education per strand. This calculation was essential for assessing the school's financial condition, performance, and operational effectiveness within the SHS Department.

Conceptual Framework. The Activity-Based Costing (ABC) Model, adapted from Turney and cited in Krishnan (2007), was modified to reflect the school's specific activities and cost components. Compton (1996) outlines its main elements: an activity center groups related tasks; an activity cost pool contains the total cost for a given activity; cost drivers distribute expenses to cost objects based on influencing factors (Krishnan, 2007); cost elements represent the amount paid for resources allocated to activities; and cost objects refer to the final goods or services being costed. Resources encompass the economic elements needed for activities, while resource drivers determine how these resources are allocated. The study's conceptual framework follows Vskills (n.d.) with modifications to suit the institutional context.

Within this framework, resources represent the school's expenditures, which traditional accounting records uniformly, while ABC assigns these costs to the specific products, services, or customers that consume them (Lumen Learning, n.d.). Activities capture the actual work performed across departments, allowing expenses to be accurately traced to their sources. Resource drivers link institutional expenditures to internal operations in the first-stage allocation, while cost drivers connect activity costs to final cost objects. This identification is essential for completing cost assignment (Lumen Learning, n.d.). ABC ultimately serves as a tool for evaluating the profitability and performance of cost objects, with a critical step being the clear definition of outputs for review (Lumen Learning, n.d.).

This study was carried out to establish the real cost of student's education per strand in the Senior High School department of International Philippine School in Al-Khobar. It specifically aimed to address the following:

1. What is the recent and real cost of student education in the Senior High School Department using the ABC Costing on the following strands:
   - 1.1 Academic Track:
     - 1.1.1 Science, Technology, Engineering and Mathematics (STEM);
     - 1.1.2 Accountancy, Business, and Management (ABM); and
     - 1.1.3 Humanities and Social Sciences (HUMSS)?
   - 1.2 Arts and Design Track:
     - 1.2.1 Arts and Design (AD)?

2. What are the resulting differences from the total cost of student's education computed using ABC costing in comparison with the traditional costing method and the current school fees collected by the school?

3. How much tuition and miscellaneous fees are needed to manage the senior high school department effectively and efficiently?

4. What strategies and initiatives can the school implement to manage its budget; cope with the rising costs of manpower, rentals, government compliance, and other overhead expenses; and improve its performance?

LITERATURE REVIEW

K to12 Basic Education Program Background and Rationale. The Department of Education (DepEd 2019), through DepEd Order No. 21, s., issued policy guidelines to unify understanding of the K to 12 Basic Education Program, outlining its background, features, components, and assessment framework to strengthen implementation. As one of the country's most significant reforms, K to 12 aims to equip Filipino learners with the competencies needed for twenty-first century demands and align the Philippine system with global standards by ensuring relevance and responsiveness to student needs (DepEd, 2019). Efforts toward a 12-year basic education began as early as the 1925 Monroe Survey, which proposed expanding the existing 11-year structure, though these attempts stalled due to sociopolitical factors

(Care & Bacani, 2012). Meanwhile, the Kindergarten Program evolved through various DepEd initiatives, including a 1971 directive encouraging preschool offerings and the passage of the Early Childhood Care and Development Act (RA 8980), which promoted interagency collaboration to provide holistic services for children up to age six (Philippine Congress, 2000 as cited in DepEd, 2019).

The ASEAN 2015 chartered the region's economic integration on a global scale. ASEAN's development of the ASEAN Qualifications Reference Framework (AQRF) encouraged member states to align educational systems, prompting the Philippines previously the only ASEAN country with fewer than twelve years of basic education to add two years to its secondary program (DepEd, 2019). The Kindergarten Education Act of 2012 (RA 10157) made kindergarten compulsory, with its Implementing Rules and Regulations detailed in DepEd Order No. 2012 (DepEd, 2019). The Enhanced Basic Education Act of 2013 (RA 10533) later institutionalized K to 12, extending high school with two years of Senior High School (SHS) to prepare learners for college, vocational careers, entrepreneurship, and the arts, while promoting learner-centered instruction through appropriate languages and culturally responsive methods (DepEd, 2019). Overall, the K to 12 curriculum seeks to provide all Filipino learners with equitable, inclusive, high-quality education that supports holistic development and empowers them to contribute to national progress (DepEd, 2019).

Senior High School Curriculum. The K to 12 Basic Education Program divides secondary education into Junior High School (Grades 7–10) and Senior High School (Grades 11–12), generally serving learners ages 12–17, including adults who were unable to finish basic education earlier (DepEd, 2019). Under RA 10533, secondary education consists of four years of JHS and two years of SHS, with co-curricular activities included (DepEd, 2019). DepEd Order No. 31, s. 2012 outlines that JHS should develop communication, critical thinking, values-based decision-making, civic engagement, and sustainable resource use, while SHS should prepare learners for work, entrepreneurship, middle-level skills, or higher education. The SHS curriculum central to implementing the extended basic education cycle supports alignment with the Philippine Qualifications Framework (DepEd, 2019). It consists of Core, Applied Track, and Specialized Subjects totaling 31 subjects and 2,480 hours across four semesters, following standards for key stages, grade levels, content, performance, and competencies (DepEd, 2019). Core subjects build foundational skills linked to the College Readiness Standards and CHED's General Education Curriculum, each with an 80-hour allocation except PE and Health and may be substituted with DepEd-approved equivalents (DepEd, 2019).

The SHS curriculum includes 15 core subjects and 16 Applied and Specialized Subjects distributed across four tracks, Academic, Arts and Design, Sports, and Technical-Vocational-Livelihood (TVL) with Applied Subjects supporting critical thinking and allowing track mobility (DepEd, 2019). The Academic Track consists of ABM, STEM, HUMSS, and GAS, each catering to specific learner interests and career pathways (DepEd, 2019). The Sports Track prepares learners for professions in athletics and fitness (DepEd, 2019), while the Arts and Design Track develops competencies in fields such as theater, dance, music, visual arts, media arts, and creative writing, requiring an aptitude assessment prior to admission (DepEd, 2019). The TVL Track encompasses Agri-Fishery Arts, Home Economics, ICT, and Industrial Arts, with many specializations aligned with TESDA National Certificates and based on TESDA Training Regulations (DepEd, 2019). Each strand develops sector-specific competencies such as agricultural production, hospitality services, industrial technology, or digital systems management and requires appropriate school facilities (DepEd, 2019). All students also complete one 80-hour slot for Career Advocacy, Research, or Work Immersion, depending on school capacity, enabling them to apply competencies acquired throughout SHS (DepEd, 2019).

The Importance of Costing. Reliable costing systems strengthen strategic decision making and overall organizational performance, as accurate cost information directly influences managerial effectiveness (Dearden, 1963). In education, administrators must understand and analyze costs to manage scarce resources and make sound decisions, making knowledge of costing principles essential for planning and implementing programs (Vaizey & Chesswas, 1967). With increasing pressure to improve quality, reduce expenses, and address financial constraints, schools now rely more heavily on management accounting tools, prompting greater focus on determining student and strand costs (Namazi & Zare, 2021). Cost studies support evidence-based decisions by clarifying the resources required for new or existing programs, ensuring equitable allocation, guiding service levels, enabling program comparisons for cost-effectiveness, and evaluating whether educational initiatives justify their expenditures (Hollands & Levin, 2017).

Costing Methods. Every business possesses distinct characteristics that require the use of appropriate costing methods to determine the total and per-unit cost of its products or services. Costing methods are strategies for collecting cost information to accurately measure production or service delivery expenses. Various techniques are applied depending on the nature of the output: Job Costing allocates costs to individual projects based on actual resource usage, suitable for specialized goods or services such as printing or construction; Process Costing calculates costs per process for uniform or mass-produced products like cement or electricity; Batch Costing determines costs for groups of related items, as in toys or bakery goods; and Activity-Based Costing (ABC) assigns costs according to the activities undertaken, ideal for complex industries like software, banking, or healthcare (Damini, 2021). Traditional Costing allocates overhead using a single driver, such as labor or machine hours, offering simplicity but potentially misrepresenting actual resource consumption (Kumar, 2023). Each method presents advantages and limitations that must be considered relative to the business type, industry, and product or service.

ABC and Traditional Costing Comparison. In educational institutions, two primary costing techniques, Activity-Based Costing (ABC) and Traditional Costing are employed to allocate expenses across programs and activities. ABC allocates overhead based on specific production-related activities, reflecting actual resource usage and providing more accurate results; it also highlights non-value-added activities, enabling potential cost reductions, though its implementation is complex and resource-intensive (Yadav, 2021). In contrast, Traditional Costing assigns overhead using a predetermined rate, often based on a single factor such as labor hours, offering simplicity and lower implementation costs, but it may misrepresent resource consumption and overlook detailed cost drivers (Difference Wiki, n.d.; Drury, 2018). Within basic education, ABC provides a comprehensive understanding of costs associated with curricular, extracurricular, and administrative activities, supporting informed decision-making and efficient resource allocation (Mansor & Abdullah, 2021), whereas Traditional Costing may suffice for institutions with simpler structures and uniform offerings, albeit with less precision in differentiating activity costs.

Activity-Based Costing in Service Industries. Activity-Based Costing (ABC) is a costing methodology applicable to both manufacturing and service sectors, which allocates costs to activities based on resource usage and then assigns costs to goods or services according to the activities involved (Lucanet, n.d.). In the service sector, ABC enables identification of key cost factors and pools, enhances cost accuracy by accounting for service complexity, highlights and eliminates non-value-added activities, reduces wasteful expenditures, and provides reliable data for performance evaluation, profitability analysis, and service pricing, ultimately improving operational efficiency and service quality. However, its implementation presents challenges, including extensive data

collection and analysis, time-consuming and complex setup, difficulty allocating costs not directly tied to specific activities, and potential resistance from managers unfamiliar with or skeptical of ABC outcomes (Lucanet, n.d.).

Costing Policy of Schools. The Senior High School (SHS) program, implemented in the Philippines in 2016 as part of K to 12 reforms, aims to enhance the quality and relevance of basic education through four tracks: Academic, Arts and Design, Sports, and Technical-Vocational-Livelihood (Brillantes et al., 2019). In the Philippines, SHS in private schools is partially funded through the Government Assistance to Students and Teachers in Private Education (GASTPE), including the Educational Service Contracting (ESC) and Senior High School Voucher Program (SHS VP), with annual tuition fees ranging from PHP 50,000 to 150,000, while public SHS is tuition-free but may incur additional costs (Department of Education, 2022; Moneymax, 2023). In Saudi Arabia, SHS encompasses grades 10–12 with Literary and Scientific streams preparing students for higher education or employment, with private school tuition ranging from SR40,000 to SR60,000 and international schools SR70,000 to SR120,000, all subsidized or regulated by the government (Valentine, 2023; "Aiming high," 2020).

In the United States, SHS covers grades 9–12, funded through federal, state, and local sources, with average annual public school costs of $17,013 per student in 2019–2020, varying by state, district, and services provided (National Center for Education Statistics [NCES], 2019; U.S. DepEd, 2019). In England, SHS forms part of secondary education for students aged 11–18, offering Key Stages, GCSEs, A-levels, BTECs, and apprenticeships, funded by government grants to schools and local authorities, with average annual costs of £6,400 per pupil in 2019–2020, subject to regional and school-specific variations (Department for Education, 2022; Education Policy Institute, 2019).

METHODS

Research Design. The study employed a quantitative research design, systematically analyzing numerical data to address the stated research questions. It is positioned within applied research with a developmental orientation, as it operationalizes developmental theories to generate practical insights for real-world contexts. This orientation ensures that the study is both theoretically grounded and practically relevant.

Data Source. Data for the study were collected through observation, inquiries, and analysis of the school's financial performance for the 2021–2022 academic year to ensure accuracy and credibility. Relevant financial information and reports were obtained from the following departments: Registrar's Office, SHS Academic Supervisor's Office, Payroll and Personnel In-Charge, Vice Principal for Finance and Administration, and the Finance Office. Observations of operations and financial processes, alongside consultations with key officials such as the School Principal, Vice Principal for Finance and Administration, and SHS Academic Supervisor, facilitated accurate verification and categorization of departmental expenses. The school's financial performance was evaluated using Activity-Based Costing (ABC) to allocate expenditures appropriately across activity centers and SHS strands, providing a comprehensive and reliable assessment of the institution's financial status.

The relevant data outsourced are student enrollment per strand, teacher schedules and payroll, personnel positions, building layouts, and general ledger accounts to appropriately allocate costs. The SHS Department comprised 161 students across STEM, ABM, HUMSS, and AD strands, with STEM forming two sections while ABM, HUMSS, and AD combined into one section for minor subjects. Inquiries with key officials ensured proper classification and allocation of expenses, which were predominantly salaries and benefits (67.96% of total costs), while miscellaneous expenses, such as bus service and professional fees, were grouped under

Total Miscellaneous and Other Expenses due to immateriality.

Data Analysis. Activity-Based Costing (ABC) was applied to analyze the expenses of the Senior High School strands. According to Yadav (2021) Activity Based Costing (ABC) divides up overhead expenses according to particular production-related activities. It represents the actual utilization of resources; thus, results are considered more accurate. Recognition of non-value-added activities and transactions may result in cost-reduction strategies. ABC was then applied by identifying activities that contributed to the cost of education and allocating resources proportionally based on their consumption and frequency of use. Costs were then assigned to individual students within each strand by determining the factors driving their expenses, such as course load and time spent in classes, enabling calculation of the cost per student. The study's findings were interpreted using descriptive statistical techniques, including median, rank, and percentage, to provide a clear and comprehensive analysis of the financial data.

The subsequent ABC steps involved identifying activities, resource drivers, cost pools, and cost drivers to assign costs to products. Activities within the SHS Department, including Registration and Enrollment, Education and Training, School Activities, Clinic, Library, and Administrative Support, were analyzed to determine resource consumption and allocation bases. Resource drivers, such as personnel count, student enrollment, teaching load, and facility area, were used to trace costs to activity centers. Non-value-added activities, such as textbook sales or rental-related overtime, were excluded from production costs. Cost pools were assigned based on activity-specific expenses, with manpower, office supplies, utilities, and depreciation allocated proportionally to students or personnel per activity. Finally, cost driver rates were calculated for each pool and applied to individual strands to determine the total cost of education per student, ensuring precise allocation and comprehensive assessment of SHS departmental expenses (Lambert & Whitworth, 1996; Krishnan, 2007).

Ethical Considerations. The researcher conducted the study with strict adherence to ethical protocols, particularly safeguarding confidentiality and complying with data privacy regulations. An official letter of request, endorsed by the International Philippine School in Al-Khobar (IPSA), granted consent for data collection. This document outlined the research objectives, specified the information to be obtained, and articulated the anticipated benefits of the study. The institution was assured that all data would be utilized solely for academic research purposes.

RESULTS

Recent and real cost of student's education in the Senior High School Department using the ABC Costing. The results in Table 1 outline the cost of student education per strand of the SHS department using Activity-Based Costing (ABC), showing that total educational expenses amount is SR 1,384,636.71, with an average cost of SR 8,600.23 per student annually.

Table 1

Cost of Student Education per Strand of the SHS Department using ABC

Activity Pools	Strand Data				
	STEM	ABM	HUMSS	AD	TOTAL
Registration & Enrollment	32,014.30	6,899.63	3,587.81	1,931.90	44,433.64
Training & Education	603,812.03	176,556.85	118,955.81	77,799.06	977,123.75
Activities & Affairs	63,936.56	13,779.43	7,165.30	3,858.24	88,739.54
Clinic / Cafeteria	8,781.69	1,892.60	984.15	529.93	12,188.38
Library Services	7,766.73	1,673.86	870.41	468.68	10,779.68
Admin & Support Services	181,112.54	39,032.88	20,297.10	10,929.21	251,371.72
TOTAL COST PER STRAND	897,423.85	239,835.26	151,860.58	95,517.02	1,384,636.71
% of Total Cost	64.81%	17.32%	10.97%	6.90%	100.00%
Number of Students	116	25	13	7	161
Average Cost per Student	7,736.41	9,593.41	11,681.58	13,645.29	8,600.23
Rank (Cost per Student)	4	3	2	1	-

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

Training and education services represent the largest expense at 70.57% of total costs,

reflecting the emphasis on core academic activities (Smith, 2020, p. 45; Johnson et al., 2021). Administrative and support services account for 18.15%, while school activities and affairs, covering extracurricular programs, comprise 6.41% of the overall cost. Registration services account for 3.21%, clinic/health/cafeteria services 0.88%, and library services 0.78%, indicating limited utilization of these facilities. Strand-specific costs vary, with the AD strand being the highest at SR 13,645.29 per student, followed by HUMSS at SR 11,681.58, ABM at SR 9,593.41, and STEM at SR 7,736.41, highlighting differences in resource requirements (Brown, 2018). By strand, STEM incurs 64.81% of the total departmental expenses due to the high cost of science and technology instruction, ABM accounts for 17.32%, HUMSS for 10.97%, and AD, the lowest at 6.90%, reflecting the relative resource intensity of each curriculum (Lee, 2019; Brown, 2018).

Table 2

Cost of Students Education for STEM Strand of SHS Department using ABC

Activity Pools	Cost per Strand				
	Total (SR)	% of Total	STEAM (SR)	% of STEM	% of Total
Registration & Enrollment	44,433.64	3.21%	32,014.30	3.57%	2.31%
Training & Education	977,123.75	70.57%	603,812.03	67.28%	43.61%
Activities & Affairs	88,739.54	6.41%	63,936.56	7.12%	4.62%
Clinic / Cafeteria	12,188.38	0.88%	8,781.69	0.98%	0.63%
Library Services	10,779.68	0.78%	7,766.73	0.87%	0.56%
Admin & Support Services	251,371.72	100.00%	897,423.85	100.00%	64.81%
TOTAL COST	**1,384,636.71**	**100.00%**	**897,423.85**	**100.00%**	**64.80%**
Number of Students	161		116		
Average Cost per Student	**8,600.23**		**7,736.41**		

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

Table 2 presents the distribution of costs among activities within the STEM Strand, which accounts for SR 897,423.85 of the SHS Department's total SR 1,384,636.71 in educational expenses, representing 64.81% of the overall cost. Registration and Enrollment costs total SR 44,433.64 (3.21% of total cost), with the STEM strand contributing SR 32,014.30 (3.57% of the strand cost). Training and Education, the most significant activity pool, incurs SR 977,123.75 (70.57% of total cost), with SR 603,812.03 allocated to STEM (67.28% of strand cost). School Activities and Affairs account for SR 88,739.54 (6.41% of total), with SR 63,936.56 for STEM (7.12% of strand cost), while Clinic/Health/Cafeteria and Library pools incur SR 12,188.38 (0.88%) and SR 10,779.68 (0.78%) respectively, with the STEM portion at 0.98% and 0.87% of the strand cost. The Teacher, Support Staff, and others pool represents SR 251,371.72 (18.15% of total), with SR 181,112.54 (20.18% of strand cost) allocated to STEM. The STEM strand's average cost per student is SR 7,736.41, slightly below the SHS departmental average of SR 8,600.23. The analysis indicates that the bulk of expenses are concentrated in Training and Education, followed by administrative, support, and school activities, highlighting critical areas for resource allocation and potential cost optimization.

Table 3

Cost of Students Education for ABM Strand of SHS Department using ABC

Activity Pools	Cost per Strand				
	Total (SR)	% of Total	ABM (SR)	% of STEM	% of Total
Registration & Enrollment	44,433.64	3.21%	6,899.63	2.88%	0.50%
Training & Education	977,123.75	70.57%	176,556.85	73.62%	12.75%
Activities & Affairs	88,739.54	6.41%	13,779.43	5.75%	1.00%
Clinic / Cafeteria	12,188.38	0.88%	1,892.60	0.79%	0.14%
Library Services	10,779.68	0.78%	1,673.86	0.70%	0.12%
Admin & Support Services	251,371.72	18.15%	39,032.88	16.27%	2.82%
TOTAL COST	**1,384,636.71**	**100.00%**	**239.835.26**	**100.00%**	**17.32%**
Number of Students	161		25		
Average Cost per Student	**8,600.23**		**9,93.41**		

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

Table 3 presents the distribution of educational costs for the ABM strand in the SHS department. Of the total SHS departmental cost of SR 1,384,636.71, the ABM strand accounts for SR 239,835.26, or 17.32% of the overall cost. Registration and Enrollment costs for ABM are SR 6,899.63 (2.88% of strand cost), while

Training and Education, the largest activity pool, amounts to SR 176,556.85, representing 73.62% of the strand cost and 12.75% of the total departmental cost. School Activities and Affairs cost SR 13,779.43 (5.75% of strand cost), Clinic/Health/Cafeteria SR 1,892.60 (0.79%), Library SR 1,673.86 (0.70%), and School Administration, Support Service & Others SR 39,032.88 (16.27%). The average cost per ABM student is SR 9,593.41, exceeding the SHS departmental average of SR 8,600.23, indicating that the ABM strand requires higher per-student expenditures, primarily driven by the Training and Education activity pool.

Table 4

Cost of Student's Education for HUMSS Strand of SHS Department using ABC

Activity Pools	Cost per Strand				
	Total (SR)	% of Total	HUMSS (SR)	% of STEM	% of Total
Registration & Enrollment	44,433.64	3.21%	3.587.81	2.36%	0.26%
Training & Education	977,123.75	70.57%	118.955.81	78.33%	8.59%
Activities & Affairs	88,739.54	6.41%	7.165.30	4.72%	0.52%
Clinic / Cafeteria	12,188.38	0.88%	984.15	0.65%	0.07%
Library Services	10,779.68	0.78%	870.41	0.57%	0.06%
Admin & Support Services	251,371.72	18.15%	20.297.10	13.37%	1.47%
TOTAL COST	1,384,636.71	100.00%	151.860.58	100.00%	10.97%
Number of Students	161		13		
Average Cost per Student	8,600.23		11,681.58		

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

The HUMSS strand accounts for SR 151,860.58 of the SHS department's total educational cost of SR 1,384,636.71, representing 10.97% of the overall expenditure, as shown in Table 4. Costs are distributed across six activity pools, with Training and Education being the largest at SR 118,955.81, or 78.33% of the strand cost and 8.59% of the total departmental cost. School Administration, Support Service & Others is the second-largest pool at SR 20,297.10, comprising 13.37% of the strand cost and 1.47% of the overall cost. Smaller activity pools include Library (SR 7,165.30, 0.78%), Clinic/Health/Cafeteria (SR 3,587.81, 0.88%), Registration and Enrollment (SR 984.15, 3.21%), and School Activities and Affairs (SR 870.41, 6.41%). The average cost per student in the HUMSS strand is SR 11,681.58, higher than the SHS departmental average of SR 8,600.23, reflecting greater per-student expenditures, primarily concentrated in the Training and Education pool, with School Administration, Support Services, and School Activities also representing notable costs, offering insights into resource allocation and potential areas for cost optimization.

Table 5

Cost of Students Education for AD Strand of SHS Department using ABC

Activity Pools	Cost per Strand				
	Total (SR)	% of Total	AD (SR)	% of STEM	% of Total
Registration & Enrollment	44.433.64	3.21%	1,931.90	2.02%	0.14%
Training & Education	977.123.75	70.57%	77,799.06	81.45%	5.62%
Activities & Affairs	88.739.54	6.41%	3,858.24	4.04%	0.28%
Clinic / Cafeteria	12.188.38	0.88%	529.93	0.55%	0.04%
Library Services	10.779.68	0.78%	468.68	0.49%	0.03%
Admin & Support Services	251.371.72	18.15%	10,929.21	11.44%	0.79%
TOTAL COST	1.384,636.71	100.00%	95,517.02	100.00%	6.90%
Number of Students	161		7		
Average Cost per Student	8,600.23		13,645.29		

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

As revealed in Table 5, the AD strand accounts for SR 95,517.02 of the SHS department's total educational cost of SR 1,384,636.71, representing 6.90% of the overall expenditure. Costs are distributed across six activity pools, with Training and Education being the largest at SR 77,799.06, or 81.45% of the strand cost and 5.62% of the total cost. Other notable pools include School Admin, Support Service & Others (SR 10,929.21, 11.44% of strand cost), School Activities and Affairs (SR 529.93, 0.55%), Clinic/Health/Cafeteria (SR 468.68, 0.49%), Library (SR 468.68, 0.49%), and Registration and Enrollment (SR 1,931.90, 2.02% of strand cost). The average expenditure per student in the AD strand is SR 13,645.29, higher than the departmental average of SR 8,600.23, reflecting greater per-student costs primarily concentrated in Training and Education, while

other pools such as Support Services and Administration also contribute significantly.

Table 6
Summary of SHS Department's Expenses per Account Categories

SERVICE PRODUCTION COST	TOTAL COST SHS DEPT (SR)	% TO TOTAL
Employee Salaries, Benefits, and Other Manpower Related Expenses	1,012,208.97	73.10%
Building Lease, Utilities, Maintenance and Depreciation	254,415.11	18.37%
School Activities and Affairs	56,927.52	4.11%
School Supplies, Instructional Materials, Clinic, and Library Expenses	40,786.15	2.95%
Miscellaneous & Other Expenses	20,298.95	1.47%
TOTAL (SR)	**1,384,636.71**	**100.00%**

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

Table 6 above summarizes the SHS department's expenses on per account category. According to the table, the department's expenses are predominantly allocated to employee-related costs, comprising 73.10% of total expenditures, reflecting the central role of human resources in maintaining operational efficiency and delivering quality education. Building Lease, Utilities, Maintenance, and Depreciation represent the second-largest category at 18.37%, highlighting the importance of well-maintained infrastructure for a conducive learning environment (Center for Evaluation and Education Policy Analysis, 2024). School Activities and Affairs account for 4.11% of expenses, supporting extracurricular programs that enhance students' wellbeing, leadership, and social skills (Samuel, 2024). Clinic, Library, Instructional Materials, and School Supplies make up 2.95%, underscoring the need for efficient resource management to ensure access to essential educational and health resources (Aspen Institute, 2017). Miscellaneous and Other Expenses comprise 1.47%, covering operational costs not included in other categories. Overall, the budget reflects a balanced approach that prioritizes human resources and infrastructure while supporting student activities and instructional needs, aligning with best practices in educational management.

Differences in total cost of a student's education computed using ABC costing in comparison with the traditional costing method. Table 7 illustrates the differences in the total cost of a student's education in comparison with the traditional costing method. The cost of each student's education under the traditional costing method was calculated by dividing the school's total production cost (SR 9,232,769.75) by 1,285 enrolled students for SY 2021-2022, resulting in evenly distributed costs per student.

Table 7
Comparison of Cost of Student's Education using ABC and Traditional Costing

	COST PER STUDENT			
STRAND	ABC (SR)	TRADITIONAL COSTING (SR)	RESULTING DIFFERENCE (SR)	% OF DIFFERENCE
STEM	7,736.41	7,185.03	551.38	7.67%
ABM	9,593.41	7,185.03	2,408.38	33.52%
HUMSS	11,681.58	7,185.03	4,496.55	62.58%
AD	13,645.29	7,185.03	6,460.25	89.91%
AVERAGE	**8,600.23**	**7,185.03**	**1,415.19**	**19.70%**

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

In contrast, Activity-Based Costing (ABC) more accurately reflects the actual cost per strand by allocating expenses based on cost-driving activities. The greatest variances between the two methods were observed in the AD strand (SR 6,460.25, 89.91%), HUMSS strand (SR 4,496.55, 62.58%), and ABM strand (SR 2,408.38, 33.52%), while the STEM strand showed the lowest variance (SR 551.38, 7.67%). These discrepancies highlight the need for ABC, as it captures resource-intensive activities and reveals hidden costs that traditional costing overlooks. SOP 1 results indicate the STEM strand has the highest overall cost due to its larger student population, requiring more teachers, facilities, laboratory use, and educational materials, followed by the ABM strand with costs linked to business immersion and JA BSP subscriptions. SOP 2 shows that increased student enrollment reduces the cost

per student. On average, the difference between Traditional Costing and ABC amounts to SR 1,415.19 or 19.70% of the traditional cost, demonstrating ABC's value in enabling more accurate budgeting, resource allocation, and informed decision-making for financial sustainability.

Cost of tuition and miscellaneous fees needed to manage the senior high school department effectively and efficiently. The total school fees for SY 2021-2022, comprising Tuition, Miscellaneous, and Graduation Fees, were uniformly applied across all SHS strands as presented in Table 8. Comparison with costs computed using Activity-Based Costing (ABC) reveals an average positive variance of SR 419.77 (4.88%) per student, with the STEM strand showing a surplus of SR 1,283.59 (16.59%), indicating that fees collected exceed the actual cost of education.

Table 8

Comparison of School Fees Collected vs Cost of Student's Education

STRAND	ABC (SR)	TRADITIONAL COSTING (SR)	RESULTING DIFFERENCE (SR)	% OF DIFFERENCE
STEM	9,020.00	7,736.41	1,283.59	16.59%
ABM	9,020.00	9,593.41	(573.41)	-5.98%
HUMSS	9,020.00	11,681.58	(2,661.58)	-22.78%
AD	9,020.00	13,645.29	(4,625.29)	-33.90%
AVERAGE	**9,020.00**	**8,600.23**	**419.77**	**4.88%**

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

In contrast, the AD, HUMSS, and ABM strands exhibit negative variances, with AD at (SR 4,625.29, 33.90%), HUMSS at (SR 2,661.58, 22.78%), and ABM at (SR 573.41, 5.98%), suggesting that fees collected are insufficient to cover the actual educational costs. Analyzing the cost per activity pool per strand facilitates a detailed assessment of whether school fees adequately cover expenses. ABC allocates costs based on resource usage, providing a more accurate reflection of educational expenditures (Kaplan & Anderson, 2007) and enabling institutions to evaluate financial sustainability by comparing costs with fees collected (Drury, 2018). The positive variance in the STEM strand demonstrates effective cost coverage and potential surplus, while the negative variances in AD, HUMSS, and ABM highlight the need to reassess fee structures and expense management to ensure financial sustainability (Kaplan & Anderson, 2007; Drury, 2018).

Table 9

Cost of Education per Student per Strand using ABC Method

ACTIVITY POOLS	STEM (SR)	ABM (SR)	HUMSS (SR)	AD (SR)	TOTAL (SR)
A1. Registration and Enrollment	275.99	275.99	275.99	275.99	**275.99**
A2. Training and Education	5,205.28	7,062.27	9,150.45	11,114.15	**6,069.09**
A3. School Activities and Affairs	551.18	551.18	551.18	551.18	**551.18**
A4. Clinic/ Health/ Cafeteria	75.70	75.70	75.70	75.70	**75.70**
A5. Library	66.95	66.95	66.95	66.95	**66.95**
A6. School Admin, Support Service & Others	1,561.32	1,561.32	1,561.32	1,561.32	**1,561.32**
TOTAL COST PER STRAND	**7,736.41**	**9,593.41**	**11,681.58**	**13,645.29**	**8,600.23**
NO. OF STUDENTS	**116**	**25**	**13**	**7**	**161**

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

Table 9 presents the per-student cost per strand across six activity pools, calculated by dividing the total strand costs in Table 12 by enrollment. Costs vary substantially, with the AD strand highest at SR 13,645.29 per student, followed by HUMSS (SR 11,681.58), ABM (SR 9,593.41), and STEM (SR 7,736.41), reflecting differing resource requirements. The Training and Education activity pool represents the largest expense, notably SR 11,114.15 for AD and SR 5,205.28 for STEM, indicating that strands like AD demand specialized training and resources. In contrast, costs for Registration and Enrollment, School Activities and Affairs, Clinic/Health/Cafeteria, Library, and School Administration, Support Service, and Others are consistent across strands, reflecting fixed costs independent of strand (Hanushek, 2003). This variation aligns with educational resource allocation literature, which emphasizes that curriculum complexity, specialist equipment, and teacher expertise influence costs (Levin & McEwan, 2001). Overall, differences in per-

student costs are primarily driven by strand-specific training and educational requirements, while uniform costs across other activities underscore the impact of fixed expenditures.

Table 10

Comparison of School Fees Collected and Student Cost Using ABC

STRAND	SCHOOL FEES	SCHOOL FEES COLLECTED SY2122 (TF, MF, GF)	STUDENT'S COST OF EDUCATION USING ABC (SR)	VARIANCE	% OF VARIANCE
STEM	Tuition (A2 &A6)	8,090.00	6,766.59	1,323.41	19.56%
	Miscellaneous (A1, A4, A5, A3 less GF)	460.00	545.60	(85.60)	-15.69%
	Graduation Fee (A3)	470.00	424.22	45.78	10.79%
	Total	**9,020.00**	**7,736.41**	**1,283.59**	**16.59%**
ABM	Tuition (A2 &A6)	8,090.00	8,623.59	(533.59)	-6.19%
	Miscellaneous (A1, A4, A5, A3 less GF)	460.00	545.60	(85.60)	-15.69%
	Graduation Fee (A3)	470.00	424.22	45.78	10.79%
	Total	**9,020.00**	**9,593.41**	**(573.41)**	**-5.98%**
HUMSS	Tuition (A2 &A6)	8,090.00	10,711.76	(2,621.76)	-24.48%
	Miscellaneous (A1, A4, A5, A3 less GF)	460.00	545.60	(85.60)	-15.69%
	Graduation Fee (A3)	470.00	424.22	45.78	10.79%
	Total	**9,020.00**	**11,681.58**	**(2,661.58)**	**-22.78%**
AD	Tuition (A2 &A6)	8,090.00	12,675.47	(4,585.47)	-36.18%
	Miscellaneous (A1, A4, A5, A3 less GF)	460.00	545.60	(85.60)	-15.69%
	Graduation Fee (A3)	470.00	424.22	45.78	10.79%
	Total	**9,020.00**	**13,645.29**	**(4,625.29)**	**-33.90%**
AVERAGE	Tuition (A2 &A6)	8,090.00	7,630.41	459.59	6.02%
	Miscellaneous (A1, A4, A5, A3 less GF)	460.00	545.60	(85.60)	-15.69%
	Graduation Fee (A3)	470.00	424.22	45.78	10.79%
	Total	**9,020.00**	**8,600.23**	**419.77**	**4.88%**

Note: The amount can be converted from Saudi Riyals to US Dollars using an exchange rate of 3.75.

Table 10 presents a detailed comparison between school fees collected in the SHS department and the actual cost of student education calculated using Activity-Based Costing (ABC). Tuition was combined with Miscellaneous Fees for instructional materials, grading systems, and laboratory fees, as these are part of the Training and Education activity pool, while other Miscellaneous Fees (Registration, Library, Clinic, Co-curricular/Cultural/Athletics) were handled by School Affairs, excluding Graduation Fees collected separately.

Results indicate that Miscellaneous Fees produced a negative variance of SR 85.60 (15.69% of ABC cost) across all strands. By strand, the AD strand recorded the highest negative variance in tuition at SR 4,585.47 (36.18%), followed by HUMSS at SR 2,621.76 (24.48%) and ABM at SR 533.59 (6.19%), while STEM showed a positive variance of SR 1,323.41 (19.56%). Graduation fees across all strands also resulted in a positive variance of SR 45.78 (10.79%). On average, tuition fees exceeded actual costs by 6.02%, suggesting potential for more efficient resource distribution. These findings highlight funding disparities and reinforce the value of ABC in identifying over- or under-allocated resources, supporting informed decision making to optimize resource allocation, and enhance financial management (Levin & McEwan, 2001).

Strategies and initiatives for the school to manage its budget; cope with the rising costs of manpower, rentals, government compliance, and other overhead expenses; and improve its performance. To effectively manage its budget, address rising costs, and improve performance, the school can implement several strategic initiatives. First, creating a detailed departmental budget plan using Activity-Based Costing (ABC) allows for efficient resource allocation, identification of overspending or underspending, and preparation of master budgets (operating, cash, capital) or special-purpose budgets for sustainability (Geronimo et al., 2019). Reducing overhead expenses through strategic cost-cutting, aligning spending with strategic priorities, and adopting an outcome-based strategic plan with performance-linked budgeting can enhance efficiency, accountability, and transparency (Leinwand & Couto, 2017; Germano et al., 2017). Closely monitoring expenses via digitized systems supports financial planning, resource allocation, and assessment of the school's financial health. Technological investments, such as a centralized School Management System, improve data management, reduce administrative costs, and enhance operational efficiency (Garcia et al., 2019). Implementing a strategic HR management cycle ensures that human resources are aligned with financial plans and operational goals, particularly as employee-related costs account for 73.10% of department expenses. Training employees and informing stakeholders fosters cost-consciousness, transparency, and optimized resource use (Leinwand & Couto, 2017).

Establishing strong partnerships with suppliers and the community can reduce costs, improve sustainability, and provide additional resources. Increasing other income sources through program and product development, diversification, cross-selling, and market penetration can improve financial stability and reduce reliance on tuition (Germano et al., 2017). Specifically, targeted promotion of the AD and HUMSS strands may boost enrollment and revenue. Finally, continuous monitoring and evaluation of plan implementation ensures objectives are met, variances are addressed, and corrective measures are applied to optimize financial performance.

DISCUSSION

The study applied Activity-Based Costing (ABC) to determine the true cost of student education in the Senior High School (SHS) Department of IPSA for SY 2021–2022. Results showed that the total SHS educational expenditure reached SR 1,384,636.71, with an annual average of SR 8,600.23 per student. Cost differences across strands were substantial, with AD having the highest cost per student (SR 13,645.29) due to low enrollment and STEM recording the lowest (SR 7,736.41) because of its larger student population. The Training and Education activity pool accounted for 70.57% of total costs, driven primarily by salaries, benefits, and instructional resources. Comparisons between ABC and traditional costing revealed major discrepancies, with traditional costing understating the actual cost of education by allocating expenses uniformly. ABC costing captured strand-specific expenditures more accurately, showing the largest variance in the AD strand (89.91%) and the smallest in STEM (7.67%). Variance analysis further demonstrated that the STEM strand generated positive financial results, while ABM, HUMSS, and AD produced negative variances due to insufficient fees relative to actual costs. These findings affirm that ABC costing offers a more precise and transparent view of cost distribution across strands.

The study concludes that ABC costing provides a more reliable basis for understanding the actual cost of education in the SHS Department compared with traditional costing. The method reveals significant cost differentials among strands arising from differences in enrollment, resource consumption, and instructional requirements. The results highlight the need for schools to align their pricing models with the true costs of providing education, particularly where negative variances indicate underpricing. ABC costing also allows management to recognize high-cost activity pools, especially Training and Education and administrative support, and better understand how manpower, facilities, and instructional materials drive overall expenditures. By offering a clearer picture of cost behavior, ABC enables more informed strategic and financial decisions that can improve resource allocation, operational efficiency, and long-term sustainability.

Based on the study's results, the school is encouraged to institutionalize ABC costing for continuous monitoring of strand-specific expenses and for guiding budget preparation, cost control, and tuition pricing decisions. Management should prioritize strategies that reduce high-cost activity pools, optimize manpower utilization, strengthen administrative efficiency, and closely track expenses related to facilities, utilities, and maintenance. Adjusting the fee structure using ABC data, expanding revenue streams, and promoting enrollment in strands with low student numbers may help improve financial sustainability. The school should also enhance technological systems, internal controls, and human resource processes to support data accuracy and operational efficiency. Regular performance evaluation and comparative analysis of ABC results across multiple school years will help determine whether tuition and miscellaneous fees remain aligned with actual educational costs and provide evidence-based guidance for strategic planning. Further research may explore ABC application in other departments or expand the model to improve

financial performance and institutional sustainability.

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