

## IMPLEMENTATION OF TIME-DRIVEN ACTIVITY-BASED COSTING IN AN EDUCATION SERVICE COMPANY

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### Abstract

*This paper uses Time-Driven Activity-Based Costing (TDABC) in identifying cost per student, program profitability, and breakeven point across programs and branches at PT Kreasi Edulab Indonesia as it seek to solve the cost allocation issues that arise due to the differences in instructional hours, staffing activity, and resource usage in providing educational services. The study will employ a quantitative methodology in which they will formulate TDABC-based cost modelling and simulating models to assign operational costs to the real instructional time and teaching capacity. Primary data were gathered by direct observation and internal cost structure mapping, whereas the secondary data were in the form of financial records, class schedules, and student enrollment reports. The analysis combines descriptive statistics, TDABC simulations, program profitability analysis, breakeven analysis, and sensitivity analysis to measure the cost per student, program level operating performance, minimum viable class sizes, and how the major financial drivers influence the operating profit. The findings indicate significant differences in cost per student and profitability of programs and size of a branch with some branches having lower levels of profitability below sustainable levels of breakeven despite the similar levels of revenues. The sensitivity analysis shows that average revenue per student is the most sensitive variable of operating profit, over and above the fluctuations in the enrolment volume and cost structure. Altogether, the results indicate that TDABC contributes to the increase of cost transparency and offers a solid foundation to the pricing, class consolidation, and operational decision-making.*

Keywords: *Time-Driven Activity-Based Costing, Cost per Student, Program Profitability, Breakeven Analysis, Sensitivity Analysis.*

### 1. INTRODUCTION

The quick growth in the field of private tutoring, also known as shadow education is a sign of increased academic competitions and expectations of education level. Research in the field has shown that the prevalence of participation in private tutoring is quite high in different regions of the world with much of it being penetrated in Asia-Pacific countries where supplementary education has taken root as part of the school system (Dang and

Rogers, 2008). Tutoring services in such settings are no longer regarded as an alternative enhancement, but as a competitive need of students to be differentiated academically and achieve a competitive edge.

Indonesia is no exception to this trend in the world since there is continued expansion of private tutoring and education service companies. This growth has been facilitated by population growth, rising household spending on education, greater digital connectivity, and incessant need of exam oriented learning in relation to national exams and university admission examination (World Bank, 2020). Although this expansion creates significant revenue potentials, it also increases the complexity of operations and financial strain especially to organizations whose service delivery processes mainly rely on instructor-based and time-consuming processes.

Another characteristic aspect of the education service companies is the organization of costs that are related to teaching. The teaching processes need dedicated instructional times, dedicated tutor time, and provision facilities, which leads to the cost structures that are class dependent to a degree and comparatively inelastic during a specific period of operation. These expenses are real irrespective of the student enrollment rates and hence occupancy of classes is a decisive factor of financial performance. With student demand being in several small classes, the cost per student becomes very high, and at the level of the program, the margins are consumed, although the total branch revenue may be maintained. This situation is a structural cost issue, not a short term operational inefficiency.

The traditional budgeting and costing activities are ill-equipped to deal with this challenge. The conventional costing models are usually used to assign the activities of instructional costs with aggregate or average measures which hides the financial implications of underused teaching capacity and low-enrolled classes. Consequently, the management might not correctly estimate the actual cost burden of some of the programs and overestimate their financial viability. In the absence of good benchmarks on the cost per student or cost per class or even the minimum viable class size, operational decisions regarding class openings, pricing and tutor deployment, tend to be made by intuition or aggregate financial metrics than by evidence-based analysis.

The manifestations of these constraints in PT Kreasi Edulab Indonesia are the inability to resolve the gaps between branch-level revenue growth and program-level profitability. Although there are branches that show steady or rising revenues, the actual program performance is also at a very different level because of the differences in enrollment concentration and capacity utilization. Programs whose enrollment rates are chronically low still stay in operation, yet the management has no analytical platform to figure out the variation of enrollment in the short run, and permanent cost inefficiencies. The underlying cause of this issue is the lack of an activity-level costing method that could be used to relate instruction time, practical capacity, and cost behavior at both the program and classes level.

In order to fill this analytical gap, the paper will use Time-Driven Activity-Based Costing (TDABC) as a cost measurement model that is specifically applied to the operations of education services. TDABC considers the actual time usage and practical capacity to assign cost thus is quite appropriate when dealing with a service based organization whose operations are labor intensive and whose demand is inconsistent (Kaplan and Anderson, 2007). In contrast to the traditional costing systems, TDABC allows a more transparent display of the way the instructional materials are used within programs and in a variety of classes.

In this connection, the aims of the research are fourfold. First, the research will identify the cost per student at the program level through adoption of TDABC at the branch level. Second, it aims at measuring the profitability of programs based on the information on activity-based costs instead of on the aggregate financial indicators. Third, the research will determine the minimum viable classes by conducting breakeven analysis using cost structures of TDABC. Lastly, the paper analyses how operating profit is sensitive to variation in various financial drivers, such as student enrollment and average revenue per student. By means of this combined method of analysis, this study offers the structured solution to enhance the accuracy of costs, the discipline of operations, and the evidence-based decision-making in the education service companies.

## 2. RESEARCH METHOD

This paper is a quantitative research design that attempts to handle the problem of cost inefficiencies at the branch level in the delivery of its educational services by implementing a Time-Driven Activity-Based Costing (TDABC) model. The sample is six operational divisions of PT Kreasi Edulab Indonesia in West Java based on complete data and at least five academic years of activity (2020/2021-2024/2025) of the business. These branches portray different levels of enrollment and hence the analysis can reflect the variation in resource usage and cost behavior. The main analytical framework applied in order to create the model of instructional and supporting activities, approximate practical capacity, rate capacity cost, and attribute costs to educational programs in accordance with real instructional time with the use of volume-based drivers where necessary.

Structured observation was used to collect primary data by studying internal operational documentation of the school such as logs of teaching sessions, time estimates of instruction, staffing assignment, classroom capacity and TDABC simulation results. Internal financial records which included general ledger reports, payroll records, revenue reports, and past enrolment records were used as secondary data. The data analysis was done in phases as follows: Descriptive analysis to summarize cost and revenue structures, TDABC simulation to estimate cost per student and program level costs, program level profitability analysis to determine operating performance, breakeven analysis to determine the effect of

change in student enrollment, average revenue per student and variable cost per student on operating profit, and sensitivity analysis to determine the effect of changes in student enrollment, average revenue per student and variable cost per student on operating profit.\.

### **3. RESULTS AND DISCUSSION**

This section shows the main findings of the process of implementing Time-Driven Activity-Based Costing (TDABC) to the Edulab Bandung Metro Branch. The discussion is organized in accordance with the research questions and it is based on the enhancement of cost visibility and decision-making at the level of the branch in the education service operations by using TDABC.

#### **3.1 Cost per Student per Program Using TDABC**

Application of TDABC shows that there are a lot of discrepancies in the costs per student in educational programs in Bandung Metro branch. These variability cannot be linked to the variability in the curriculum design or teaching standards which are comparatively uniform among programs but are mostly due to the variation in student enrollment and utilization of the teaching capacity. Programs having decreased enrolment are always more expensive per student as there is the low cost absorption where teaching resources are not fully utilized.

This trend underscores one important feature of the operations of education services, namely, the fact that much of the costs associated with teaching is set at the level of the classroom and is fairly inflexible in the course of an operation. As soon as a classroom is opened, and the teaching schedules are in place, the overall costs of instruction vary slightly as the student populations vary. Low occupancy classes, therefore, incur a disproportionately extreme cost per student as opposed to classes that are run near capacity. TDABC is able to record this relationship by directly associating instructional time and practical capacity with program-level cost allocation.

The results also indicate a drawback with traditional costing methods that are based on aggregate or average-based allocation. In these strategies, the financial cost of unutilized classes is likely to be obscured, and low-enrollment programs would seem similar to high-utilization programs. TDABC offers a more differentiated representation of program-specific cost per student by allocating costs by the actual instruction time and the available instructional capacity.

The better cost visibility of TDABC, in relation to managerial view, enables the branch administration to have a better understanding of the cost-efficiency of the programs, and find structural cost problems that cannot be easily observed in aggregate financial statements. This understanding can advance more knowledgeable choices in terms of consolidating classes, modifying schedules, and allocating resources and lessen the aspect of intuition-making judgments. On the whole, the findings indicate that TDABC

increases the accuracy and relevance of cost per student data and offers a more significant analytical base of financial assessment at the branch level within the education service organizations.

#### 4. CONCLUSION AND RECOMMENDATION

The paper has shown that one of the main drivers of financial inefficiencies in the operations of the branch-based education service has been limited cost visibility at both the program and class level. The use of Time-Driven Activity-Based Costing (TDABC) gives a better perspective of how instructions time, the use of teaching capacity, and the program structure affect cost per student within the programs. The result indicates that the cost per student can differ significantly even within a single branch and this fact proves that aggregate financial indicators are not good enough to reflect underlying cost behavior at a program level.

TDABC allows correctly identifying structurally inefficient classes by exposing how teaching capacity is underutilized to cause high costs per student. Branch-level revenue might seem to be stable, but program-level analysis shows that financial performance varies greatly with the concentration of enrollment and capacity utilization. These lessons highlight the need to assess the level of operational performance as a program and class level rather than use the financial summaries of the branches.

Additional calculations show that class viability is highly associated with minimum student requirement based on breakeven conditions. The programs that run at lower levels than these thresholds constantly have high cost per student and reduced performance in their operation, especially in cost structures suggesting instructional capacity costs. Also, the sensitivity analysis indicates that the operating profit is the most responsive to changes in average revenue per student and the levels of enrollment come after with relatively low impact of change in variable cost per student. This means that pricing discipline and enrolment management are better managerial levers compared to incremental cost reduction.

According to these findings, the research suggests that Edulab should institutionalize TDABC as a standard costing and decision-making system between the branches. The cost-per-student data should be systematically included in the choices regarding class openings, price, tutor employment, and continuation of the program. A better coordination between the finance, operations, and marketing functions should be strengthened so that the scheduling, pricing, and promotional decisions should be based on cost structures, and breakeven considerations. Further improvement of governance and timely managerial intervention would be through the creation of an integrated dashboard of financial, operational, and enrollment data. Overall, the integration of TDABC into the

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daily decision-making should help to create more responsible financial operations and enhance the economic sustainability of the education service organizations.

This analysis can be reinforced by future researches that prolong the time of observation to various academic years to help in capturing enrollment volatility and changes in cost structure over a period of time. It was also refinable by further differentiating the cost behavior of contracted and freelance educators, as they have different rates of implication within the instructional capacity and fixed variable cost composition. Further research could also compare the results of TDABC to simplified or hybrid costing methods and also devise more extensive scenario-based simulations than those based on single variable sensitivity testing to determine which methods have the best decision support of education service companies.

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