Business Feasibility Research in Opening Learning Centre at Balaraja based on SWOT and AHP Method

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ABSTRACT

Business feasibility research is needed before business development team decided to start the business. SWOT analysis is an important part of it, since it described Strength – Weaknesses – Opportunity – Threats. However, the result has no score, so its makes harder to consider each part in making decision. AHP (Analytic Hierarchy Process) is one of the methods in decision tool to scoring, AHP carry the quantitative analysis of the problem. The combine of SWOT and AHP in feasibility research provide more reliable accurate in decision making. The aim of this paper is to analyze the business feasibility in opening learning centre at Balaraja based on SWOT and AHP method.

Keywords: *SWOT, AHP, Learning Centre Business Development*

1. Introduction

Nowadays education services are one of important needs in life after human basic needs. People start to consider their children education, to prepare their future winning competition in globalization. For creating the bright future, many school and learning centre offered method that believed develop children potential. In big city where education growth fast, we can easily find school and learning centre in international standard.

In business development, the consideration of location, market analysis become crucial in feasibility analysis before the business is started. According to the blue ocean strategy by W. Chan Kim and Renee Mauborgne, "organizations must find a marketplace that free from competitors". So rather than fighting against each other for share of the marketplace, new location that has potential market becomes important. Balaraja is one of city in Banten province of Indonesia, an urban city for support Jakarta as the capital city where the government has planned to develop Kota Tangerang as a smart city. Balaraja is chosen as a potential city for business development to open a learning centre with international standard.

Major parts of business feasibility are opportunity identification and risk identification. SWOT method is one of the effective tools to do the business feasibility since it described Strength – Weakness in internal factors and Opportunity – Threat from external factors. SWOT analysis is a qualitative analysis and combined with AHP analysis, the qualitative analysis can be measured in some degrees.

2. Methodology

2.1 SWOT Method

SWOT are stands for Strengths, Weaknesses, Opportunities and Threats. It is an effective analytical framework for feasibility study which identifies the strengths, weaknesses, opportunities and threats factors before business is launched. The method was created in the 1960s by Edmund P. Learned, C. Roland Christensen, Kenneth Andrews and William D. Book in their book "Business Policy, Text and Cases". SWOT analysis is described in SWOT matrix as shown in Table 1:

Table 1. SWOT Matrix

STRENGTHS	OPPORTUNITIES
WEAKNESSES	THREATS

2.2. AHP

AHP is a method that introduced by Dr. Thomas L. Saaty in early of 1970. In multi criteria decision making. AHP decompose problem into a hierarchy which divide goals and criteria or alternative. The subjective evaluation is valued in number and processed to rank each alternative in a numerical scale.

2.3 SWOT – AHP Method

SWOT method focus on qualitative analysis that describe Strength – Weakness – Opportunity – Threat. From the analysis described in SWOT, it is difficult to take a decision

since all item analyzed have no score. With AHP method, the decision can be considered by comparing the weight of SWOT analysis.

The proposed method is applied in four steps [1]:
1. Describe internal factor in Strength – Weaknesses and external factor in Opportunity – Threat analysis in SWOT matrix.
2. From the matrix, applies the pair wise comparisons to get the weight of each SWOT items. In this step, invite several experts pair wisely compare each element and give the scores depend on the 1~9 scaling method as shown in Table 2

Table 2. Score meaning in the 1~9 scaling method

Score	Meaning
1	Almost the same in importance
3	Few differences in importance
5	Strong difference in importance
7	Very different in importance
9	Extreme difference in importance
2,4,6,8	Transition stage

From the pair wise, get the comparative matrix,

$$C = \begin{pmatrix} c11 & ... & c1n \\ ... & ... & ... \\ cn1 & ... & cnn \end{pmatrix}$$

c_{ij} means the importance of C_i relative to C_j.

Calculate the weight, and the Consistency Index (CI), Consistency Ratio (CR), Random Index (RI), and then go to consistency test.

$$CI = \frac{\lambda_{max} - n}{n-1} \qquad (1)$$

λ_{max} is the largest eigen value of the comparative matrix., n is number of dimension of the comparative matrix. RI value is obtained from the Table 3.

Table 3. Random Index (RI)

N	1	2	3	4	5	6	7	8	9
RI(N)	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45

$$CR = \frac{CI}{RI} \qquad (2)$$

If CR < 0.1, the consistency is passed; but if not then built another comparative matrix until CR < 0.1

3. Pair wisely compares each group, go to consistency tests. Repeating step 2 with the same formula.

4. Get comprehensive understanding of the internal and external environment by calculating the results, and make the corresponding strategy.

3. Case study: Learning Centre Opening in Balaraja

The methods are used to measure feasibility business in opening learning centre in Balaraja. The SWOT table is described in Table 4:

Table 4. SWOT Analysis Matrix

Strengths	Opportunities
S1 : Simple learning method	O1 : There are many students in Balaraja
S2 : Power of international brand	O2 : Few of learning centre in Balaraja
S3 : Comfortable starting point	O3 : People loves to try something new
Weaknesses	Threats
W1 : Subject options: Math and English	T1 : Consistency of parents and children following the program
W2 : No instant method	T2 : School extracurricular program
W3 : Adding homework after school	T3 : Another learning centre that provide all subjects

In each group, with the business development member team, scoring the 1- 9 scaling method, then count the weight.

First step compares the SWOT factors by scoring Strength (S), Weakness (W), Opportunities (O) and Threat (T). The highest weight score is Opportunities with score 0.508 shown in Table 5.

Table 5. Pair wise comparison of SWOT factors

SWOT Groups	S	W	O	T	Weight
Strengths (S)	1	3	1/3	1	0.193
Weaknesses (W)	1/3	1	1/5	1/5	0.070
Opportunities (O)	3	5	1	3	0.508
Threat (T)	1	5	1/3	1	0.229
CR= 0.043					

Next, we compare each element of SWOT factors that described in Table 4 by scoring and calculate the weight. The strength highest score is power of international brand with score 0.556, shown in Table 6. People in urban city have tendency like the branded things.

Table 6. Comparison Matrix of Strengths Group

S	S1	S2	S3	Weight
S1. Simple learning method	1	1/5	1/5	0.090
S2. Power of international brand	5	1	2	0.556
S3. Comfortable starting point	5	1/2	1	0.354
CR= 0.047				

Next factor to compare is Weaknesses, shown in Table 7. The highest score of weaknesses is homework added after school with score 0.261. People love instant method rather than discipline learning process.

Table 7. Comparison Matrix of Weaknesses Group

Weaknesses	W1	W2	W3	Weight
W1 : Subject options: Math and English	1	5	3	0.633
W2 : No instant method	1/5	1	1/3	0.106
W3: Adding homework after school	1/3	3	1	0.261
CR= 0.033				

The third factor compared is Opportunities, shown in Table 8. The highest score for this factor is people love to try something new with score 0.591. Balaraja is urban city with urban people who love to try something new that become great opportunity for business.

Table 8. Comparison Matrix of Opportunities Group

Opportunities	O1	O2	O3	Weight
O1 : There are many students in Balaraja	1	5	1/2	0.334
O2 : Few of learning centre in Balaraja	1/5	1	1/7	0.075
O3 : People loves to try something new	2	7	1	0.591
CR= 0.012				

The last factor compared is Threat shown in Table 9. The highest factor score for Threat is school extracurricular program with score 0.525. Today many school with international standard offered many activities for extracurricular that makes students already tired with full activity from morning to afternoon.

Table 9. Comparison Matrix of Threat Group

Threats	T1	T2	T3	Weight
T1 : Consistency of parents and children following the program	1	1/2	3	0.334
T2 : School extracurricular program	1/3	1	3	0.525
T3 :Another learning centre that provide all subjects	1/3	1/3	1	0.141
CR= 0.046				

Finally, we compare all factors and the element to consider whether the learning center fit to open in Balaraja.

Table 10. Weight

SWOT	Weight of each group	Elements	Weight of each element	Total weight
Strength	0.193	S1 : Simple learning method	0.090	0.017
		S2 : Power of brand internationally	0.556	0.749
		S3 : Comfortable starting point	0.354	0.068
Weaknesses	0.070	W1 : Subject options: Math and English	0.633	0.044
		W2 : No instant method	0.106	0.007
		W3 : Adding homework after school	0.261	0.018
Opportunities	0.508	O1 : There are many students in Balaraja	0.334	0.170
		O2 : Few of learning centre in Balaraja	0.075	0.038
		O3 : People loves to try something new	0.591	0.3
Threats	0.229	T1 : Consistency of parents and children following the program	0.334	0.076
		T2 : School extracurricular program	0.525	0.120
		T3 : Another learning centre that provide all subjects	0.141	0.032

The AHP analysis result show the ranking weight of SWOT analysis in Strength 19.3%, Weaknesses 7 %, Opportunity 50.3% and Threat 22.9%. It describes Balaraja have big opportunity for opening learning centre by business development team.

4. Conclusion

In this paper, the findings show weight of each SWOT group priority: Strengths (group weight 19.3%), Opportunities (50.3%), Weaknesses (7.3%) and Threats (22.9%). As we can see the highest score of weight is in opportunity where Balaraja have many students who loves to try something new that supported by power of international brand as the strength. The calculation of weight of SWOT element made decision support easier since we can rank the weight of SWOT elements.

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