DECISION SUPPORT SYSTEM DETERMINATION OF THE SCHOLARSHIP BY THE METHOD OF PROFILE MATCHING IN THE EIF2C STUDY COURSE THE RANGE OF WEB-BASED

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ABSTRACT

EIF2C study course range is one of the courses that is engaged in education. EIF2C study course range established since 2010 based on notarial deed of maritime notary, Sh, m.kn, dated 20 August 2019, no.20.EIF2C study course range has 39 The current students are related to only 4 people who will get a scholarship. EIF2C study course range is still difficult in determining the students who will get the scholarship. The selection of scholarship receipt on EIF2C study course range is done only based on academic value, this does not guarantee the result of evenly distributed election And in accordance with the original conditions in each student. Decision support systems will give an important value in the selection of scholarship acceptance based on several supporting criteria.

INTRODUCTION

The process of decision support is basically choosing an alternative. The method of Profile Matching is widely used for research about intelligent systems. Intelligent systems can be in the form of expert system or decision support system (DSS). The uniqueness of this method is the Assessment carried out using membership degrees. The degree of membership include the value of a variable based on the level of linguistic his. In general, decision support system can be classified into knowledge-based and data-driven approaches having both advantages and suffering from dis-advantages[1].

One problem encountered in classifying unbalance datasets is that samples of one class (majority) outnumber the samples in another class (minority) that is of often more interest or importance, making the algorithms driven by accuracy bias toward the majority class[2].

The process of supporting decisions when choosing. The profile matching method is widely used for research on intelligent systems. This smart system can consist of an expert system or also a decision support system (DSS). The uniqueness of this method is that the assessment is done using the degree of association[3][4].

EIF2C Study Course Range is one of the courses that is engaged in education. EIF2C Study Course Kisaran was established in 2010 based on the Deed of Timbang-

laut, SH., M.Kn, Articles of Association, dated August 20, 2019, No.20. The EIF2C Study Course Range has 39 students currently, only 4 people will get scholarships. EIF2C Study Course The range is still difficult in determining students who will get a scholarship. Scholarship acceptance selection on the EIF2C Study Course The range is only based on the amount of academic grades, this does not guarantee a uniform and consistent selection of results in each student's original condition[5][6].

METHOD

Profile Matching method is a method that is often used as a mechanism in decision making by assuming that there is an ideal level of predictive variables that must be met by the subjects being studied, rather than the minimum level that must be met or passed. In the profile matching process, it is broadly a process of comparing the actual value of a profile to be assessed with the expected profile value, so that competency differences can be known (also called a gap), the smaller the gap produced, the greater the value weights means to have a greater chance for students getting the scholarship[7]

There are 4 things that must be passed in the decision making process, namely:
1. The Search Stage
   This stage takes decisions in interactions that occur, so that we can discuss the problems that occur are carried out an analysis of the system to its subsystems.
2. The Design Stage
   This stage is the stage of analysis in formulating or finding alternative solutions to problems.
3. Selection Phase
   Namely choosing alternative solutions that are appropriate.
4. Implementation Phase
   This stage is the implementation stage of the stage that has been taken

RESULT AND DISCUSSION

Competency Gap Mapping Calculation Process
The gap is the difference between the student's professional scores and the scholarship profile values obtained from each student's evaluation record. Gap values can be formulated as follows[8]:

GAP = Student Profile Value - Scholarship Profile Value

Following are examples of calculating gap values as a basis for determining scholarships in the EIF2C Study Course Range.

Table 1. Profile Matching Criteria Data

No	Individual	Final Grade Averagefguh	Parents income	The number of dependents	Class	GAP	
1	Ela	4	2	2	4		
2	Yoki	3	2	3	4		
3	Imam	2	3	2	2		
	Profil	4	4	4	4	(-)	(+)
1	Ela	0	-2	-2	0	4	0
2	Yoki	-1	-2	-1	0	4	0
3	Imam	-2	-1	-2	-2	7	0

Information
1. Average Final Value
2. Parental income
3. The number of dependents
4. class

It can be seen in the Table that the scholarship profile values for each sub-criterion listed in the table are the same, which is 4. Next, for example students take the individual name Ela where the value of the profile is

Average Final Value = 4 Number of Contents = 2
Parent Income   = 2 Class = 4
So the gap value that occurs for each sub-criteria is:
Average Final Value = 0 Number of Contents = -2
Parent Income   = -2 Class = 0
The same process is also carried out for other criteria

GAP Difference Weighting

After obtaining the value of each individual gap, each student's profile value is given a weight value by benchmarking the gap value weight table. As can be seen in the following table:

Table 2. Weighting Difference in Gap Profile Matching Value

Difference	Weighted value	Information
0	4	There is no difference (Competence according to that needed)
1	3.5	Individual competence is 1 level / level excess
-1	3	Individual competence lacks 2 levels / levels
2	2.5	Individual competence is 2 levels / level excess
-2	2	Individual competence lacks 2 levels / level
3	1.5	Individual competencies are 3 levels / level excess
-3	1	Individual competence is lacking 3 levels / level

And the results of the conversion of the gap value into weights will be obtained weight values for each individual.

Table. 3 Gap Profile Matching Value Weight

NO	Individual Name	Criteria			Class
1	Ela	0	-2	-2	0
2	Yoki	-1	-2	-1	0
3	Imam	-2	-1	-2	-2
	WEIGHT VALUE				
1	Ela	4	2	2	4
2	Yoki	3	2	3	4
3	Imam	2	3	2	2

Calculation of Core Factor and Secondary Factor

The same process is carried out to determine the weight of the criteria gap value. After all the weighted gap values are obtained, the next process is to group these criteria into Core Factor (CF) and Secondary Factor (SF) groups. For the calculation of core factors can be shown in the formula below:

$$NCF = \frac{\sum NC}{\sum NC}$$

Information :

NCF   : Average Factor Value

NC   : Total Number of Core Factor Values

IC   : Number of Core Factor Items

Whereas the secondary factor calculation can be shown in the formula below:

$$NSF = \frac{\sum NS}{\sum IS}$$

Information

NCF   : Average Secondary Factor Score

NS   : Total Number of Secondary Factor Values

IS   : Number of Secondary Factor Items

For more details, the weighting of gap values can be seen in the example of criteria calculation. The calculation of core factors and secondary factors begins by first determining which sub-criteria are the core factors. For example, sub-criteria of the average final value, income of parents, number of responsibilities, class, then the remain-

ing sub-criteria will be a secondary factor. Then the core factor and secondary factor values are added according to the formula. In order to obtain the following values:

$$NCF = \frac{4+2}{2} = \frac{6}{2} = 3$$

The following table results from the process of calculating the values of CF and SF criteria for the criteria

Table. 4 Value of Core Factor and Secondary Factor Profile Matching

No	Individual Name	Criteria				CF	SF
		Final Grade Average	Parents income	The Number of Dependents	Class		
1	Ela	4	2	2	4	3	3
2	Yoki	3	2	3	4	2.5	3.5
3	Imam	2	3	2	2	2.5	2

From the calculation results of each criterion above, then the total value is calculated based on the percentage of core and secondary which is estimated to affect the performance of each profile. Example of the formula below:

Information :
NCF   : Average Factor Value
NC   : Total Number of Core Factor Values
NT   : Total Value Of Criteria
(X)%   : The percent value entered
        Calculation of total value and calculation of criteria with percentage value 60% and 40%, can be formulated as follows:

NT=(60% x 3)+(40%3)= 1,8+1,2 = 3

Final Results of Profile Matching Process

Total value based on core values and expected secondary factors on the performance of each profile, calculation of total value assessment:

60% NCF + 40% NSF = NT

Table 5. Profile Matching Criteria Data

No	Individual Name	CF	SF	NT (BP)
1	Ela	3	3	3
2	Yoki	2.5	3.5	2.9
3	Imam	2,5	2	2.3

From the table above shows that students with individual names Ela with a profile matching value of 3 was ranked first as the best candidate

CONCLUSION

The research results obtained by using the profile matching method can help in the decision support system for determining scholarships in the EIF2C Study Course Range. This new Web-based system will make it easier for administrators to process data on prospective scholarship recipients, and this designed system can provide information whenever needed. . The system also makes it easier for users to provide scholarships according to the desired criteria

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