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Student Ranking Based on Learning Assessment Using the Simplified PIPRECIA Method and CoCoSo Method

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Abstract−The problems that occur in determining the best students based on the learning process of the assessment process are still based on the academic scores of students and have not considered the learning process carried out by students. This study aims to apply the Combined Compromise Solution (CoCoSo) method in ranking students based on learning assessment using criteria of academic progress, problem-solving ability, mastery of skills, independence, motivation and positive attitude, adaptability, and for weighting the criteria used to apply the Simplified PIPRECIA (Pivot Pairwise Relative Criteria Importance Assessment) weighting method. The Simplified PIPRECIA method is particularly useful in situations where there are diverse criteria to be considered and complex decisions must be made taking into account the preferences and interests of various stakeholders. The Combined Compromise Solution Method is useful when there are conflicts in various criteria that need to be considered in the decision-making process. With this approach, each criterion is weighted and carefully calculated, so that the resulting decisions reflect comprehensive considerations that can meet various requirements and constraints. Based on the results of student rankings based on assessments in learning in the table above, rank 1 was obtained by students with Student ID 1211313 with a final grade of 6.487, rank 2 was obtained by students with Student ID 1211316 with a final grade of 6.402, and rank 3 was obtained by students with Student ID 1211314 with a final grade of 5.814.

Keywords: Assessments; Combined Compromise Solution; Decision; Learning; Simplified PIPRECIA

1. INTRODUCTION

The learning process is a systematic effort in which individuals acquire knowledge, skills, and understanding through interaction with information, teachers, the environment, and peers. This process involves stages such as information reception, data processing, and material mastery[1]. This can happen in a variety of contexts, from formal education in schools to self-directed learning through everyday experiences. The learning process includes not only cognitive aspects, but also emotional, social, and even physical aspects that influence how individuals internalize knowledge and develop their understanding of the world around them. In an educational context, an effective learning process involves teaching that supports students' active interaction with the material, problem solving, and personal reflection to achieve deeper understanding. The learning process can also be tailored to individual needs, so diverse teaching approaches, such as project-based learning, collaborative learning, and technology-based learning, are used to maximize learning potential. Factors such as motivation, interest, and learning environment also play an important role in determining the effectiveness of the learning process. In addition, evaluation and feedback are integral parts of the learning process, as they help measure progress and provide information for improvement[2]. The learning process is not just about memorizing facts, but also about helping individuals develop deep understanding, critical skills, and the ability to relate knowledge. The problems that occur in determining the best students based on the learning process of the assessment process are still based on the academic scores of students and have not considered the learning process carried out by students. The determination of the best students in the learning process is not only based on the results of my academic assessment but in the learning process needs to be an aspect of student assessment in carrying out the learning process. So that it will be a balance between the learning process carried out with the assessment results obtained by students.

Determining the best students based on the learning process is a complex task and involves many factors to consider. Some factors that can be used to assess students based on the learning process include Academic Progress, Problem Solving Ability, Mastery of Skills, Independence, Motivation and Positive Attitude, Adaptability. It is important to remember that student assessment based on the learning process should be holistic and pay attention to the various aspects above. Not only looking at academic results alone, but also

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recognizing students' potential and progress in the development of their skills, character, and learning abilities. In addition, this approach should be inclusive and consider diversity in learning styles and student needs.

The selection of the best students using a decision support system (DSS) is an approach that utilizes predetermined data and criteria to decide which students are most suitable for an award, special program, or other special recognition[3]. In DSS, various factors such as test results, academic history, student involvement in extracurricular activities, problem-solving abilities, and other aspects are analyzed holistically. The system can assign weight to each criterion based on priority, so that students who achieve the highest score in these assessments can be identified as the best students. DSS helps minimize subjectivity in student selection and ensures that decisions are based on strong data and pre-set criteria[4]. In addition, decision support systems also allow flexibility in entering different types of data, including feedback from teachers, recommendations, and non-academic achievements, such as leadership and social engagement. This process utilizes technology to objectively calculate candidate scores based on predetermined criteria weights[s3]. DSS also allows regular data updates, noticing changes in student progress over time. This helps decision makers to select the best students more transparently, efficiently, and fairly. Thus, decision support systems provide a more rational and measurable approach in determining the best students based on a number of relevant and diverse factors[6].

Combined Compromise Solution Method is a decision-making approach that aims to find balanced and optimal solutions when faced with complex problems involving several conflicting criteria or goals[7]. This method combines elements from various compromise-based techniques to achieve the most satisfactory solution of various diverse criteria. It involves a process of negotiation and bargaining, taking into account the importance of each criterion and constraints involved[8]. By combining the advantages of various methods, the Combined Compromise Resolution Method provides a comprehensive framework for addressing real-world problems, enabling decision makers to make informed choices that take into account competing interests and find a midpoint that fits their goals[9]. The Combined Compromise Solution Method is useful when there are conflicts in various criteria that need to be considered in the decision-making process. With this approach, each criterion is weighted and carefully calculated, so that the resulting decisions reflect comprehensive considerations that can meet various requirements and constraints[10]. This process of combining elements from different methods of compromise results in a balanced solution, accommodates diverse interests, and assists decision makers in finding the best solution that meets their various goals. The Combined Compromise Solution Method can be used in a variety of contexts, such as planning, project management, and strategic decision-making in the business world, government, or in complex social issues[11].

The Simplified PIPRECIA (Pivot Pairwise Relative Criteria Importance Assessment) method is an approach used in multi-criteria decision making that allows stakeholders to measure and assess alternatives based on multiple criteria more efficiently[12]. This method integrates aspects of several evaluation approaches, such as AHP (Analytic Hierarchy Process) and PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluations) to produce solutions that are easy to understand and implement. Through a process of ranking and comparison of alternatives, the Simplified PIPRECIA Method helps decision makers to better understand the impact of the various criteria they are considering, enabling them to make more informed and effective decisions in a variety of contexts, from product or service selection to complex investment projects[13]. The Simplified PIPRECIA method simplifies the multi-criteria evaluation process by providing a framework that is easier for decision makers to understand and implement. In this process, stakeholders typically give weight to each criterion and hold pairwise comparisons to gauge their preference for available alternatives. The results of this evaluation can result in a ranking of alternatives based on their degree of match to predetermined criteria. The Simplified PIPRECIA method is particularly useful in situations where there are diverse criteria to be considered and complex decisions must be made taking into account the preferences and interests of various stakeholders[14].

Research conducted by Lutviana Sawung Rakasiswi, Mohammad Badrul (2020) The AHP method is a method whose main input is human perception by converting qualitative values into quantitative values and is able to solve complex problems by structuring a hierarchy of criteria with three stages, namely determining the priority of criteria, determining the priority of sub criteria and calculating the final grade so that the best decision is obtained for determining the best student To produce decisions that are more objective and do not harm the students and the school so that they become more motivated in developing themselves, considering the reward for the best students[15]. Further research by Astuti, Ramdhania, and Dani Yusuf (2023) This research successfully implemented the SAW method for selecting the best students at SMPN 266 Jakarta, this was evidenced by the results of testing system accuracy calculations and manual calculations which obtained 100% percentage results[16]. Further research was conducted by Juniar Hutagalung, Badrul Anwar, Ismawardi Santoso (2022) to build SPK that adopts the desktop-based ARAS method in solving problems. With a sample of data used amounting to 15 student data and 7 criteria, namely class ranking, academic grades, attendance, social, spiritual, extracurricular values and neatness / appearance. The result obtained by the decision value with the highest Ki = 0.9816 is Asisi Putriani as the best alternative, which means that the ARAS method can be used for decision making based on predetermined criteria, so that the school can choose the best students[17].

This study aims to apply the Combined Compromise Solution method in ranking students based on learning assessment using criteria of academic progress, problem-solving ability, mastery of skills,

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independence, motivation and positive attitude, adaptability, and for weighting the criteria used to apply the Simplified PIPRECIA (Pivot Pairwise Relative Criteria Importance Assessment) weighting method.

2. RESEARCH METHODOLOGY

2.1 Research Stages

The stages of research are systematic processes carried out to collect new information, data and knowledge or to understand existing phenomena better[18], [19]. This stage of research can be closely related to the process of evaluation and termination to determine whether the research results meet the initial objectives and whether the findings can be applied in a broader context[20], [21]. The conclusions and recommendations from the research can be used to aid decision-making in a variety of fields, including academic, business, government, and society in general. The stages of research carried out can be seen in figure 1.

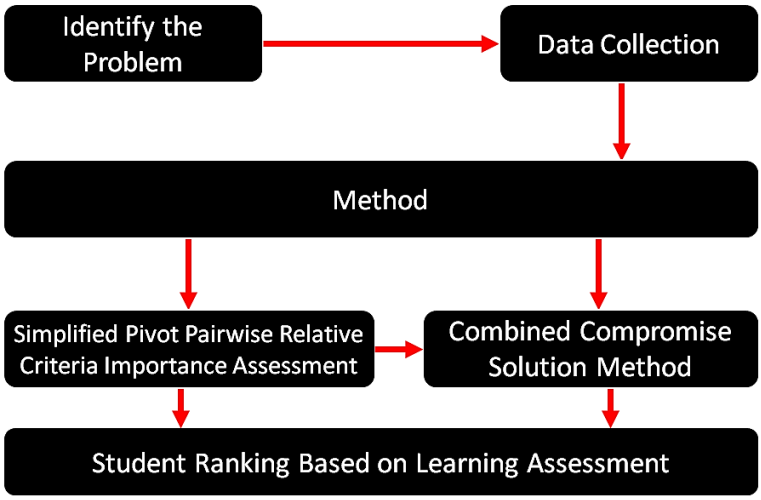

Figure 1. Research Stage

The above research stages start from identifying problems about determining student ranking based on assessment in learning, problems encountered by the student ranking process are only based on the assessment of learning evaluation results and do not use other criteria. Based on these problems, data collection is then carried out to determine student ranking based on learning assessments. Furthermore, it uses the Simplified PIPRECIA method and the Combined Compromise Solution method to determine student rankings based on assessment in learning.

2.2 Simplified PIPRECIA

Simplified Pivot Pairwise Relative Criteria Importance Assessment (Simplified PIPRECIA) is a method used in decision making and multi-criteria analysis to determine the relative importance of criteria when evaluating alternatives. It is a simplified version of the Analytic Hierarchy Process (AHP) and other paired comparison methods. The goal of Simplified PIPRECIA is to help decision makers make more informed and consistent choices when there are multiple criteria to be considered. The stages in the Simplified PIPRECIA weighting method are.

a. Establish relative significance s_j of every criterion, except the first one using the following equation.

$$S_j = \begin{cases} 1 & if\ c_j > c_1 \\ 1 & if\ c_j = c_1 \\ 1 & if\ c_j < c_1 \end{cases} \quad (1)$$

Where $j \neq 1$
if $c_j = c_1$ enter in the value interval 1
if $c_j > c_1$ enter in the value interval (1 until 1,9)
if $c_j < c_1$ enter in the value interval (0,1 until 1)

b. Setting the value of the coefficient k_j uses the following equation.

$$k_j = \begin{cases} 1 & if\ j = 1 \\ 2 - s_j & id\ j > 1 \end{cases} \quad (2)$$

c. Calculating weights q_j uses the following equation.

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$$q_j = \begin{cases} 1 & if\ j = 1 \\ \frac{1}{k_j} & if\ j > 1 \end{cases} \quad (3)$$

d. Calculates the relative final weight of the criterion using the following equation.

$$w_j = \frac{q_j}{\sum_{k=1}^{n} q_k} \quad (4)$$

2.3 Combined Compromise Solution Method

The Combined Compromise Solution method is an approach used in multi-criteria decision analysis to achieve optimal compromise solutions among a variety of conflicting criteria. In a Combined Compromise Solution, pairwise comparisons between alternatives are measured to identify the solution that most closely compromises between all available criteria. This method allows decision makers to find solutions that blend optimal trade-offs or balances among opposing criteria, thus providing valuable insight in situations where decisions must be taken in the context of diverse conflicting considerations. Thus, the Combined Compromise Solution is a useful tool in addressing complex and diverse decision problems. Combined Compromise Solution is a flexible tool that can be applied in a variety of decision-making contexts, such as investment selection, project planning, or product selection. By integrating diverse considerations, Combined Compromise Solutions help decision makers to make more informed and consistent decisions, while avoiding decisions that might benefit only one aspect of the criteria while sacrificing others. The stages of the Combined Compromise Solution method are as follows.

a. Calculating Normalized Matrices
The stages of criteria normalization are used based on the compromise normalization equation, the results of matrix normalization can be seen in equation (5) for the type of benefit criteria, and equation (6) for the type of criteria cost[9].

$$r_{ij} = \frac{x_{ij} - \min x_{ij}}{\max x_{ij} - \min x_{ij}} \quad (5)$$

$$r_{ij} = \frac{\max x_{ij} - x_{ij}}{\max x_{ij} - \min x_{ij}} \quad (6)$$

b. Calculating Value S_i and P_i
Determination of the total value of the comparison matrix for the overall weights for each alternative using the following equation.

$$S_i = \sum_{j=1}^{n} (W_j r_{ij}) \quad (7)$$

$$P_i = \sum_{j=1}^{n} (r_{ij})^{w_j} \quad (8)$$

c. Calculating Value K_{ia}, K_{ib} dan K_{ic}
Calculation of the relative weights of all alternatives using aggregation calculation techniques. In this process there are 3 stages of calculating the assessment score which will produce relative weights[22]. The relative weight equation can be seen below.

$$K_{ia} = \frac{P_i + S_i}{\sum_{i=1}^{m} (P_i + S_i)} \quad (9)$$

$$K_{ib} = \frac{S_i}{\min S_i} + \frac{P_i}{\min P_i} \quad (10)$$

$$K_{ic} = \frac{\lambda(S_i) + (1-\lambda)(P_i)}{(\lambda \max S_i + (1-\lambda) \max P_i)} \quad (11)$$

d. Calculating Total Value K_i
Calculating total value ki of each alternative [10] use the following equation.

$$K_i = (k_{ia} k_{ib} k_{ic})^{\frac{1}{3}} + \frac{1}{3}(k_{ia} + k_{ib} + k_{ic}) \quad (12)$$

3. RESULT AND DISCUSSION

3.1 Criteria Weighting Using Simplified PIPRECIA Method

The criteria data used in this study amounted to 6 criteria and will be tested using the Simplified PIPRECIA weighting method. The data is obtained from XYZ schools and can be seen in Table 1.

Table 1. Data Criteria

Criteria Code	Criteria Name	Initial Value of Criteria
CTR-1	Academic Grades	1

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Criteria Code	Criteria Name	Initial Value of Criteria
CTR-2	Problem Solving Skill	1
CTR-3	Mastery of Skills	1
CTR-4	Independence	0.8
CTR-5	Motivation and Positive Attitude	0.6
CTR-6	Adaptability	0.4

Table 1 above is the criteria used in selecting the best students in the learning process carried out, these criteria will be used in determining the best students based on the learning process carried out.
The calculation of criteria weighting using Simplified PIPRECIA is as follows.

a. Establish relative significance s_j of each criterion, except the first criterion using equation (1) the calculation results such as table 2 below.

Table 2. Calculation of Relative Significance Value

Criteria Code	Value S_j
CTR-1	1
CTR-2	1
CTR-3	1
CTR-4	0.8
CTR-5	0.6
CTR-6	0.4

Table 2 above is an initial assessment of each criterion using the Simplified PIPRECIA method. The value is obtained using equation (1).

b. Setting the value of the coefficient k_j uses the following equation (2).

Table 3. Calculation of the Value of the Coefficient

Criteria Code	Value S_j	Value K_j
CTR-1	1	1
CTR-2	1	1
CTR-3	1	1
CTR-4	0.8	1.2
CTR-5	0.6	1.4
CTR-6	0.4	1.6

Table 3 above is a calculation of the coefficient value of each criterion using the Simplified PIPRECIA method. The value is obtained using equation (2).

c. Calculating weights q_j Use the following equation (3).

Table 4. Calculation of Weight Value

Criteria Code	Value S_j	Value K_j	Value Q_j
CTR-1	1	1	1.000
CTR-2	1	1	1.000
CTR-3	1	1	1.000
CTR-4	0.8	1.2	0.833
CTR-5	0.6	1.4	0.714
CTR-6	0.4	1.6	0.625

Table 4 above is a calculation of the weight value of each criterion using the Simplified PIPRECIA method. The value is obtained using equation (3).

d. Calculate the relative final weight of the criterion using the following equation (4):.

$$w_1 = \frac{1}{1+1+1+0.833+0.714+0.625} = \frac{1}{5.173} = 0.193$$

$$w_2 = \frac{1}{1+1+1+0.833+0.714+0.625} = \frac{1}{5.173} = 0.193$$

$$w_3 = \frac{0,625}{1+1+1+0.833+0.714+0.625} = \frac{1}{5.173} = 0.193$$

$$w_4 = \frac{0,677}{1+1+1+0.833+0.714+0.625} = \frac{1}{5.173} = 0.161$$

$$w_5 = \frac{0,556}{1+1+1+0.833+0.714+0.625} = \frac{1}{5.173} = 0.138$$

$$w_6 = \frac{0,556}{1+1+1+0.833+0.714+0.625} = \frac{1}{5.173} = 0.121$$

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3.2 Ranking Students Using the Combined Compromise Solution Method

The calculation of student ranking based on assessment in learning in this study uses 13 student data selected from 5 existing classes using 6 criteria and will be tested using the Combined Compromise Solution method. The data is obtained from XYZ schools and an assessment process will be carried out for student ranking. Alternative data of 15 people in student ranking can be seen in Table 5.

Table 5. Student Assessment Data

Student ID	CTR-1	CTR-2	CTR-3	CTR-4	CTR-5	CTR-6
1211311	90	93	80	90	94	82
1211312	92	90	83	91	91	85
1211313	93	93	88	94	94	90
1211314	94	92	85	90	93	87
1211315	93	91	80	92	92	82
1211316	94	89	90	93	90	92
1211317	92	88	91	90	89	93
1211318	91	90	80	93	91	82
1211319	90	88	90	90	89	92
1211320	92	86	89	89	87	91
1211321	93	84	85	88	85	87
1211322	94	80	86	92	81	88
1211323	92	88	87	91	89	89
Max	94	93	91	94	94	93
Min	90	80	80	88	81	82

The next stage after the decision-making matrix is made is to calculate the normalized matrix based on the benefits and costs of the existing criteria. The benefit value is calculated using (5) and the cost value is calculated using (6). The following is an example of calculating the value of benefits and costs based on a sample of students 1.

$r_{11} = \frac{90-90}{94-90} = \frac{0}{4} = 0$

$r_{21} = \frac{93-80}{93-80} = \frac{13}{13} = 1$

$r_{31} = \frac{00-80}{91-80} = \frac{0}{11} = 0$

$r_{41} = \frac{90-88}{94-88} = \frac{2}{6} = 0.333$

$r_{51} = \frac{94-81}{94-81} = \frac{13}{13} = 1$

$r_{61} = \frac{82-82}{93-82} = \frac{0}{11} = 0$

The overall result of the matrix normalization calculation is as shown in table 6 below.

Table 6. Matrix Normalization Results

Student ID	CTR-1	CTR-2	CTR-3	CTR-4	CTR-5	CTR-6
1211311	0	1.000	0.000	0.333	1.000	0.000
1211312	0.5	0.769	0.273	0.500	0.769	0.273
1211313	0.75	1.000	0.727	1.000	1.000	0.727
1211314	1	0.923	0.455	0.333	0.923	0.455
1211315	0.75	0.846	0.000	0.667	0.846	0.000
1211316	1	0.692	0.909	0.833	0.692	0.909
1211317	0.5	0.615	1.000	0.333	0.615	1.000
1211318	0.25	0.769	0.000	0.833	0.769	0.000
1211319	0	0.615	0.909	0.333	0.615	0.909
1211320	0.5	0.462	0.818	0.167	0.462	0.818
1211321	0.75	0.308	0.455	0.000	0.308	0.455
1211322	1	0.000	0.545	0.667	0.000	0.545
1211323	0.5	0.615	0.636	0.500	0.615	0.636

Table 6 is the result of matrix normalization that has been carried out using equations (5) and (6) based on existing student assessment data. Table 5 above is an assessment of each student to determine the best student using the Combined Compromise Solution method.

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Value calculation S_i based on the weight criteria of each alternative value using (7), while the calculation of values P_i using (8). Here is an example calculation for calculating values S_i and P_i For student sample 1.

$$S_1 = (0.193 * 0) + (0.193 * 1) + (0.193 * 0) + (0.161 * 0.333) + (0.138 * 1) + (0.121 * 0) = 0.385$$

$$P_1 = (0^{0.193}) + (1^{0.193}) + (0^{0.193}) + (0.333^{0.161}) + (1^{0.138}) + (0^{0.121}) = 2.838$$

Table 7. Results Value S_i and P_i

Student ID	S_i	P_i
1211311	0.385	2.838
1211312	0.517	5.317
1211313	0.865	5.849
1211314	0.695	5.579
1211315	0.532	3.828
1211316	0.842	5.823
1211317	0.668	5.558
1211318	0.437	3.651
1211319	0.543	4.654
1211320	0.533	5.322
1211321	0.389	4.360
1211322	0.472	3.756
1211323	0.581	5.478

Table 7 is the result of Calculating Value Si and Pi which has been done using equations (7) and (8) based on existing student assessment data. After obtaining each value S_i and P_i Next find the maximum and minimum values of the overall value S_i and P_i based on all alternative data. Maximum and minimum values of the value S_i and P_i can be seen in Table 8.

Table 8. Maximum and Minimum Value Results

	S_i	P_i
Max	0.865	5.849
Min	0.385	2.838

The process then calculates the relative weight value of the alternative to be calculated using an aggregation strategy. In this stage, three scoring score strategies are used to generate relative weights and other options. Value calculation K_{ia} (9), K_{ib} (10) and K_{ic} (11) for student sample 1 can be seen in the calculation below:

$$K_{ia} = \frac{2.838+0.385}{7.458+62.015} = 0.046$$

$$K_{ib} = \frac{0.385}{0.385} + \frac{2.838}{2.838} = 2$$

$$K_{ic} = \frac{0,5(0.385)+(1-0,5(2.838))}{(0,5*0.865)+(1-0,5(5.849))} = 1$$

Value calculation result K_{ia}, K_{ib} and K_{ic} for all students can be seen in Table 9.

Table 9. Value Calculation Result K_{ia}, K_{ib} and K_{ic}

Student ID	K_{ia}	K_{ib}	K_{ic}
1211311	0.046	2.000	0.480
1211312	0.084	3.218	0.869
1211313	0.097	4.310	1.000
1211314	0.090	3.773	0.935
1211315	0.063	2.732	0.649
1211316	0.096	4.240	0.993
1211317	0.090	3.695	0.927
1211318	0.059	2.423	0.609
1211319	0.075	3.051	0.774
1211320	0.084	3.261	0.872
1211321	0.068	2.549	0.707
1211322	0.061	2.549	0.630
1211323	0.087	3.440	0.902

The process of calculating the final value of the alternative is determined based on the value K_i. Calculation of total value K_i (12) obtained based on the sum of values K_{ia}, K_{ib} and K_{ic}. Value calculation K_i for student sample 1 can be seen below:

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$$K_1 = (0.046 * 2 * 0.480)^{\frac{1}{3}} + \frac{1}{3}(0.046 + 2 + 0.480) = 6{,}46993$$

Value calculation result K_i for all students can be seen in Table 10.

Table 10. Result Value K_i Student

Student ID	K_i
1211311	3.215
1211312	5.122
1211313	6.487
1211314	5.814
1211315	4.260
1211316	6.402
1211317	5.720
1211318	3.867
1211319	4.795
1211320	5.172
1211321	4.156
1211322	4.034
1211323	5.410

Table 10 is the final calculation of student assessment using Simplified PIPRECIA Method and CoCoSo Method, these results will be used in ranking the best students based on the learning process carried out.

3.3 Student ranking based on assessment in learning

Ranking students based on assessment in learning is an important step in the education system to recognize student achievement and progress. The Combined Compromise Solution method can be used to provide fair and balanced rankings based on criteria of Academic Grades, Problem Solving Skills, Mastery of Skills, Independence, Motivation and Positive Attitude, and Adaptability. The application of the Combined Compromise Solution method allows schools and teachers to identify students who have achieved the best overall results in learning, rather than just based on one particular aspect of assessment, and ultimately motivate students to achieve better in various areas. The results of student engagement can be seen in table 11 below.

Table 11. Student Ranking Results

Student ID	Final Grades	Rank
1211313	6.487	1
1211316	6.402	2
1211314	5.814	3
1211317	5.72	4
1211323	5.41	5
1211320	5.172	6
1211312	5.122	7
1211319	4.795	8
1211315	4.26	9
1211321	4.156	10
1211322	4.034	11
1211318	3.867	12
1211311	3.215	13

Based on the results of student rankings based on assessments in learning in the table above, rank 1 was obtained by students with Student ID 1211313 with a final grade of 6.487, rank 2 was obtained by students with Student ID 1211316 with a final grade of 6.402, and rank 3 was obtained by students with Student ID 1211314 with a final grade of 5.814.

4. CONCLUSION

The Simplified PIPRECIA method is particularly useful in situations where there are diverse criteria to be considered and complex decisions must be made taking into account the preferences and interests of various stakeholders. Combined Compromise Solution Method is a decision-making approach that aims to find balanced and optimal solutions when faced with complex problems involving several conflicting criteria or goals. This method combines elements from various compromise-based techniques to achieve the most satisfactory solution of various diverse criteria. The Combined Compromise Solution Method is useful when there are conflicts in various criteria that need to be considered in the decision-making process. The results of this study apply the

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Combined Compromise Solution method in ranking students based on learning assessment using criteria of academic progress, problem-solving ability, mastery of skills, independence, motivation and positive attitude, adaptability, and for weighting the criteria used to apply the Simplified PIPRECIA weighting method. Based on the results of student rankings based on assessments in learning in the table above, rank 1 was obtained by students with Student ID 1211313 with a final grade of 6.487, rank 2 was obtained by students with Student ID 1211316 with a final grade of 6.402, and rank 3 was obtained by students with Student ID 1211314 with a final grade of 5.814.

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