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LITERATURE REVIEW: IMPLEMENTATION OF A DECISION SUPPORT SYSTEM FOR DETERMINING SCHOLARSHIP RECIPIENTS

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Abstract: Scholarships are a form of support or appreciation given to individuals, generally for those who wish to continue their education but have economic limitations or for those who excel. A system is needed to determine worthy scholarship recipients to support decision-making. This research aims to identify the impact of a decision support system (DSS) in selecting scholarship recipients using the Systematic Literature Review (SLR) method. This research collected 15 journals from Google Scholar published from 2020 to 2024, which were analyzed based on (Quality Assessment) such as topic relevance, use of methods and criteria, and the impact of implementing a decision support system on determining scholarship recipients. The results of the analysis show that the implementation of a decision support system has a significant impact on selecting scholarship recipients who are transparent, effective, efficient, and accurate.

Keywords: Article Review, Decision Support System, Scholarship Recipients

INTRODUCTION

According to Pristiwanti et al., (2022) education is a learning process that aims to develop individual potential as a whole. Through education, humans gain the knowledge, skills, values, and attitudes needed to live in society. Education has a vital role in human life. Education opens doors of opportunity for individuals to achieve their goals and improve their quality of life. Education also plays a role in shaping individual character, developing critical thinking skills, and fostering a sense of love for the country (Sukmayadi et al., 2024). In addition, education is also a means to preserve the nation's culture and noble values.

With quality education, it is expected to give birth to a young generation that is intelligent, creative, characterized, and able to face global challenges (Maisaroh & Untari, 2024). However, pursuing education to a higher level is often a big challenge, especially for individuals who come from families with economic limitations, as a solution to these challenges (Yasin et al., 2024). Scholarships exist as a form of financial support that facilitates access to education for those who have academic potential but are constrained by economic limitations (El-Yunusi et al., 2024).

Scholarships are a form of financial support given to individuals to continue their education. Scholarships can be provided by the government, private institutions, universities, or other organizations (Irianto et al., 2024). According to Meiriza et al., (2023) the main purpose of providing scholarships is to provide opportunities for those who have academic potential but are constrained by financial problems to get higher education. Scholarships become a bridge for individuals to achieve their goals through education. With scholarships, many young people who excel but come from underprivileged families can continue their

studies to a higher level. This has a positive impact not only on the individuals who receive the scholarship, but also on society at large (Sari & Yasin, 2024). Each scholarship program has specific selection requirements to determine the recipients who best meet the criteria (Surati et al., 2022). According to Naya et al., (2023) the manual selection process takes a long time, especially in verifying documents such as salary slips, transcripts, certificates of inability, and other documents needed in accordance with the scholarship requirements. The number of criteria that need to be considered and the limited selection time, coupled with the non-optimal utilization of computer equipment, often makes data management inefficient and prone to errors. Thus, to select eligible scholarship recipients, a system is needed that can help the decision- making process such as a decision support system (Al Harits & Al Majid, 2023).

According to Handoko (2024) decision support systems (DSS) have become an increasingly important tool in the scholarship recipient selection process. With an increasing number of scholarship applicants and increasingly complex criteria, decision support systems (DSS) offer efficient and objective solutions. Meanwhile, According to Ilham et al., (2021) decision support system (DSS) works by processing data on prospective scholarship recipients based on various predetermined criteria, such as academic achievement, socio-economic background, and contribution potential. Through certain algorithms, the decision support system (DSS) then produces a ranking of prospective scholarship recipients based on the scores obtained (Ramadhan & Noviyanto, 2023). This allows scholarship awarding institutions to make more accurate and transparent decisions, and minimize the potential for bias in the selection process. Thus, a decision support system (DSS) can help ensure that scholarships are awarded to the most deserving and needy candidates (Jamung et al., 2024).

Recently, the application of decision support systems (DSS) has increasingly become a popular topic in the scholarship acceptance selection process (Amaliah, 2021). Several studies have revealed that the use of a decision support system (SPK) can affect the scholarship acceptance process. The purpose of this study is to identify the effect of the implementation of a decision support system (SPK) in the process of determining scholarship recipients. To find out how the impact of using a decision support system (SPK) on the scholarship acceptance process, researchers applied the systematic literature review (SLR) method by collecting 15 journals published in the last 5 years from Google Scholar for analysis.

METHOD

This research uses the Systematic Literature Review (SLR) approach, which is a research method carried out systematically and objectively to collect, evaluate, and synthesize relevant evidence from various previously published literature sources (Suciati et al., 2022). The literature selected based on keywords that are by the research focus is then reviewed and identified in a structured manner by the stages set out in the SLR method (Anggraeni et al., 2024). In this study, the Systematic Literature Review (SLR) method used three stages as described by Farah Faadillah Herindraningrum and Indrawati Yuhertiana, namely:

Figure 1. Stages of the Systematic Literature Review (SLR) Method (2021)

In preparing a research article using the Systematic Literature Review (SLR) method, the first stage is planning. At this stage, questions relevant to the research topic are determined. The following is the Research Question (RQ) used in this study:
Research Question (RQ) 1: What methods and criteria are used in the implementation of decision support systems in determining scholarship recipients?
Research Question (RQ) 2: Does the journal explain the impact of implementing a decision support system on the process of determining scholarship recipients?

The second stage in the Systematic Literature Review (SLR) method is conducting. At this stage, a search process is carried out to obtain sources that are relevant to the Research Question (RQ). Source searches are carried out using Google Scholar through the website https://scholar.google.co.id/ using keywords in the form of "Decision Support System" and "Determination of Scholarship Recipients", then Inclusion and Exclusion Criteria are carried out where at this stage the criteria of the data found are determined to determine its eligibility as a research data source. The following are the criteria that make data considered suitable as a research source: "The data collected covers the period between 2020 - 2024", "Data taken from Google Scholar sources", "The data used is limited to journals relevant to the topic of decision support systems in determining scholarship recipients". Next, a Quality Assessment (QA) is carried out, the aim is to find out whether the journals obtained match the desired criteria and answer the research question (RQ). At this stage, the data that has been found will be evaluated based on the following questions: QA1: The journal was published between 2020 and 2024. QA2: The journal explains the methods and criteria used in the implementation of the decision support system for determining scholarship recipients. QA 3: The journal discusses the impact of the implementation of the decision support system on the process of determining scholarship recipients. Each journal will be given a score based on predetermined questions using "Yes" for journals that meet the criteria in Quality Assessment (QA) and "No" for journals that do not meet the criteria in Quality Assessment (QA).

The final stage in the Systematic Literature Review (SLR) method is reporting, where the results of the analysis and evaluation of the review of various journals are compiled in writing by the established format, where this stage is a discussion of the answers to each research question (RQ).

RESULT

Search Process Results and Inclusion and Exclusion Criteria

The result of the Search Process and Inclusion and Exclusion Criteria is the selection of 15 journals that meet the criteria, namely journals published between 2020 and 2024, and discuss the topics of "Decision Support Systems" and "Determination of Scholarship Recipients". Furthermore, the journals were grouped into several categories. The following are the types of journals that were successfully obtained:

Table 1. Journal Grouping Based on Type

No.	Journal Type	Year	Total
1.	Jurnal Teknologi Informasi	2021	1
2.	Jurnal Tekno Kompak	2021	1
3.	Jurnal Nasional Komputasi dan Teknologi Informasi (JNKTI)	2022	1
4.	JURTEKSI (Jurnal Teknologi dan Sistem Informasi)	2020	1
5.	Jurnal Data Mining Dan Sistem Informasi	2021	1
6.	Jurnal Tekinkom (Teknik Informasi dan Komputer)	2022	1
7.	Jurnal Teknologi Dan Ilmu Komputer Prima (Jutikomp)	2022	1
8.	JIKA (Jurnal Informatika)	2023	1
9.	TIN: Terapan Informatika Nusantara	2022	1
10.	The Indonesian Journal of Computer Science	2022	1
11.	Jurnal Nasional Komputasi dan Teknologi Informasi (JNKTI)	2023	1
12.	Jurnal Teknoinfo	2022	1
13.	SATESI : Jurnal Sains Teknologi dan Sistem Informasi	2022	1
14.	Jurnal Ilmiah SINUS	2022	1
15.	Jurnal Lebesgue: Jurnal Ilmiah Pendidikan Matematika, Matematika Dan Statistika	2023	1

Quality Assessment (QA) Results

The Quality Assessment (QA) in this study is as follows:
Quality Assessment (QA) 1: The journal was published between 2020 and 2024. Quality Assessment (QA) 2: The journal explains the methods and criteria used in the implementation of the decision support system for determining scholarship recipients.
Quality Assessment (QA) 3: The journal discusses the impact of implementing a decision support system on the process of determining scholarship recipients.
The Quality Assessment (QA) assessment is presented in the following table:

Table 2. Quality Assessment (QA) Results

No.	Author and Year	Quality Assessment (QA)			Results
		QA 1	QA 2	QA 3	
1.	Yusni Amaliah, Suprianto (2021)	Yes	Yes	Yes	Accepted
2.	M. Rasyid Ridho, Hairani Hairani, Kurniadin Abd Latif, Rifqi Hammad (2021)	Yes	Yes	Yes	Accepted
3.	Bahrin, Betrisandi, Maryam Diange (2022)	Yes	Yes	Yes	Accepted
4.	Sukamto, Yanti Andriyani, Ayu Lestari (2020)	Yes	Yes	Yes	Accepted
5.	Debby Alita, Indah Sari, Auliya Rahman Isnain, Styawati (2021)	Yes	Yes	Yes	Accepted
6.	Betaria Sonata Sianturi, Volvo Sihombing, Ibnu Rasyid Munthe (2022)	Yes	Yes	Yes	Accepted

7.	Rifa Nurafiah Syabaniah,	Yes	Yes	Yes	Accepted

No.	Author and Year	Quality Assessment (QA)			Results
		QA 1	QA 2	QA 3	
7.	Agung Wibowo, Eva Marsusanti, Nani Purwati, Rina Riniawati (2022)				
8.	Sari Susanti, Galih Repor Nawangsit (2023)	Yes	Yes	Yes	Accepted
9.	Desfa Anisa, Widya Septya Ningrum, Retno Kusumo, Widya Putri (2022)	Yes	Yes	Yes	Accepted
10.	Budy Satria, Acihmah Sidauruk, Raditya Wardhana, Abdussalam Al Akbar, M. Arinal Ihsan (2022)	Yes	Yes	Yes	Accepted
11.	Amin Syifa, Darmawan Aditama, Indra Gita Anugrah (2023)	Yes	Yes	Yes	Accepted
12.	Rizal, Hafizh Al Kautsar Aidilof, Ali Imran Nasution (2022)	Yes	Yes	Yes	Accepted
13.	Nikomedes Oba Rendu, Kristina Sara, Anastasia Mude (2022)	Yes	Yes	Yes	Accepted
14.	Sri Surati, Sri Siswanti, Andriani Kusumaningrum (2022b)	Yes	Yes	Yes	Accepted
15.	Ahmad Al A Dhomul Aflahin, M. Ivan Ariful Fathoni, Festian Cindrabumi (2023)	Yes	Yes	Yes	Accepted

Based on the results of the Quality Assessment (QA) assessment in Table 2 above, it can be concluded that 15 journals are by the statements in the Quality Assessment (QA) that have been determined. As for the results of the literature review that has been carried out, the researchers write it into the table as follows:

Table 3. Previous Research Methods

No.	Title	Name	Methods
1.	Decision Support System for Poor Scholarship Recipients	Yusni Amaliah, Suprianto (2021)	This research uses the Multi-Objective Optimization based on Ratio (MOORA) method
2.	Combination of AHP and TOPSIS Methods for Recommending SMK Scholarship	M. Rasyid Ridho, Hairani Hairani, Kurniadin Abd	This research utilizes a combination of two methods, AHP and TOPSIS

No.	Title	Name	Methods
	Recipients Based on Decision Support System	Latif, Rifqi Hammad (2021)	

3.	Poor Achievement Scholarship Selection Decision Support System with Composite Performance Index (CPI) Method	Bahrin, Betrisandi, Maryam Diange (2022)	The method applied in this research is the Composite Performance Index (CPI)
4.	Decision Support System for Bidikmisi Scholarship Recipients Using the SMART Method	Sukamto, Yanti Andriyani, Ayu Lestari (2020)	In this research, the decision-making system method used is SMART
5.	Application of Naïve Bayes Classifier for Scholarship Recipient Decision Support	Debby Alita, Indah Sari, Auliya Rahman Isnain, Styawati (2021)	The method used for decision-making in this research is Naïve Bayes Classifier
6.	Decision Support System for Determining Scholarship Recipients Using the ELECTRE Method	Betaria Sonata Sianturi, Volvo Sihombing, Ibnu Rasyid Munthe (2022)	The decision support system method used in this research is ELECTRE
7.	Decision Support System for Selection of Tahfidz Scholarship Candidates Using SAW Method	Rifa Nurafiah Syabaniah, Agung Wibowo, Eva Marsusanti, Nani Purwati, Rina Riniawati (2022)	This research uses the Simple Additive Weighting (SAW) method
8.	Application of the Tsukamoto Fuzzy Method to the Decision Support System for Determining Scholarship Awards	Sari Susanti, Galih Repor Nawangsit (2023)	In this research, the Fuzzy Tsukamoto method is used as an algorithm in determining the decision-making system
9.	Scholarship Acceptance Decision Support System Using Weighted Product Method	Desfa Anisa, Widya Septya Ningrum, Retno Kusumo, Widya Putri (2022)	The method used in selecting scholarships in this study is Weighted Product
10.	Application of Composite Performance Index (CPI) as a Method on Scholarship Recipient Selection Decision Support System	Budy Satria, Acihmah Sidauruk, Raditya Wardhana, Abdussalam Al Akbar, M. Arinal Ihsan (2022)	This research uses the Composite Performance Index (CPI) as a decision support system method

11.	Decision Support System for Bidikmisi Scholarship Recipients at Muhammadiyah Gresik University with the WASPAS Method	Amin Syifa, Darmawan Aditama, Indra Gita Anugrah (2023)	The Weighted Aggregated Sum Product assessment (WASPAS) method was used in this study
12.	Decision Support System for Academic Achievement Scholarship Acceptance Using Preference Selection Index	Rizal, Hafizh Al Kautsar Aidilof, Ali Imran Nasution (2022)	In this research, the decision support system method applied is Preference Selection Index (PSI)
13.	Application of Promethee Method in Scholarship Acceptance Decision Support System	Nikomedes Oba Rendu, Kristina Sara, Anastasia Mude (2022)	In this research, the Promethee method is used for the decision support system
14.	Simple Multi-Attribute Rating Technique Method for Decision Support System Scholarship Recipient Determination	Sri Surati, Sri Siswanti, Andriani Kusumaningrum (2022)	The Simple Multi-Attribute Rating Technique (SMART) method is a system method of decision support used in this study
15.	Application of Decision Support System (SPK) by Using Fuzzy AHP (Analytical Hierarchy Process) Method as Determination of PIP Scholarship Acceptance	Ahmad Al A Dhomul Aflahin, M. Ivan Ariful Fathoni, Festian Cindrabumi (2023)	This research uses the SPK method in the form of the Fuzzy AHP method

Table 4. Use of Previous Research Criteria

No.	Title	Name	Criteria
1.	Decision Support System for Poor Scholarship Recipients Using the MOORA Method	Yusni Amaliah, Suprianto (2021)	The criteria used included area, type of house floor, type of house wall, type of house roof, WC, electricity, water, transportation, and parents' monthly income
2.	Combination of AHP and TOPSIS Methods for Recommendation of SMK Scholarship Recipients Based on Decision Support System	M. Rasyid Ridho, Hairani Hairani, Kurniadin Abd Latif, Rifqi Hammad (2021)	The criteria used include grade point average, parental income, parental dependents, distance of residence, attendance

3.	Poor Achievement Scholarship Selection Decision Support System with Composite Performance Index (CPI) Method	Bahrin, Betrisandi, Maryam Diange (2022)	The criteria used included subject matter expertise, responsibility, creativity, and communication
4	Decision Support System for Bidikmisi Scholarship Recipients Using the SMART Method	Sukamto, Yanti Andriyani, Ayu Lestari (2020)	The criteria used include GPA score, total parental income, father's occupation, mother's occupation, and number of dependents
5.	Application of Naïve Bayes Classifier for Scholarship Recipient Decision Support	Debby Alita, Indah Sari, Auliya Rahman Isnain, Styawati (2021)	The criteria used include report card grade point average, parents' income, and number of siblings
6.	Decision Support System for Determining Scholarship Recipients Using the ELECTRE Method	Betaria Sonata Sianturi, Volvo Sihombing, Ibnu Rasyid Munthe (2022)	The criteria used include grade point average, parental income, number of parental dependents and number of student achievements
7.	Decision Support System for Selection of Tahfidz Scholarship Candidates Using SAW Method	Rifa Nurafiah Syabaniah, Agung Wibowo, Eva Marsusanti, Nani Purwati, Rina Riniawati (2022)	The criteria used include the amount of memorization, tajweed, makhorijul huruf, and poor family status
8.	Application of the Tsukamoto Fuzzy Method to the Decision Support System for Determining Scholarship Awards	Sari Susanti, Galih Repor Nawangsit (2023)	The criteria used include average final school grades, general knowledge championship achievements and non-academic championship achievements
9.	Scholarship Acceptance Decision Support System Using Weighted Product Method	Desfa Anisa, Widya Septya Ningrum, Retno Kusumo, Widya Putri (2022)	The criteria used included parents' occupation, parents' income, number of parents' mounts and average report card score
10.	Application of Composite Performance Index (CPI) as a Method on Scholarship Recipient Selection Decision Support System	Budy Satria, Acihmah Sidauruk, Raditya Wardhana, Abdussalam Al Akbar, M. Arinal Ihsan (2022)	The criteria used include parents' income, GPA, electricity consumption, and semester

11.	Decision Support System for Bidikmisi Scholarship Recipients at Muhammadiyah Gresik University with the WASPAS Method	Amin Syifa, Darmawan Aditama, Indra Gita Anugrah (2023)	The criteria used include grade point average, parental income, parental dependents, distance of residence, attendance
12.	Decision Support System for Upgrading Scholarship Acceptance Academic Achievement Using the Preference Selection Index	Rizal, Hafizh Al Kautsar Aidilof, Ali Imran Nasution (2022)	The criteria used included academic test scores, basic skills test scores, and achievement scores
13.	Application of Promethee Method in Scholarship Acceptance Decision Support System	Nikomedes Oba Rendu, Kristina Sara, Anastasia Mude (2022)	The criteria used include GPA, parental income, parental dependents, achievement and semester
14.	Simple Multi-Attribute Rating Technique Method for Scholarship Recipient Determination Decision Support System	Sri Surati, Sri Siswanti, Andriani Kusumaningrum (2022)	The criteria used include semester exams, attendance scores, memorization of AlQur'an, and economic conditions
15.	Application of Decision Support System (SPK) by Using Fuzzy AHP (Analytical Hierarchy Process) Method as Determination of PIP Scholarship Acceptance	Ahmad Al A Dhomul Aflahin, M. Ivan Ariful Fathoni, Festian Cindrabumi (2023)	The criteria used include the economic condition of the family, the average family income, and the number of parental dependents

Table 5. Previous Research Results

No.	Judul	Nama	Hasil
1.	Decision Support System for Poor	Yusni Amaliah, Sprianto (2021)	This research proves the effectiveness of the MOORA
No.	**Judul**	**Nama**	**Hasil**
			a method in selecting scholarship recipients, by ensuring the selection process is based on criteria such as area, house floor type, house wall type, house roof type, WC, electricity, water, transportation, and parents' monthly income. As a result of applying the method, 6 people were successfully selected as candidates with the highest scores ranging from 25 to 27

	Scholarship Recipients Using the MOORA Method		a method in selecting scholarship recipients, by ensuring the selection process is based on criteria such as area, house floor type, house wall type, house roof type, WC, electricity, water, transportation, and parents' monthly income. As a result of applying the method, 6 people were successfully selected as candidates with the highest scores ranging from 25 to 27
2.	Combination of AHP and TOPSIS Methods for Recommendation of SMK Scholarship Recipients Based on Decision Support System	M. Rasyid Ridho, Hairani Hairani, Kurniadin Abd Latif, Rifqi Hammad (2021)	This research shows the combination of AHP and TOPSIS methods in determining scholarship recipients. The AHP method plays a role in determining priority weights between criteria to avoid subjective weighting. Meanwhile, TOPSIS is applied to perform ranking based on the ideal solution positive and negative ideal solutions. The results show that the combination of the two methods provides convenience and speed in the decision-making process related to the selection of scholarship recipients. With this, the process of determining scholarship recipients can be carried out transparently and objectively

No.	Judul	Nama	Hasil
3.	Poor Achievement Scholarship Selection Decision Support System with Composite Performance Index (CPI) Method	Bahrin, Betrisandi, Maryam Diange (2022)	Based on the results of this study, it show that a decision support system has been designed in the form of an application using the CPI method. The success of this system is measured through the ability to provide maximum results in the decision-making process
4.	Decision Support System for Bidikmisi Scholarship Recipients Using the SMART Method	Sukamto, Yanti Andriyani, Ayu Lestari (2020)	This research reveals that the decision support system developed for Determining scholarship recipients using the SMART method can be implemented based on criteria such as GPA score, parents' income, father's job, mother's job, and number of

			dependents. As a valuation, experiments were carried out using 10 data and the results obtained a sequence of scholarship recipient scores from highest to lowest
5.	Application of Naïve Bayes Classifier for Scholarship Recipient Decision Support	Debby Alita, Indah Sari, Auliya Rahman Isnain, Styawati (2021)	This research argues that the application of scholarship recipient decision-making through application development is needed to overcome the conventional methods used in schools. The results of the research show that the application of the Naïve Bayes Classifier in the decision support system for scholarship recipients can assist significantly for the school in determining scholarship recipients more accurately and quickly
6.	Decision Support System for Determining Scholarship Recipients Using the ELECTRE Method	Betaria Sonata Sianturi, Volvo Sihombing, Ibnu Rasyid Munthe (2022)	The final results of this study indicate that the application of the ELECTRE method through application design in selecting scholarship recipients can be done quickly and effectively. The criteria determined in determining

No.	Judul	Nama	Hasil
			scholarship recipients include average score, parents' income, number of parents' dependents, and number of student achievements
7.	Decision Support System for Selection of Tahfidz Scholarship Candidates Using SAW Method	Rifa Nurafiah Syabaniah, Agung Wibowo, Eva Marsusanti, Nani Purwati, Rina Riniawati (2022)	In this study, the results of the application of the SAW method in selecting prospective tahfidz scholarship recipients based on 4 criteria (number of memorization, tajweed, makhorijul huruf, and family status) proved effective in selecting scholarship recipients. This is evidenced by the determination of 53 students
8.	Application of the Tsukamoto Fuzzy Method to the Decision Support System for Determining Scholarship Awards	Sari Susanti, Galih Repor Nawangsit (2023)	The results of this study reveal that the application of the Tsukamoto fuzzy method can help in determining student eligibility for scholarships. Based on the results of the trial, students with a

			probability value of more than 80.00 are eligible for a scholarship
9.	Scholarship Acceptance Decision Support System Using Weighted Product Method	Desfa Anisa, Widya Septya Ningrum, Retno Kusumo, Widya Putri (2022)	Based on this research, the results obtained conclude that the application of a decision support system with the Weighted Product method through application design can accelerate and provide recommendations for prospective scholarship recipients. In this case, the criteria covered include, parents' occupation, parents' income, the number of children, and the number of students
10.	Application of Composite Performance Index (CPI) as a Method of Scholarship Recipient Selection Decision Support System	Budy Satria, Acihmah Sidauruk, Raditya Wardhana, Abdussalam Al Akbar, M. Arinal Ihsan (2022)	This research uses 10 alternatives and 4 criteria covered such as parents' income, GPA, electricity consumption, and semester in the process of determining worthy recipients of scholarship assistance. Through calculations carried out by the CPI method, 5

No.	Judul	Nama	Hasil
			alternatives with the highest scores were found from the 10 alternatives tested. The results of this study reveal that the CPI method is effectively used in selecting scholarship recipients in a measurable and targeted manner
11.	Decision Support System for Bidikmisi Scholarship Recipients at Muhammadiyah Gresik University with the WASPAS Method	Amin Syifa, Darmawan Aditama, Indra Gita Anugrah (2023)	The result of this research is that the WASPAS method functions as a system that implements the ranking process. This research also concludes that the application of the WASPAS method in the selection of scholarship recipients can be used in the selection of scholarship recipients help related parties in determining the right prospective students to receive bidikmisi scholarships
12.	Decision Support System for Academic Achievement Scholarship	Rizal, Hafizh Al Kautsar Aidilof, Ali Imran Nasution (2022)	The result of this research is the Preference Selection Index method into an application that includes criteria such as GPA,

	Acceptance Using Preference Selection Index		semester, amount of parents' income, and number of parents' dependents. Then, based on system testing on 825 alternative data, this study concludes that the Preference Selection Index method is by the design and can provide appropriate recommendations so that it is effectively implemented in selecting scholarship recipients
13.	Application of Promethee Method in Scholarship Acceptance Decision Support System	Nikomedes Oba Rendu, Kristina Sara, Anastasia Mude (2022)	This research shows that the development of a decision support system application in scholarship acceptance using the Promethee method, determining scholarship recipients can be done effectively, accurately, and efficiently. Through the Promethee calculation, the selection of scholarship recipients

No.	Judul	Nama	Hasil
			that was previously done manually can also minimize the error rate
14.	Simple Multi Attribute Rating Technique Method for Scholarship Recipient Determination Decision Support System	Sri Surati, Sri Siswanti, Andriani Kusumaningrum (2022)	Based on the results of the research, it is found that the application of a decision support system for determining scholarship recipients using the The SMART method provides benefits in making decisions to determine scholarship recipients appropriately. The application of the SMART method based on the specified criteria also facilitates the school in determining scholarship recipients and avoids the subjective selection process.
15.	Application of Decision Support System (SPK) by Using Fuzzy AHP (Analytical Hierarchy Process) Method as Determination of PIP Scholarship Acceptance	Ahmad Al A Dhomul Aflahin, M. Ivan Ariful Fathoni, Festian Cindrabumi (2023)	Based on the results of the application of the Fuzzy AHP method with 3 criteria such as family economic conditions, average family income, and number of dependents of parents, this study succeeded in determining students who were eligible to receive PIP scholarships from all alternative PIP scholarship

	applicants obtained a clusterization value of 25% of alternatives entitled to receive and 75% not entitled to receive. With this, it can be proven that the implementation of the Fuzzy AHP method in selecting prospective PIP scholarship recipients is very effective to be applied

DISCUSSION

Research Question 1 or RQ 1: What methods and criteria are used in the implementation of decision support systems in determining scholarship recipients?

The use of methods and criteria in decision support systems for determining scholarship recipients is to increase objectivity, fairness, and transparency in the selection process. Based on the analysis conducted on 15 journals using the Systematic Literature Review (SLR) method, various methods, and criteria used in decision support systems for determining scholarship recipients were found. Research by Amaliah & Suprianto (2021) and Ridho et al., (2021), use parents' income as a criterion in supporting the process of determining scholarship recipients by utilizing the application of decision support systems methods such as Multi-Objective Optimization based on Ratio (MOORA), Analytical Hierarchy Process (AHP), Technique For Others Reference by Similarity to Ideal Solution (TOPSIS), the use of these criteria and methods can provide convenience and speed in the decision-making process in the process of determining scholarship recipients transparently and objectively.

Research conducted by Alita et al., (2021) used the Naive Bayes method with the criteria of average report card scores, parents' income, and number of siblings. Sianturi et al., (2022) their research used the Electree method with the criteria of average grades, parental income, number of parental dependents, and number of student achievements. While research by Syabaniah et al., (2022) uses the Simple Additive Weighting (SAW) method using the criteria for the amount of memorization, tajweed, makhorijul huruf, and poor family status. The Fuzzy Tsukamoto method was used in Susanti & Nawangsit (2023) by taking the criteria of average final school grades, general knowledge championship achievements, and non-academic decision championship achievements. Other research conducted by Anisa et al., (2022) implemented the Weighted Product method based on the criteria of parental employment, parental income, number of parental dependents, and average report card scores. Research conducted by Adek et al., (2022) uses the Preference Selection method with the criteria of academic test scores, basic skills test scores, and achievement scores. In research by (Rendu et al., 2022) Promethee uses the criteria of GPA, parental income, parental dependents, achievement, and semester.

Dahlan et al., (2022) and Satria et al., (2022) their research used the Composite Performance Index (CPI) method with criteria for ability in the field of study, responsibility, creativity, and communication as well as parental income, GPA, electricity consumption, and semester. Research conducted by Sukamto et al., (2020) and Surati et al., (2022) suggest that the use of the Simple Multi-Attribute Rating Technique (SMART) method by entering

criteria based on value provides benefits in making decisions to determine scholarship recipients appropriately and can support the process of determining scholarship recipients by conducting experiments using 10 data and the results obtained a sequence of scholarship recipient values from highest to lowest. In research by Aditama & Anugrah (2023) explained that using the Weighted Aggregated Sum Product Assessment (WASPAS) method based on the criteria of parental dependents and distance of residence can help related parties in determining prospective students appropriately from the ranking process in the implementation of a decision support system.

Based on some of the research explanations above, the use of methods and criteria has proven to facilitate the implementation of a decision support system for determining scholarship recipients objectively and transparently. This is because the right methods and criteria can minimize bias in the selection process so that the decisions taken are fairer and more accountable. Thus, it can be ensured that the scholarship is given to the most qualified prospective recipient.

Research Question 2 or RQ 2: Does the journal explain the impact of implementing a decision support system on the process of determining scholarship recipients?

In its utilization as a supporter in decision-making, especially in the process of determining scholarship recipients, decision support systems can have a significant impact in facilitating a fairer and more transparent selection process, so that every prospective recipient has the same opportunity. Based on research bySyifa et al., (2022) proved that the use of decision support systems is effective in selecting scholarship recipients. This is evidenced by the determination of 53 students to 10 students who deserve to be Tahfidz scholarship recipients. In Susanti & Nawangsit's research (2023) explaining the use of decision support systems has a good impact, they revealed that using the Tsukamoto fuzzy method can help in determining student eligibility for scholarships. Based on the results of the trial, students with a probability value of more than 80.00 are eligible for a scholarship.

Research by Aflahin et al., (2023) successfully used a decision support system so that it had a significant impact on the determination of scholarship recipients, this is evidenced based on the results of the application of the Fuzzy AHP method with 3 criteria such as family economic conditions, average family income and number of dependents of parents, this study succeeded in determining students who were eligible to receive PIP scholarships from all alternative PIP scholarship applicants obtained a clusterization value of 25% alternatives entitled to receive and 75% not entitled to receive. With this, it can be proven that the implementation of the Fuzzy AHP method of decision support systems in selecting prospective PIP scholarship recipients is very effective to implement. The implementation of a decision support system can have a significant impact and broad benefits for various parties involved in the process of determining scholarship recipients. For scholarship providers, the system helps ensure that scholarship funds are allocated effectively and efficiently. For potential recipients, the system creates a fairer and more transparent selection process. As for the selection team, the system eases their workload and allows them to focus on more strategic tasks.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that based on the results of the Systematic Literature Review (SLR) approach, the methods in decision

support systems that are widely used by researchers are Composite Performance Index (CPI) and Simple Multi-Attribute Rating Technique (SMART). The criteria for determining the most widely used scholarship recipients are parents' income and report card grades. It can be concluded that the decision support system has a positive impact on the process of determining scholarship recipients in terms of effectiveness, efficiency, and accuracy of results.

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