

The Best Counseling Methods for Fishermen in Overcoming Coral Reef Ecosystem Damage in Pasawaran Regency

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ABSTRACT

This study was conducted to determine the effect of extension methods and achievement motivation on knowledge about the impact of damage to coral reef ecosystems. In order to achieve this goal, this research was conducted using a mix method that is quantitative supported by qualitative data from interviews. Quantitative Method used for fishermen in Padang Cermin Subdistrict, Pasawaran Lampung Regency with $n = 60$ using 2X2 factorial. While the Qualitative Method conducted interviews with a number of Fishermen, Padang Cermin District Head, Sanggit Village Head, Community Social Institutions (NGOs) Concerned with Lampung Environmental Reform and Development and Satuan Markas Officer at Pangkalan TNI AL Lampung. The results of this study indicate that the knowledge of the overall impact of damage to coral reef ecosystems for fishermen who are provided counseling with the demonstration method is higher than the lecture method, for fishermen who have strong motivation to succeed, counseling using the demonstration method is higher than the lecture method, for fishermen who have weak successful motivation, counseling using the lecture method is higher than the demonstration method, there is a significant interaction between the counseling method and successful motivation and overall for those who have strong success motivation is higher than the motivation for weak success. So that in this study counseling with the demonstration method is more appropriate and suitable for use, because it has implications for improving the planning and development of counseling programs through demonstration methods, increasing the government's role in raising awareness of fishermen in the conservation of coral reef ecosystems, increasing the role of fishermen in the preservation of coral reef ecosystems, and increasing the role of extension workers in order to increase fishermen's knowledge about the impact of damage to coral reef ecosystems.

Keywords: *ecosystem, coral reef, counseling, motivation to succeed, fishermen*

1. INTRODUCTION

The coral reef ecosystem spread throughout Indonesian waters is estimated to be approximately 50,000 km². The coral reef ecosystem and all the life contained therein, is one of the priceless natural resources. Coral reef ecosystems are typical tropical ecosystems that have very high organic productivity and very high biodiversity of biota. The productivity of coral reef ecosystems is high and if it functions optimally, it can increase fishery production, so that it will indirectly provide both social and economic benefits for coastal village communities, especially fishermen and Indonesian society in general [1]. Coral reef ecosystems are typical tropical ecosystems that have very high organic productivity and very high biodiversity of biota. The high organic productivity (primary) allows these waters to become a place for spawning (spawning ground), care (nursery ground) and foraging (feeding ground) of some fish. In addition, the coral reef ecosystem as a tropical seabed ecosystem whose community is dominated by lime-producing marine biota, functions among others: As food and other resources, Source of materials, Sources of pharmaceutical and industrial materials other chemistry, tourism and recreation purposes, education and scientific development, biological support (eg breeding and feeding for offshore fish), support in case of food crisis, and coast protection from erosion [2].

Along with the increasing population of Indonesia and the scarcity of natural resources on land, forcing humans to look for other alternatives. One of the alternatives is natural resources in the sea. Human activities in order to exploit the potential of natural resources in the sea, especially in coastal areas, often directly or indirectly damage the coral reef ecosystem. This is reflected in the level of marine pollution, overfishing symptoms, physical degradation of the main coastal habitats (coral reefs, mangroves, etc.), as well as conflicts over the use of coastal areas in densely populated areas or high levels of development (industry) [3].

Threats to the survival of coral reef ecosystems can come from natural factors and human factors. Damage due to natural factors, among others: physical, chemical and biological. Physically, among others, it is caused by storms such as typhoons, earthquakes, and El Nino. Chemicals such as pesticides, detergents, fertilizers, oils, heavy metals. Damage due to biological factors, such as predators for coral polyps, such as thousand feathers (*Acanthaster planci*), and coral reef-eating fish. Meanwhile, human-caused or anthropogenic damage includes, among other things, the use of fishing gear that endangers coral life, such as the use of muroami, explosives, toxic materials, coral mining, and residual waste, both from industrial and household activities on land. . This incident caused many coral reefs to be unable to recover from the damage and loss of national assets in the form of decreasing productivity and the diversity of marine biodiversity they have. According to a research report from the Research and Development Center for Oceanology (P3O) LIPI in 1996, out of 50,000 km² of coral reefs in Indonesia, only 5.3% of which are in excellent condition, 21.7% good, 33.5% moderate and The other 39.5% are in damaged condition[4]. Damage to coral reef ecosystems will indirectly affect changes in the structure and structure of social, economic and cultural life of fishing communities. Fishermen work in the business of aquatic animal resources, especially looking for fish as a source of life[5].

However, fishermen in the context of exploiting the potential of natural resources in coastal areas, either directly or indirectly, often damage coral reef ecosystems [1]. One of the reasons why fishermen, directly or indirectly, often damage coral reef ecosystems, is due to a lack of knowledge about coral reef ecosystems and the impact of their damage. In order to anticipate this, a strong foundation is needed and can be used as a guide for fishermen in managing coral reef ecosystem resources[6]. The management strategy does not only cover the use, maintenance, and development but also includes strong institutional and legal aspects that ensure sustainable management of coral reef ecosystems[7]. Besides that, the management of coral reef ecosystems must be directed at ecosystem management, where fishermen have an important role in the management. In this case, fishermen need to be equipped with knowledge and information about how to maintain the balance of coral reef ecosystems

2. RESEARCH METHOD

The method used in conducting this research is the mixed method, namely quantitative methods supported by qualitative data. In the quantitative method, namely by conducting experiments on 2 groups of subjects, namely the experimental group and the control group. Since the research hypothesis is an interaction hypothesis, the most appropriate design is the 2 X 2 factorial design [8]. The extension method

treatment variables were classified into demonstration methods and lecture methods, while the motivational attribute variables were successfully classified into strong and weak among fishermen in Padang Cermin sub-district, Pasawaran district. The population in this study were fishermen in Pasawaran District.

The sample was fishermen in Padang Cermin district. Determination of the sample is carried out in the following steps: (1) Determining the location of the research village randomly simple (simple random sampling) of coastal villages, in Padang Cermin District which has the same characteristics, (2) The selected village is then selected Randomly, as many as 90 fishermen to measure the level of motivation to succeed through a questionnaire that has been prepared, (3) Questionnaires that have been answered by the respondents are then evaluated by the researcher. The evaluation aims to find respondents who have strong success motivation and respondents who have weak success motivation. From the results of the evaluation, it was found that 60 fishermen (respondents) were the research sample, consisting of 30 respondents who had strong motivation to succeed and 30 respondents who had weak success motivation, (4) 30 respondents who had strong success motivation and 30 respondents who had success motivation Weak is then simple randomly drawn to occupy an extension class using the demonstration method or the lecture method. Data collection was carried out at the end of the implementation of counseling, through test sheets that were distributed to respondents.

The score is given for each test sheet, based on the number of items answered correctly[9]. The correct answer gets a score of 1 and a false 0. The scores obtained are arranged in tabular form. Knowledge data about the impact of damage to coral reef ecosystems in this study were obtained through a self-made instrument in the form of test sheets with multiple-choice questions. In this study, a package of the same instruments was used, namely measuring fishermen's knowledge about the impact of damage to coral reef ecosystems, both those with a strong motivation level and those with a weak success motivation level, both those who received counseling using the demonstration method or the lecture method. For qualitative data, the researchers conducted interviews with several fishermen, the Head of the Padang Cermin sub-district, the Head of Sanggit Village, the Community Social Institution (NGO) Caring for Environmental Reform, and Lampung Development and Maritime Potential Officials at the Indonesian Navy Base in Lampung.

3. RESULTS AND DISCUSSION

In general, this study shows that the demonstration method is better than using the lecture method, this can be seen from the table below. General research data can be seen in table 1,

Table 1. Description of Knowledge About Data Impact of Damage to Coral Reef Ecosystems

MOTIVATION SUCCESSFUL	MET. EXTENSION		DEMONST RATION METHOD (A1)	LECTURE METHOD (A2)	Σ
	n	x	s		
Strong (B1)	n		15	15	30
	x		26,27	22,07	24,1
	s		3,49	3,63	7
					4,10
Weak (B2)	n		15	15	30
	x		20,53	20,80	20,6
	s		3,41	3,32	6
					3,31
Σ	n		15	15	60
	x		23,4	21,43	22,4
	s		4,47	3,48	1
					4,09

Information:

n = Many samples

x = Average score of Knowledge on the Impact of Damage to Coral Reef Ecosystems

s = Standard deviation

The table above explains that the demonstration method is more successful than the lecture method. In the demonstration method with strong motivation (B1), the knowledge score on the impact of damage to coral reef ecosystems was 26.27, while in the lecture method the mean score of knowledge on the impact of damage to coral reef ecosystems was 22.07. Meanwhile, the motivation to succeed is weak (B2), it shows that the demonstration method, the mean score of the resulting data is 20.53, while in the lecture method the mean score of knowledge on the impact of damage to coral reef ecosystems is 20.80. motivation to study the impact of damage to coral reef ecosystems.

The results of data analysis with the two-way ANOVA score of knowledge about the impact of damage to coral reef ecosystems can be seen in table 2,

Tabel 2.
Results of the Two Pathways of Knowledge About Variance Analysis
Impact of Damage to Coral Reef Ecosystems

Sumber Variance	DF	JK	RJK	Fh	Ft	
					0,05	0,01
Between Rows (A)	1	183,75	183,	15,267		
Between Columns (B)	1	58,02	75	**	4	7,
Interaction (AxB)	1	74,82	58,0	4,82*	,	08
			2	6,216*	0	
			74,8		0	
			2			
Antar Kelompok	3	316,59	-	-	-	-
-----	--	-----	-----			
-	--		---			
Dalam Kelompok	-					
Total Direduksi	5					
-----	6					
-	5					
Rerata	9	-----				
Total	--	30150,417				
	--	31141				
	-					
	1					
	6					
	0					

*: Signifikan

** : Sangat signifikan

The results of the two-way ANOVA in Table 2 above show: (1) The null hypothesis (H0) which states that the average knowledge about the impact of damage to coral reef ecosystems provided by counseling using the demonstration method is not different from the lecture method is rejected ($F_h > F_t$). In other words, there is a difference between the average knowledge about the impact of damage to coral reef ecosystems for fishermen who are given counseling using the demonstration method with the lecture method; This difference is very significant, (2) The null hypothesis (H0) which states that the average knowledge of the impact of damage to coral reef ecosystems on fishermen who have strong motivation to succeed given counseling using the demonstration method is not different from the lecture method is rejected ($F_h > F_t$). In other words, there is a difference in the mean knowledge about the impact of damage to coral reef ecosystems on fishermen who have a strong motivation to succeed who are given counseling using the demonstration method with the lecture method. Problem formulation (3) The null hypothesis (H0) which states that the average knowledge about the impact of damage to coral reef ecosystems on fishermen who have weak motivation to succeed who are given counseling using the demonstration method is not different from the lecture method is rejected ($F_h > F_t$). In other words, there is a difference in the mean knowledge about the impact of damage to coral reef ecosystems on fishermen who have weak motivation to succeed who are given counseling using the demonstration method with the lecture method, (4) The null hypothesis (H0) states that there is no interaction between extension strategies and motivation. successful in its influence on knowledge of the impact of damage to coral reef ecosystems was rejected ($F_h > F_t$). Thus, it can be concluded that there is a significant interaction effect between extension strategies and successful motivation on knowledge of the impact of damage to coral reef ecosystems. The effect of the interaction between counseling and success motivation, and (5) The null hypothesis (H0) which states that there is no difference in mean knowledge about the impact of damage to coral reef ecosystems on fishermen who have strong motivation to succeed and fishermen who have weak motivation to succeed are rejected ($F_h > F_t$). In other words, there is a difference in the average knowledge about the impact of damage to coral reef ecosystems on fishermen who have a strong motivation to succeed with those who have a weak motivation to succeed.

Summary of Tukey Test Results

In connection with the difference between the effect of extension methods on knowledge of the significant impact of coral reef ecosystem damage, the analysis technique was continued with the Tukey test (Putrawan, 1990: 101-102). The results of the Tukey test calculations are shown in Table 3 below,

Table 3 Summary of Tukey Test Results

Sumber Variance	n	K	Dk	Fh	Ft	
					0,05	0,01
Demonstration << Ceramah	60	2	3 : 56	3,13*	2,78	4,46
Motivasi Succeed Strong	60	2	3 : 56	4,66**	2,78	4,46
Demonstration << Ceramah						
Motivasi Succeed Strong	60	2	3 : 56	0,3ns	2,78	4,46
Demonstration << Ceramah						
Motivasi Succeed Strong	60	2	3 : 56	5,57**	2,78	4,46
<<						

Information:

*: Significant **: Very significant ns: Nonsignificant

The results of the advanced analysis using the Tukey test in table 3 above show:

The first research hypothesis which states that the average knowledge about the impact of damage to coral reef ecosystems, as a whole for fishermen who are provided with counseling by the demonstration method is higher than the lecture method, is accepted. The mean score of knowledge about the impact of damage to coral reef ecosystems, as a whole for fishermen who were given counseling by the demonstration method = 23.4, was significantly higher than the lecture method = 21.43. The second research hypothesis which states that the average knowledge about the impact of damage to coral reef ecosystems, for fishermen who have strong motivation to succeed, overall the counseling given by the demonstration method is higher than the lecture method, is accepted. The mean score of knowledge about the impact of damage to coral reef ecosystems, as a whole, for fishermen who have a strong motivation to succeed, given the counseling by demonstration method = 26.27, which is significantly higher than the lecture method = 22.07. The third research hypothesis which states that the average knowledge about the impact of damage to coral reef ecosystems, for fishermen who have weak motivation to succeed, overall the counseling given by the lecture method is higher than the demonstration method, is accepted. The mean score of knowledge about the impact of damage to coral reef ecosystems, as a whole for fishermen has a weak motivation to succeed given the lecture method = 20.80 higher but not significant than the demonstration method = 20.53.

The fifth research hypothesis which states that the average knowledge about the impact of damage to coral reef ecosystems, for fishermen who have strong motivation to succeed overall is higher than fishermen who have weak motivation to succeed, accepted. The mean score of knowledge about the impact of damage to coral reef ecosystems, overall for fishermen has a strong motivation to succeed = 24.17, which is significantly higher than fishermen who have a weak motivation to succeed = 20.66. Interview with the Pasawaran District Fishermen's Group

Interview with a fishermen group with five fishermen in Pesawaran District. For information, in interviews conducted with fishermen groups in Pesawaran District, Lampung Province, fishermen groups knew and understood more about extension methods accompanied by direct demonstrations in the field. The fishermen group got more knowledge from the local government not to damage coral reefs but only limited to a prohibition from the local government and only explained that it was still limited to impacts when coral reefs were damaged but not followed by direct demonstrations. With extension research with demonstrations directly to the field, fishermen will better understand and understand more about the impact of coral reef damage on the life of coastal areas with the damage to coral reef ecosystems, the life cycle that exists around coral reefs is also disrupted and will eventually break the existing food chain. So that interviews conducted with fishermen groups with extension methods followed by direct demonstrations to fishermen groups have a direct advantage over the lecture method because counseling followed by direct demonstrations in addition to increasing fishermen's understanding and also has a direct effect on environmental preservation, recovery and will have an impact on increasing tourism in Pesawaran Regency, Lampung Province.

Interview with Lanal Lampung

Interview with one of the Dan Satma Lanal TNI AL Lampung officials, Captain Laut Koko. Interviews were conducted with Pak Kokom with questions on the appropriate extension methods carried out to fishermen in the Pesawaran district, Lampung about the impact of coral reef damage. In the interview that was conducted, Pak Kokom agreed that if the extension was carried out with direct demonstrations it was better in the field because according to him it would be easier for fishermen to understand. In addition, fishermen will also understand more about how to restore and conserve coral reef ecosystems and fishermen will also know the direct impact of damage to the coral ecosystem. coral which in turn will increase fishermen awareness of the importance of coral reef ecosystems. So that the interviews conducted at Lanal Lampung with extension methods followed by direct demonstrations to groups of fishermen have a direct advantage over the lecture method because counseling is followed by direct demonstrations besides increasing fishermen's understanding and also having a direct effect on environmental conservation and restoration of coral reef ecosystems.

Interview with the Head of Durian Village, Pesawaran District

Interview conducted with the head of the village of Durian, Pesawara Regency

planned to prepare tools such as bombs, cyanide, traps, muroami and boat anchors. These tools will later be used in outreach activities, where fishermen are shown frequently used objects that can damage the coral reef ecosystem, (b) Identify types of coral reefs that are often found in fishermen's areas where they live and operate fishing. This aims to determine the types of coral reefs that are good and damaged. Thus it can be shown to fishermen, which coral reefs are good and which coral reefs are damaged in their area.

Good coral reefs can be shown in terms of their margins, their uses and their beauty. Meanwhile, damaged coral reefs can be demonstrated and can be compared with good coral reefs. By knowing the types of coral reefs in terms of use, beauty and damage to corals that occur in the area, it is hoped that fishermen will be able to increase knowledge of the impact of damage to coral reef ecosystems, (c) Prepare extension plans using a demonstration method approach. demonstration method, is the ability to integrate a whole series of outreach from preliminary activities, core activities to closing activities. The extension program designer is expected to be able to integrate all extension skills, media, literature into demonstration method activities in an effort to achieve extension objectives, namely increasing fishermen's knowledge about the impact of damage to coral reef ecosystems, (d) Providing the necessary media and learning resources. Media and learning resources are tools for achieving the goals of an education or counseling. With the availability of these tools, it allows fishermen to be able to gain concrete, in-depth and broad learning experiences. With the demonstration method, fishermen can see and try for themselves the application of knowledge, find out the advantages and disadvantages of an innovation and show directly the effects of a treatment in the field. With the demonstration method, extension workers and those who were instructed were equally dominant during the extension process. Fishermen can see and touch coral reefs directly, as well as discuss problems and solutions that must be taken in an effort to overcome existing problems. From the description above, the role of media and learning resources is crucial in the success of the overall extension process. Thus the availability of media and learning resources needs to be maximized before extension is carried out, and (e) The

evaluation system is an important aspect in the implementation of extension as it relates to measuring the extent of the success rate of the extension process.

The evaluation system in question is a knowledge test of the impact of damage to coral reef ecosystems, which includes: shape, type, content of questions and scoring techniques. Evaluation must be based on a grid arranged as a whole that represents the extension material. By developing a knowledge evaluation system about

The impact of damage to coral reef ecosystems in accordance with the grid and extension materials developed proportionally, the bias from extension results can be avoided. Although overall the demonstration method is more effective than the lecture method, this study found an interaction between extension methods and fishermen's motivation to increase knowledge about the impact of damage to coral reef ecosystems. This shows that planning and development of extension programs also need to pay attention to the success motivation of fishermen as program recipients. For fishermen who have strong motivation to succeed, it will be more effective if the extension program uses the demonstration method, while for fishermen who have weak motivation to succeed, efforts are made to emphasize more on the use of the lecture method.

Efforts to Increase the Government's Role in Increasing Fishermen's Awareness in Conservation of Coral Reef Ecosystems

In connection with the results of this study, it implies that the extension program requires a government role in efforts to increase fishermen's awareness of the importance of the preservation of coral reef ecosystems. For planning extension programs using the demonstration method, important steps that must be taken by the government are: (a) Preparing field extension workers with the skills / skills related to demonstration methods, so that when they have to manage the extension process, they can develop and apply according to the stated goals and plans, (b) Increase in sufficient budget funds in an effort to support extension activities related to increasing fishermen's awareness of the importance of the preservation of coral reef ecosystems throughout Indonesia. Thus all extension program planning can be carried out properly, (c) Increasing the welfare of extension workers, thus providing a separate motivation in carrying out extension activities for fishermen, in coastal villages throughout Indonesia, (d) Increasing the implementation of supervision of extension policies implemented, both at the policy level, budget use and implementation of outreach in the field. Thus fraud can be avoided so that government objectives related to efforts to increase fishermen's awareness of the importance of the conservation of coral reef ecosystems can be realized, and (e) Implementation of Law no. 22 of 1999, concerning Autonomous Regional Government, is a paradigm shift in development that changes the position and authority of local governments in managing the rights and obligations of their regions, including natural resources. In a situation like this, the capability of the local government should be seen as an opportunity and opportunity in managing and conserving natural resources, including coral reef ecosystems.

Efforts to Improve the Role of Fishermen in Conservation of Coral Reef Ecosystems

The role of fishermen in the preservation of coral reef ecosystems, among others: (a) Willing to take part in the whole series of outreach activities on the impact of damage to coral reef ecosystems, (b) Trying to understand the content of the material and explanations given by extension agents about the impact of ecosystem damage coral reefs, (c) Applying properly to materials received during outreach. For example, not looking for fish using bombs, cyanide, traps, muroami and boat anchors because these tools can cause damage to coral reef ecosystems, (d) Disseminate information to other people, especially fellow fishermen, of the importance of coral reef ecosystems and the impacts they cause. as well as the efforts that must be made to improve the quality and preserve the coral reef ecosystem, and (e) Become a pioneer and role model in protecting and preserving the coral reef ecosystem in the region.

Efforts to Increase the Role of Extension Officers in Order to Increase Fishermen's Knowledge of the Impact of Damage to Coral Reef Ecosystems

The role of the instructor in the learning process includes: (a) Facilitator; It is hoped that extension agents can become a learning resource that provides guidance and direction for fishermen to be more active in efforts to increase knowledge about the impact of damage to coral reef ecosystems. The extension worker must prepare himself well for each extension activity, both in preparing the extension material and the media to be used, in order to be able to control the classroom atmosphere well. Extension workers must increase their knowledge and skills through formal channels, as well as informal channels in the form of courses and seminars, as well as information through the latest reading through media related to teaching materials. In addition, strong physical and mental readiness is required, so that they are able to perform excellently in every extension activity, (b) Organizers; extension workers must be able to manage all the potential that exists in the existing learning process from initial preparation to the end of all extension activities, and (c) Motivators; Extension officers must be able to motivate fishermen to be more active in participating in all series of extension services. Fishermen are willing to spend time in participating in a series of activities, so that the objective of extension is to increase knowledge about the impact of damage to coral reef ecosystems.

Interview Results as Supporting data

From the results of interviews that have been conducted with the fishermen group, Lanal Lampung, Village Head Representatives, and Darmawangsa NGOs. In the interviews conducted, all informants agreed with the demonstration extension method rather than using the lecture method. This proves that the method used by the demonstration method is easier for fishermen to understand about the impact of damage to coral reef ecosystems because in this introduction the researchers directly used props directly in the field and were immediately shown the types of damaged coral reefs and their impact on the fishermen themselves. Also, the informants also stated that this research needs further supervision with programs that have been started so that the fishing community not only understands and understands the damage to the coral reef ecosystem but also applies it in their daily life. This research is very influential on the knowledge of fishermen in understanding the impact of damage to coral reefs, which is not only damaging to coastal ecosystems but more broadly its impact on the life cycle of marine life which will eventually lead to the loss of fishermen's livelihoods in fishing.

CONCLUSIONS

Based on the data obtained, the results of hypothesis testing, and discussion of the research results, it can be concluded that:

1. Knowledge of the impact of damage to coral reef ecosystems as a whole for fishermen who are provided with extension by demonstration methods is higher than the lecture method
2. Knowledge of the impact of damage to coral reef ecosystems for fishermen who have strong motivation to succeed, extension using demonstration methods is higher than lecture methods,
3. Knowledge of the impact of damage to coral reef ecosystems for fishermen who are motivated to succeed is weak, extension using the lecture method is higher than the demonstration method.
4. There is a significant interaction effect between extension methods and motivation to succeed, on knowledge about the impact of damage to coral reef ecosystems,
5. Knowledge about the impact of damage to coral reef ecosystems on fishermen, as a whole for those who have a strong motivation to succeed is higher than the motivation to succeed is weak.

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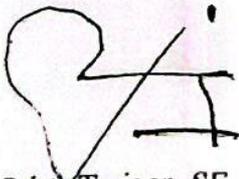
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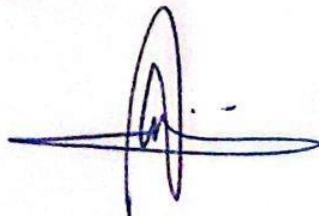
No	Aspek	Uraian/Komentar Penilaian
1	Indikasi Plagiasi	TIDAK
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II. Hasil Penilaian Peer Review:

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah (isi kolom yang sesuai)					Nilai Akhir Yang Diperoleh
	Internasional Bereputasi	Internasional	Nasional Terakreditasi	Nasional Tidak Terakreditasi	Nasional Terindex DOAJ dll.	
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Kecukupan dan kemutakhiran data/informasi dan metodologi	MUTAKHIR DAN METODOLOGI SESUAI
Kelengkapan unsur dan kualitas Penerbit	PENERBIT DAN KELENGKAPAN BAIK .

Jakarta,
 Penilai II



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