



# Prepare a Roadmap for Community Service in Education

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**Abstract.** This study aims to develop a community service roadmap that meets the acceptability criteria: usability, feasibility, and accuracy. This research is development research with research procedures referring to the ADDIE. The data obtained were analyzed qualitatively and quantitatively to measure the usefulness, feasibility, and accuracy. Based on the results and discussion, conclusions can be formulated as follows: 1) the results of the need assessment indicate that it is necessary to develop a community service roadmap to guide, direct and improve a community service roadmap on educational science, 2) a community service roadmap that has been developed has met the acceptability criteria, namely beneficial, feasible, and appropriate, 3) a community service roadmap that has been developed can direct and become a guide for the entire education faculty academic community in particular to meet the standards of performance of community service, both lecturers and students.

**Keywords:** Community Service · Education · Roadmap

## 1 Introduction

Community service is a sequence of education and research tied to the tri-dharma of higher education [1]. Philosophically, community service is a concrete manifestation of the application of science (axiology) which is cyclical or feedback, so that if it is carried out properly, correctly, systematically, and consistently (according to the road map and strategic plan), then the result is not only empowering and emancipating the community and strengthening the nation's competitiveness but will further build (construct) and strengthen education and research [2].

Ideally, community service is carried out in a planned, consistent and sustainable manner to produce clear outcomes for higher education institutions, both in the internalization and institutionalization of science and technology as well as the commercialization of innovations, both in the development of education and research, both in the integration of science. And institutional collaboration [3]. A planned, consistent and sustainable community service, both in science, approach, target, and location, is believed to have a natural multiplier effect on the empowered community. Adapting empowerment or community development strategies, planned, consistent, and sustainable community

service is a prerequisite for developing an authorized and independent community, which not only proves the function of the tri dharma but attaches higher education institutions to all dimensions of society [4].

The Faculty of Education, Universitas Negeri Surabaya, already has a research roadmap for 2021–2025 [5]. The research roadmap of the Faculty of Education is a strategic formulation in determining the direction and policy of research at the Faculty of Education, Universitas Negeri Surabaya, to increase the role of research to support the achievement of the vision of the Universitas Negeri Surabaya and the Main Performance Indicators of Higher Education. As a follow-up and an application of the research results, it is necessary to follow up by compiling a roadmap for community service at the Faculty of Education, Universitas Negeri Surabaya. The roadmap for community service at the Faculty of Education is a milestone of community service activities at the Faculty of Education for a certain period carried out by researchers, both mono, multi, and intra/inter-disciplinary [6].

Research on the development of this community service roadmap is beneficial for the Faculty of Education; this roadmap will be used as a reference for achieving the goals [7] of community service to be completed by the Faculty of Education. Regarding accreditation activities, one of the essential points that must be stated in the accreditation form is the faculty's strategic plan. Research on the community service roadmap of the Faculty of Education is an integral part of the faculty's strategic plan; the academic manuscripts produced from this community service roadmap can be used as a source of data and reference in preparing the faculty strategic plan. This community service roadmap compiled is intended to be the basis and respect for the academic community at the Faculty of Education Universitas Negeri Surabaya to carry out community service activities that are expected to increase the efficiency and quality of community service activities.

Roadmaps were quite popular in the US in the late 1990s and are currently growing in Europe [8]. Initially, the roadmap was applied to the technology roadmap as a strategic approach to planning the future of technology in various sectors, such as learning design [9], research [10], and Cloud Computing [10]. The main benefit of a technology roadmap is that it provides information to make better investment decisions by identifying critical technology and technology gaps and ways to increase research and development investment to open new frontiers in the area.

According to several authors, a roadmap is a good plan [9, 11]. A roadmap is a foresight into a chosen field of inquiry consisting of brilliant knowledge and imagination that drives change in a given area [12]. Some examples of roadmaps: are research roadmaps, industry roadmaps, technology roadmaps, and product roadmaps.

## 2 Method

This research includes development research, namely developing a community service roadmap that is a reference at the Faculty of Education, Universitas Negeri Surabaya. This study adapts the ADDIE approach, which is commonly used in developing educational programs with five stages: Analyze, Design, Develop, Implement, and Evaluation [13], the framework of this research procedure is described as follows.

## **2.1 Needs and Potential Analysis Stage**

Searching for the results of internal community service that has been carried out by lecturers and students around the Faculty of Education, Universitas Negeri Surabaya as potential and identifying needs, studies on the strategic plan of the Universitas Negeri Surabaya and the Vision and Mission of the Faculty of Education, as well as studies on trends in community service in Indonesia. Faculty of Educational Sciences in the present and the future through FGDs with stakeholders and education experts.

## **2.2 Prototype Design Stage**

Reviewing national and global strategic issues as well as community service in the field of education as external considerations in making prototypes by a. determining the goals of community service at the Faculty of Education based on needs analysis; b. establish a baseline for community service at the Faculty of Education; c. determine the stages of achieving community service goals in education science; and d. establish a strategy for attaining community service goals at the Faculty of Education, which is the basis for the prototype roadmap for community service at the Faculty of Education, Universitas Negeri Surabaya. Then proceed with validation with experts and resource persons regarding the strategic issues mentioned above, followed by reflection and revision to refine the prototype design of the community service roadmap.

## **2.3 Roadmap Development Stage**

Conduct discussions and validations regarding the scope and feasibility of all components in the prototype roadmap with all management organs of the Faculty of Education, the Senate Council, and the Board of Professors within the Faculty of Education. Discuss targets at each agreed time stage.

## **2.4 Implementation and Socialization Strategy Design Stage**

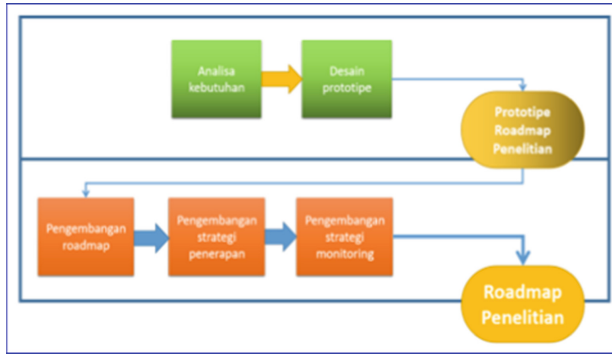
Develop a strategic design for implementing the community service roadmap and its socialization in the scope of faculties, universities, and the wider community (dissemination through seminars/conferences/article writing).

## **2.5 Implementation and Socialization Strategy Design Stage**

Completing the community service roadmap with a monitoring plan to evaluate the implementation of the community service roadmap, Faculty of Education, Universitas Negeri Surabaya.

The stages of research implementation can be described as shown in Fig. 1.

This research was conducted in Surabaya from May to November 2021. The instrument used in this research is an instrument in the form of a questionnaire for expert validation or input in each stage of its development. The instrument used is a rating scale questionnaire about usability, feasibility, and product accuracy. This scale is to collect expert opinions about product acceptability. The data are basically in the form



**Fig. 1.** Roadmap Development Flowchart

of (1) quantitative data, obtained using the instrument given during validation, and (2) qualitative data, obtained from input from experts or potential users. The data obtained were analyzed quantitatively and qualitatively.

Data analysis was carried out both quantitatively and qualitatively. Quantitative data were analyzed by statistical analysis. Meanwhile, qualitative data from comments, suggestions, and criticisms were analyzed qualitatively. Qualitative data are presented as input to be considered for revision and improvement of the developed community service education roadmap.

## 3 Result and Discussion

### 3.1 Need Assessment Results

Needs assessment is intended to produce a set of knowledge about the roadmap for community service at the Faculty of Education at the State University of Surabaya Universitas Negeri Surabaya and Indonesia. Need assessment is done by searching on the internet, looking at existing community service roadmap documents, and distributing instruments to the Head of the District and various parties to obtain input on the roadmap that will be compiled. The needs assessment results were analyzed, and a theoretical study was carried out to find a better framework for the roadmap for community service. Furthermore, the results of data collection were analyzed qualitatively and quantitatively descriptively. The results of the analysis are in the form of conclusions which are descriptive information, which is then used as the basis for theoretical and conceptual studies through literature review.

The need assessment was carried out by distributing questionnaires on the needs of the community service roadmap of the Faculty of Education to a total of 52 respondents. The results of the data show that 56.8% of respondents stated that the community service roadmap of the Faculty of Education is necessary to guide, direct and improve community service regarding educational science, which in turn can clarify and enhance the existence of the Faculty of Education. Respondents also stated that it is necessary to develop a roadmap for community service at the Faculty of Education for 2022–2026, which is by

the needs and developments of the times, community service at the university's flagship, and community service from the Directorate of Research and Community Service.

Based on the needs assessment above, it can be concluded that it is necessary to develop a community service roadmap of the Faculty of Education that can guide, direct and improve community service at the Faculty of Education, which in turn can clarify and improve the existence of science in the Faculty of Education.

### 3.2 Product Development Results

The final product of this development research is an academic paper roadmap of community service at the Faculty of Education. The development of an academic paper on the roadmap for community service at the Faculty of Education based on relevant literature, including 1) [8] in A Roadmapping Methodology for Strategic Research on VO, In collaborative networked organizations, and [14]. Philosophy of Educational Knowledge: An introduction to the foundations of the science of education, philosophy of education, and practical pedagogics. And [15]: Policy cycles and policy subsystems. Based on these references, a community service roadmap of the Faculty of Education was developed, which contains a description of a) Introduction, b) Roadmap Development Foundation, c) Roadmap Outline, d) Targets, Strategic Programs, and Performance Indicators, e) Roadmap Implementation, f) Closing.

This community service roadmap was developed with a development pattern adapting the ADDIE approach commonly used in developing educational programs with five stages: Analyze, Design, Develop, Implement, and Evaluation [13]. The first stage of the ADDIE approach is the analysis of needs and potential for community service at the Faculty of Education. The search is carried out through the identification of potential and identification of needs, studies of the Unesa strategic plan and strategic plans of the Unesa Faculty of Education, as well as studies of trends in community service at the Faculty of Education in the present and future with stakeholders and Educational Science experts. The search was carried out by tracing documents in the Faculty of Education using interviews and a questionnaire on the needs of the community service roadmap at the Faculty of Education. The stages of implementing community service using the ADDIE approach are described as follows.

The second stage is the prototype design stage. At this stage, what is done is to examine national and global strategic issues, as well as research voids in the field of Educational Sciences, as external considerations in making prototypes by a. determining the goals of community service based on needs analysis; b. establish a baseline for community service; c. determine the stages of achieving community service goals; d. establish a strategy for attaining community service goals, which is the basis for a prototype roadmap for community service at the Faculty of Education, Universitas Negeri Surabaya. Then it was continued by validating with experts and resource persons related to the strategic issues mentioned above, followed by reflection and revision to improve the academic text of the roadmap for community service at the Faculty of Education.

The third stage is the development of a community service roadmap for the Faculty of Education. At this stage, discussions and validations were carried out regarding the scope and feasibility of all components in the prototype roadmap for community service with all leadership organs, the senate, and professors within the Faculty of Education.

So, various inputs are obtained from multiple parties before the academic manuscripts compiled are legalized and enforced at the Faculty of Education.

Furthermore, socialization is carried out within the faculties, universities, and the wider community, through various meetings such as seminars, conferences, websites, and others. The last stage is the monitoring stage, which is the stage to determine the implementation of the use of the community service roadmap, Faculty of Education, Universitas Negeri Surabaya. In this year's research, the last two stages, namely the socialization and monitoring stages, have yet to be carried out and will be carried out in 2022 after the community service roadmap of the Faculty of Education is ratified and enforced.

### 3.3 Expert Test Results (Acceptability Test)

The expert who assessed the product developed was Prof. Dr. Siti Masitoh, M.Pd., Prof. Dr. Yatim Riyanto, M.Pd., Prof. Dr. Mustaji, M.Pd. and Prof. Dr. Wahyu Sukartiningsih, M.Pd. all four of which meet the requirements criteria as expert test subjects as stated in chapter IV. This expert test is intended to test the level of acceptability of the service roadmap to the Faculty of Education, Universitas Negeri Surabaya, according to experts, and to obtain scientific feedback on the shortcomings of the roadmap.

#### (a) Quantitative Data

Quantitative data is obtained from expert assessments based on the contents of a product development questionnaire instrument concerning a rating scale of 0–5. This rating scale is an acceptability measurement tool with three assessment indicators covering utility, feasibility, and accuracy. The acceptability rating scale as a result of the expert assessment is described as follows.

- Expert assessment of utility indicators

The usability indicators are detailed on the usefulness of the roadmap as a reference for community service at the Faculty of Education, Universitas Negeri Surabaya, for increasing the productivity of community service, growing innovations, accommodating superior community service, in supporting and strengthening the implementation of the community service process. The results of the assessment of usability indicators, the four experts considered that the community service roadmap of the Faculty of Education that was developed was helpful to be applied in the Faculty of Education, Universitas Negeri Surabaya. The results of this assessment refer to Table 1, which shows that the average score of the expert's review is 4.39. Suppose these results are consulted with the criteria. In that case, these results are declared very useful so that the roadmap for community service at the Faculty of Education can be further developed to be ratified in the Senate of the Faculty of Education, Universitas Negeri Surabaya, as an official document for the roadmap for community service at the Faculty of Education.

- Expert assessment of feasibility indicators (feasibility)

The assessment of the feasibility indicators of the community service roadmap of the Faculty of Education includes aspects of practicality and effectiveness. In the practical element, the four experts considered that the developed roadmap for community service at the Faculty of Education was beneficial in its implementation. Meanwhile, in assessing the efficiency aspect of performance, the four experts considered that the energy needed to carry out this activity was relatively small, the time used was sufficient, and it did not cost much money. Based on the assessment results, it was concluded that the roadmap for community service at the Faculty of Education was efficient in its implementation. In detail, the results of the expert assessment scores on the feasibility indicators are presented in Table 2. The table shows the average value of the four experts is 4.47. The average score of the four experts compared to the criteria for the feasibility aspect shows that the developed community service roadmap model of the Faculty of Education is included in the feasible category.

- Expert assessment of accuracy indicators (accuracy)

The assessment of the accuracy indicator is based on two sub-indicators, namely, the object's accuracy and the formulation of objectives and procedures. Based on Table 3, From this, it can be seen that the average accuracy aspect is 4.33. By looking at the average accuracy assessment scores from experts and the classification of scores on the accuracy aspect, it can be seen that the community service roadmap developed is included in the correct category.

(b) Qualitative Data

Successively presented summaries of expert input on the draft roadmap for community service at the Faculty of Education that has been prepared, including writing, substance, objectives, as well as pictures and diagrams. Qualitative data was obtained through questionnaires. Based on the data obtained through the questionnaire, a revision was made to the developed community service roadmap of the Faculty of Education.

Also presented below are additional inputs obtained from users obtained during focus group discussions with the heads of departments and members of the Senate of the Faculty of Education, and revisions have been made to the roadmap of community service of the Faculty of Education that was developed (Table 4).

## 4 Discussion

The results of the need assessment show that 58.68% of respondents stated that the community service roadmap of the Faculty of Education is essential to guide, direct and improve community service regarding educational science, which in turn can clarify and enhance the existence of the Faculty of Education. Respondents also stated that the community service roadmap of the Faculty of Education that had been prepared, namely the 2016–2020 community service roadmap, needed to be revised according to the needs and developments of the times as well as community service at the university's flagship.

**Table 1.** Results of Expert Assessment on Product Usability Aspects

No.	Assessment Aspect	Rating Score				Total
		Expert 1	Expert 2	Expert 3	Expert 3	
1.	The usefulness of the roadmap as a reference for community service at the Faculty of Education, Universitas Negeri Surabaya	4	5	5	4	18
2.	The usefulness of the community service roadmap at the Faculty of Education for the academic community	3	5	5	4	17
3.	The usefulness of the community service roadmap at the Faculty of Education for increasing the productivity of community service	3	5	5	5	18
4.	The usefulness of the community service roadmap at the Faculty of Education for increasing community service innovations	3	5	5	5	18
5.	The usefulness of the community service roadmap at the Faculty of Education as a reference for community service	3	5	5	5	18
6.	The usefulness of the community service roadmap at the Faculty of Education in accommodating excellent research	3	5	5	4	17
7.	The usefulness of the community service roadmap at the Faculty of Education in supporting and strengthening the implementation of the research process	3	5	5	4	17
	Total	20	35	35	31	123
	Average	2,85	5	5	4,43	4,39

Based on the analysis of data from experts and users of the community service roadmap developed, it can be described as follows.

The preparation of the roadmap for community service at the Faculty of Education was compiled by a small team and then validated by experts and users. The process of developing a community service roadmap is in line with the opinion of [16, 17], which states that the preparation of a community service roadmap does not need to be carried out by all members, but is carried out by a team of experts who have foresight, are imaginative and intelligent. Likewise, the process of compiling the community service roadmap of the Faculty of Education is in line with the opinion, which states that the process of collecting the community service roadmap includes identifying, evaluating, and selecting strategic alternatives that can use to achieve the desired goals. The resulting roadmap is communicated to users [18].



**Table 2.** Results of Expert Assessment on Product Accuracy Aspects

No.	Assessment Aspect	Rating Score				Total
		Expert 1	Expert 2	Expert 3	Expert 3	
1.	The accuracy of the roadmap, if applied at the Faculty of Education	4	5	5	5	14
2.	The accuracy of the objectives of the developed roadmap	5	4	3	4	15
3.	The accuracy of the roadmap steps for community service, Faculty of Education	5	3	4	4	14
4.	The accuracy of the formulation of the outline of the roadmap for community service, Faculty of Education	4	4	4	4	12
5.	The accuracy of the material discussed in the community service roadmap	4	4	5	5	13
6.	Timeliness used in the community service roadmap of the Faculty of Education	4	4	4	5	12
7.	The accuracy of the stages in the community service roadmap of the Faculty of Education	5	4	4	4	12
8.	The accuracy of the evaluation and follow-up in the community service roadmap of the Faculty of Education	4	4	4	4	12
9.	The accuracy of the formulation of procedures in the community service roadmap of the Faculty of Education	5	4	4	4	12
	Total	40	36	37	39	116
	Average	4,44	4	4,11	4,33	4,22

This development research has produced an academic paper on the roadmap of community service Faculty of Education. The development of academic writing on the roadmap of community service Faculty of Education based on relevant literature includes [8] in A Road mapping Methodology for Strategic Research on VO, in collaborative networked organizations, and [14]. Philosophy of Educational Knowledge: An introduction to the foundations of the science of education, philosophy of education, and practical pedagogics [15]. Studying public policy: Policy cycles and policy subsystems.

Based on this reference, a roadmap for community service at the Faculty of Education was developed, which contains a description of a) an Introduction, b) a Basis for the Development of a Research Roadmap, c) an Outline of the Roadmap, d) a Targets,

**Table 3.** Expert.suggested revisions 1, 2, 3 and 4

No	Suggested Revision	What researchers do
<b>1. On the aspect of writing</b>		
	a. Arrangement in the use of sentences b. Grammar correction c. Consistency of writing roadmap d. The use of terms needs a lot of improvement e. Writing character 2022–2026 f. The cover design needs to be made interesting	Improvements were made to writing grammar, consistency in roadmap writing, year, Faculty of Education, Universitas Negeri Surabaya, as well as improvements to the cover
<b>2. On the aspect of the substance of the content</b>		
	a. need to be included in the scientific roadmap of education science b. statistical data on the number of lecturers and the cost of community service need to be observed c. improvements in the SWOT analysis d. It is necessary to pay attention to the suitability of the theme with the major e. Need to describe the process of increasing understanding of community service methodologies f. It is essential to define the realization of a community service roadmap toward the vision of the Faculty of Education	<ul style="list-style-type: none"> <li>• The data on the number of lecturers and the cost of community service has been corrected</li> <li>• Fixed SWOT analysis</li> <li>• A roadmap has been drawn up</li> </ul>
<b>3. On the aspect of goals</b>		
	No input regarding the destination	The goal is as expected
<b>4. On the aspect of drawings and diagrams</b>		
	Need a roadmap chart for community service, Faculty of Education	The roadmap chart for community service at the Faculty of Education has been included

Strategic Programs, and Performance Indicators, e) Implementation of the Roadmap, f) Closing. The level of acceptability of the developed roadmap is based on three indicators, namely, aspects of usability (utility), feasibility (feasibility), and accuracy (accuracy). To obtain the level of acceptability, expert tests and user tests were carried out. The results of expert and user assessments are realized on quantitative and qualitative data, which are explained as follows.

Community service Faculty of Education. The results of the assessment on the usability aspect show that the community service roadmap developed is beneficial, especially as a reference for community service at the Faculty of Education, for increasing the productivity of community service, for increasing innovations, in facilitating excellent

**Table 4.** User.suggested revision

No	Suggested Revision	What researchers do
<b>1. On the aspect of writing</b>		
	a. I was writing corrections and corrections. b. Writing consistency 2022–2026	Revised the writing system, and consistency in the writing year
<b>2. On the aspect of the substance of the content</b>		
	a. It is necessary to add a theme of community service to the department and the roadmap of each department b. A circular is needed from the dean; each lecturer needs to make a roadmap for community service c. It is also necessary to prepare a community service roadmap	<ul style="list-style-type: none"> <li>• The theme of community service in the department has been added</li> <li>• The dean’s circular regarding the roadmap of each lecturer is made</li> <li>• Development of a community service roadmap for the Faculty of Education designed in 2021</li> </ul>
<b>3. On the aspect of goals</b>		
	No input regarding the destination	The goal is in line with expectations
<b>4. On the aspect of drawings and diagrams</b>		
	Need a roadmap chart for community service, Faculty of Education	The Roadmap chart for community service at the Faculty of Education has been included

community service, in supporting and strengthen the implementation of the community service process. The assessment results show that the average score for the evaluation from the experts is 4.39. These results, when consulted with the criteria developed in community service, indicate that the community service roadmap of the Faculty of Education that was created is beneficial so that the roadmap for community service at the Faculty of Education can be further developed to be ratified in the Senate of the Faculty of Education as an official document for the roadmap.

The assessment results on the feasibility aspect show that the community service roadmap of the Faculty of Education meets the feasibility aspect. Based on the expert’s assessment results, it can be concluded that the community service roadmap of the Faculty of Education that was developed is included in the appropriate category, with an average score of 4.47. Compared with the criteria set, this score is included in the feasible category. The results of this study are in line with the opinion of [8]; the feasibility of the roadmap consists of three main components: (1) compiling a baseline of the current condition, (2) the desired vision or “future,” and (3) a series of structured actions to achieve the vision.

The assessment of the accuracy indicator is based on two sub-indicators, namely, the object’s accuracy and the formulation of objectives and procedures. The expert’s assessment results show that the average aspect of accuracy is 4.33. By looking at the average accuracy assessment scores from experts and the classification of scores on the accuracy aspect, it can be seen that the developed community service roadmap of the

Faculty of Education is included in the correct category. The results of community service show that the roadmap prepared is appropriate, by the opinion of [16, 17], which states the purpose of the community service roadmap is to outline a community service agenda that will guide the development of specific community service programs that will be carried out, both within and across disciplines, to provide answers to current scientific questions, reduce scientific uncertainty, and provide a solid scientific foundation for future policy development.

Meanwhile, based on data in the form of suggestions and input on the community service roadmap of the Faculty of Education that experts and users developed, revisions and improvements have been made to the community service roadmap of the Faculty of Education that was compiled. Suggestions, inputs, and modifications can be summarized as follows. 1) arrangement in the use of sentences, 2) correction of writing, 3) consistency of roadmap writing, 4) consistency of writing for 2022–2026, 5) cover design needs to be made attractive, 6) scientific roadmap needs to be included in education, 7) statistical data the number of lecturers and the cost of community service needs to be observed, 8) improvements in SWOT analysis, 9) need to be observed suitability of themes with majors, 10) need to describe the process of increasing understanding of community service methodologies, 11) need a roadmap chart for community service, Faculty of Education, 12) it is also necessary to develop a community service roadmap.

Based on the results of this study shows that the community service roadmap of the Faculty of Education that has been compiled meets the acceptability criteria and is effective in guiding, directing, and improving community service at the Faculty of Education, which in turn can clarify and improve the existence of the Faculty of Education.

## 5 Conclusion

Based on the results and discussion, the following conclusions can be formulated.

- a. Based on the need's assessment above, it can be concluded that it is necessary to develop a community service roadmap for the Faculty of Education to guide, direct and improve community service regarding educational science, which in turn can clarify and enhance the existence of Educational Sciences.
- b. The community service roadmap of the Faculty of Education that has been developed has met the acceptability criteria, namely beneficial, very feasible, and very appropriate.
- c. The community service roadmap of the Faculty of Education that was developed can direct and become a guide for the entire academic community of the Faculty of Education, in particular, to meet the standards of performance feasibility and performance of community service, both lecturers and students.

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