Innovation of E-Assessment Project I'm Citizens Based on Web App Using Naive Bayes Method to Measure Patriotic Spirit of Students

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Abstract. Citizen Project I in Civics learning is oriented towards fostering students' patriotic spirit. However, the team's identification through observation shows the fact that the patriotic spirit of students in the Civics Department of Social Sciences, Medan State University is still categorized as low, which is manifested by the average value of student patriotic spirit of 55.40/ 100 from a total of 62 samples. From this reality, the research team came up with the innovative idea of the I'm Citizens Project E-Assessment to measure students' patriotic spirit based on a web app using the Naive Bayes method. The research was carried out using the ADDIE method approach (analysis, design, development, implementation, evaluation). Through this innovation idea, it is intended to develop digital assessment innovations in measuring the extent to which students' patriotic enthusiasm is designed in an interesting and measurable way.

Keywords: Assessment, Naive Bayes Method, Patriotic Spirit

1 Introduction

Our devotion, loyalty, and service to this nation and state are the crystallization of the manifestation of our patriotic spirit as Indonesian citizens. Love, devotion, and concern for local wisdom shown in the form of thoughts and actions are patriotic (1). All elements in the country of Indonesia must be able to embody civic awareness and civic participation to realize a high patriotic spirit, including the element of education through higher education. In The 12th International Conference on Lesson Study, Masrukhi explains in the background of his writing entitled "College and Character Education" that higher education has a role to develop the potential of students so that they have a spirit of patriotism in the life of society, nation and state (2). Zheng in his writing said that higher education must also be able to produce a curriculum that can develop the potential of students, one of which is an attitude of patriotism (3).

Medan State University (UNIMED) itself has the tagline "The Character Building University" which means that the campus prioritizes efforts to realize students or alumni with character. In addition, UNIMED has also set one of the research focuses in the field of education, one of the superior indicators of which is to be a reference in developing a curriculum based on character building and its development, this was conveyed by Prof. Dr. Syawal Gultom, M. Pd in his presentation on December 27, 2023, the socialization of the research and community service guidebook in the UNIMED environment in 2024. Thus, the issue of the spirit of patriotism is very eligible to be used as a research focus by the research team in an effort to identify and educate the spirit of patriotism of students as good and intelligent citizens and academics.

The research team has conducted initial observations through online survey activities (January 4, 2023) using the Google Forms platform as a data collection tool, where students of the PPKn Department, Faculty of Social Sciences, State University of Medan (FIS UNIMED) class of 2022 were selected as samples. Using a purposive sampling technique, the number of samples was 62 students. Using 4 indicators of patriotism attitudes, namely loyalty, courage, willingness to sacrifice, and love for the nation and country which were adapted according to Rashid in (4). The survey results as shown in Figure 1, show an average value of students' patriotism attitudes of 55.40 with a maximum scale of 100, and are categorized as "less". In addition, a fairly high standard deviation of 429.28 indicates a high standard deviation so that there is a large variation in scores from the average. This could mean that there is a significant difference in patriotism attitudes between students. Some students may have very high attitudes, while others have very low attitudes. This means that not all students' patriotic attitudes are considered lacking because some are considered good or very good, but on average they are considered lacking.

In the PPKn FIS UNIMED department, the object of study in each course based on KDBK values, morals, and education if examined epistemologically civics (the scientific discipline of PKn) then there is a scientific nomenclature called project i'm citizens which originated from the citizenship education program in the United States to increase awareness of American citizenship and their love for the homeland or high patriotic attitudes. PKn in Indonesia adopted the program with the term project citizens as a special PKn learning method that emphasizes critical thinking skills. The critical thinking skills in question are of course oriented to the basis and direction of PKn reconstruction, one of which is patriotism or a sense of nationality and love for the homeland, as conveyed by Udin S. Winataputra that substantively-pedagogically PKn aims to form students who have a high patriotic attitude (sense of nationality and love for the homeland) (5).

In reality, there is still no interesting and inherent assessment with the conceptualization of the i'm citizens project that is oriented towards patriotism. So far, portfolio assessment techniques have been used which have weaknesses such as low levels of assessment reliability, assessment criteria that are still unclear, a tendency towards the results alone without looking at the assessment process and requiring extra time to complete (6). This is the researcher's identification and at the same time a causal factor why initial observation data was obtained which showed that there was still a lack of patriotism among students in the PPKn FIS UNIMED department of the 2022 intake. So the problem found in this study is how low the spirit of patriotic attitudes of students is due to the i'm citizens project assessment which still has various weaknesses as explained previously.

For that, it needs refreshment or innovation to answer the problem of the I'm Citizens project assessment above which has an impact on the lack of patriotic spirit of students. This is where researchers take the initiative to develop an innovation of the I'm Citizens project e-assessment to measure the patriotic spirit of students based on technology or web apps. The use of technology will have a positive impact on the assessment process that focuses on improving student competence and can identify the location of student competence deficiencies (7). With technology, assessments carried out in education will be more efficient (8). Through technology, assessments will be effective in diagnosing the development of student competence (9).

The innovation that researchers will develop is the innovation of the i'm citizens project e-assessment based on a web app by utilizing the naive bayes method as an expert method that will be embedded in the e-assessment web app so that the designed web app is able to diagnose and educate the level of student patriotism. That way, the i'm citizens project e-assessment to measure student patriotic spirit will be more interesting, the assessment process is clear, the assessment measures are clear, and flexible. Through this innovation, it will also have a positive impact on the quality of "Collaborative and Participatory Classes" in the PPKn department according to the 7th IKU UNIMED, later it can be an idea for every lecturer in KDBK values, morals, and education to be able to utilize the innovation product as their lecture tool, and have a positive impact on the achievement of the performance targets of the PPKn department and the Faculty of Social Sciences UNIMED in order to improve the quality of the curriculum and learning.

2 Method

This study focuses on the development and implementation of an e-assessment innovation Project I'm Citizens Based on Web App using the Naive Bayes method to measure students' patriotic spirit. Therefore, development research is very suitable to be applied, namely Analyze Design, Development, Implementation, and Evaluation (ADDIE) to "see the extent to which the usefulness of the application designed as a learning tool has developed" (10). This research was conducted at the PPKn Department, Faculty of Social Sciences, State University of Medan. This location was chosen as the initial space and readiness of the technology design that was tested for the success level of the E-Assessment Innovation Project I'm Citizens Based on Web App Using the Naive Bayes Method to Measure Students' Patriotic Spirit. The population in this study were all students in the PPKn Department, FIS UNIMED, class of 2022 with a population of 168 students. While the sample taken was 94 students.

There are several data collection techniques prepared to be able to collect data in accordance with the research problems raised, including interviews, to obtain expert views regarding the needs and quality of innovation product development. The interview approach uses a focused interview approach. And observation, to observe the effectiveness of the use of innovation products and assess user responses.

The first data to be analyzed is the process and quality of innovation development in this study, namely "e-assessment project i'm citizens based on web app with naive bayes method". This data was collected using an interview sheet addressed to web development experts or web expert validators. The data collected will be analyzed using a likert scale. Furthermore,

the data to be analyzed is data from the effectiveness of the innovation e-assessment assessment project I'm citizens based on web app with naive bayes method on students' patriotic attitudes. The effectiveness of the implementation of the innovation comes from students' responses to the innovations developed and implemented. The data collected used observation, so the data analysis used correlational analysis method.

3 Results and Discussion

In the implementation of the development of innovation assessment of the I'm citizens project based on a web app with the naive bayes method, it is carried out through 5 stages including, the first stage is the analyze stage through this stage the development needs of the I'm citizens project application based on a web app are analyzed. At this stage the application to be developed requires several things starting from adjusting the questions to the phenomenon of students' patriotic spirit and adjusting the naive bayes algorithm formula to the questions compiled and the planned achievements.

Then the second stage is the design stage, where through this stage the Project i'm citizens application based on a web app will be designed using the naive bayes method. The application design uses Xampp as an external server tool, sublime text for coding, coreldraw for graphic design layout, niagahoster as a domain and hosting purchase platform. As for designing the Project i'm citizens application based on a web app using the naive bayes method, the development team has given the application a name, namely the mypatriotik application which can be accessed at the following link https://patriotic.site/mypatriotic/. This name is more relevant to the intent and purpose of developing the application.

The next or third stage is development. At this stage the application begins to be developed by utilizing the sublime text application to do coding so that the application can be designed according to needs. When is the fourth implementation, how from when will this application that has been developed be implemented. The last stage is the evaluation stage, how through this stage an assessment is carried out on the success of implementing the application that has been developed.

The results of the evaluation of the application implementation developed, are carried out through observation activities. Where the observations are carried out using application quality level parameters based on the parameters below:

Table 1. Mypatriotic application testing quality parameters.

No	Variables	Information
1	**Understandability**	Application capabilities so that it is easy to understand
2	**Learnability**	Application capabilities so it is easy to learn
3	**Operability**	Application capabilities so that it is easy to use
4	**Functionality**	The ability of an application when implemented to function well, be attractive, accurate and impactful.
5	**Content**	The application's ability to provide quality and targeted material.

Implementation of applications in the field and testing of the quality of the applied applications, are assessed through observation. The results of observations of students with a sample of 94 people show that the final results of their assessment are at 88.2%, which means that the quality of the mypatriotik application is in the very good category with assessment indicators based on table 1 above. Meanwhile, observations of media or application experts obtained data analysis results in the field of 86.7% which is in the very good category.
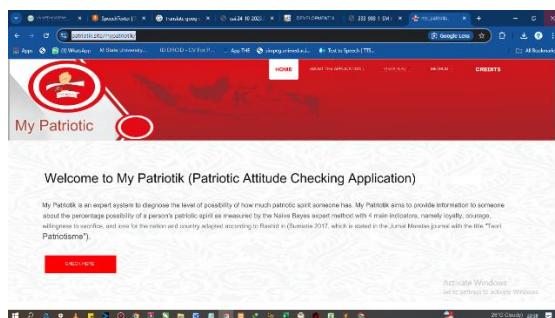

Fig 1. Initial view of the application mypatriotic.

With the results of the data found in the field, the overall my patriotic application has been successfully developed and has had a significant impact to be used as an interesting and accurate one, so that the level of patriotic enthusiasm of students can be measured through the application. And with these results, this application can also be used in various relevant courses to be used as one aspect during the lecture period.

The quality of assessment that has so far seemed rigid, such as portfolios, which have an impact on low reliability of assessment, unclear assessment criteria, a tendency towards the results alone without looking at the assessment process and requiring extra time in the process, can be overcome by utilizing the mypatriotik application. Mypatriotik is an e-assessment or electronic assessment instrument that makes the patriotic attitude assessment process easier to use, easier to understand, easier to learn, and has a positive impact on students' enthusiasm to measure their patriotic attitudes, and has a good level of reliability and a good level of validity. To obtain valid assessment results, a valid and reliable instrument is needed (11).

4 Conclusion

In the implementation of the development of innovation assessment of the I`m citizens project based on web app with the naive bayes method, it is carried out through 5 stages including analyze, design, development, implementation, and evaluation. Implementation of applications in the field and testing of the quality of the applications applied, are assessed through observation.

The results of observations on students with a sample size of 94 people showed that their final assessment results were at 88.2%, which means that the quality of the mypatriotik application is in the very good category with assessment indicators based on table 1 above. With the results of the data found in the field, the mypatriotik application as a whole has been successfully developed and has had a significant impact to be used as an interesting and

accurate one, so that the level of enthusiasm for students' patriotic attitudes can be measured through the application.

And with these results, this application can also be used in various relevant courses to be used as one aspect during the lecture period. Mypatriotik provides a patriotic attitude assessment process that is easy to use, easy to understand, easy to learn, and has a positive impact on students' enthusiasm to measure their patriotic attitudes.

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