



Implementation of Statistics Features Collection of Scientific Works in Digilib Application

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Abstract. The library is one of the sources for disseminating information, as well as a place for collecting scientific works from various faculties at the State University of Surabaya. Digilib is one of the tools used to collect scientific work. However, the problem faced is that it is not known how many collections have been uploaded to the digilib application. Moreover, the data on the number of collections for scientific papers with grades A and A- (must collect hard copies) must match the data in the system. The need for the State University of Surabaya central library is also a proof of work report that the library has validated how many scientific papers have been uploaded. The purpose of this research is to develop a feature that can provide information about the number of collections in the application through the addition of statistical features. The method used in the development of statistical features in this study is to use the DMAIC feature (define, measure, analyse, improve, and control). The results of this study are in the form of statistical features that provide general information about the number of collections contained in the digilib application and can be accessed on web pages, both published and unpublished collections. Researchers also provide a download menu needed by librarians as a report on how many collections have been validated per faculty and per year.

Keywords: Independent upload · Digilib · Statistics · Collection of scientific works

1 Introduction

Everyone wants convenience in accessing information, not only through coming physically, but is also expected to be able to access the information needs flexibly, wherever and whenever. One of the goals of the information seekers is the library.

The library is not only a place to store books, but the library as a source of disseminating information, as well as a place for collecting the entire collection of information sources in the form of ideas from the entire academic community at Unesa. One of them is the collection of scientific papers from various faculties.

The problem faced by most libraries is the availability of space. Because books and other information require space to align the collection which is always increasing every year, the library needs to. Not only books from purchases, but also from the work of students who completed the final project.

The Surabaya State University Library itself also feels the same problem, where every year, the space and storage shelves to present information are also decreasing. And the collection, which has been for 5 years, is weeding and must be taken down to the warehouse so that there is enough room to return if there are collections that come again.

Our concern for the information contained in the collection is expected to remain even though the physical collection has been destroyed, prompting us to create a space that can accommodate large collections and can be accessed anywhere. Especially in the current era of the COVID-19 pandemic, where libraries are expected to continue to be able to provide services to users who are not physically limited.

In response to COVID-19, the library proactively took steps to create a web page addressing the need for remotely accessing e-resources. This page aims to alleviate the frustration of not being able to use the e-resources off-campus [1].

The library itself began to develop in a digital direction. The “Principles for Digital Content”, states that “fair access to digital library materials is ensured through maximum accessibility, ubiquity, sustainability, and barrier-free access.” The end of this section emphasizes the need for appropriate standards: (1) digital collections should be built on standards and best practices that maximize their usefulness, and (2) these standards and best practices should serve the broadest user community, including persons with disabilities, support sustainable access and use over time, and provide user functionality that promotes the library’s core values [2].

Digilib is one of the systems that we have developed and used for the collection of scientific papers. Based on the decision of the vice chancellor number 01.5030/UN38.1/TU/2018 [3]. Digilib itself has a place to upload their final work independently where students are required to upload their final work independently and also as one of the requirements for graduation.

With the digilib system, it is hoped that all information obtained from students can be stored properly and can be fully accessed by library users.

The problem that occurs is, if there are questions regarding the number of collections of scientific works, currently they cannot be answered because of the limitations of the application system. Therefore, we are trying to develop the existing features in digilib.

This feature is in the form of adding a statistics bar. The function of the statistic itself is to find out how many collections have been entered per year. In addition to these menus, there are additional menus that are needed by the librarian. The menu is in the form of a download menu which can be used to process data per faculty and per year. So, it is known with certainty the number of students who have uploaded.

This statistical function is very useful for libraries for planning and decision making. With this feature, collecting, analyzing becomes easier, and can be used to increase library effectiveness.

2 Method

The method used to conduct this research uses six sigma’s DMAIC (define, measure, analyse. Improve, and control). Six sigma consists of two words namely Six which

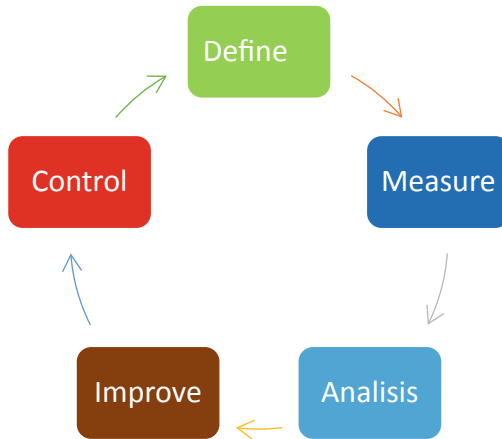


Fig. 1. DMAIC Method

means six and sigma which means a symbol or standard deviation symbol in statistics that symbolizes the ability of a process and six sigma value [8].

Based on the concept of the research method (Fig. 1), the design and manufacture of statistical feature additions to the digilib application, the steps to be taken are selecting the problems and their impacts, measuring and determining steps, analyzing the system to make decisions, starting to experiment, testing and implementing, and controlling the system. so that it can be implemented and maintain the sustainability of the system created [1]. The description of the method is as follows.

2.1 Define

This process requires the researcher to examine what problems are currently happening, then a solution thinking process is carried out to solve the problem.

2.2 Measure

This process is a deeper stage after the define process, where in the measure process, the researcher is required to determine how the research objectives are met.

2.3 Analysis

The analysis process is a process to see all the data that has been collected. The goal is to see whether the data planned at the previous stage are in accordance with the target or if there is still something that needs to be added.

2.4 Improve

The improve process is a process that is needed to see the temporary results of the research that has been done, then a review of errors or errors is carried out and improvement solutions are found before the product is actually used.

2.5 Controls

This control phase can help verify and maintain the success of digilib application creation and statistical reporting feature.

3 Result and Discussion

The need for librarian in presenting data and reporting accurately, seeing the effectiveness of the library, and long-term planning that will be taken by the library, because just by looking at the statistics, you can immediately find out how many collections are in the digilib database system.

By doing six sigma's DMAIC method (define, measure, analyse, improve, and control) what happens is a change from the source of information displayed in the digilib system. This information can represent the need for the library to analyse the usage of the digilib application.

3.1 Define

In the define process, the purpose of the application of statistical features in the digilib State University of Surabaya application will be found. The problem that occurs is the lack of a menu that shows how many collections have been collected in the digilib database so the number cannot be known. In addition, for the annual report, what is done is to manually record. Meanwhile, the officer really needs the data quickly. The purpose of making this feature is to facilitate, speed up and accurately inform the number of scientific papers that have been published. On the Fig. 2, it appears that the statistics menu does not exist on digilib.

3.2 Measure

In this study, the measure stage, such as determining what data is needed so that digilib statistics can provide effective information for interested parties, as well as determining

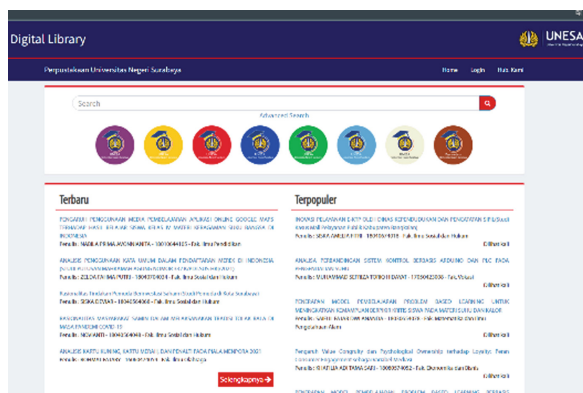


Fig. 2. Digilib Display

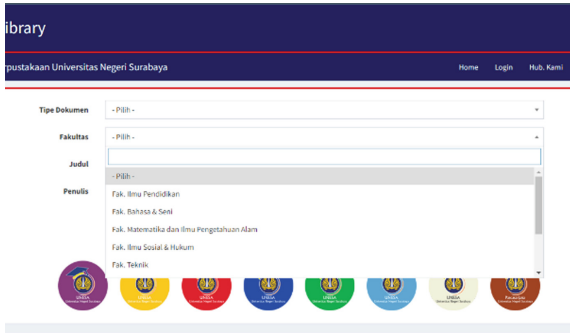


Fig. 3. Advanced Menu on the Digilib Website

the correct stages in processing the data by doing database design. The design is tailored to the needs of users and librarian, so that the display will be presented based on the year and faculty uploaded. Currently there are 8 faculties that are required to upload their final work to digilib. But no one has been able to clearly show how many scientific works from each faculty have been published every year.

3.3 Analysis

Here the researchers started to make menus and dashboard displays for admins, then made a query to pull data from the database. So, it is ensured that the data to be taken is data that has been validated and published. Data should also be disaggregated (divided by need). Currently, in the advance search view (which can be seen in Fig. 3), only document type, faculty, title and author appear, but the year selection process is still missing. This data is needed to find out how many final works have been published. So, it needs to be made on the dashboard view.

3.4 Improve

In this study, the researcher tested the dashboard that had been built and found any information or features that needed to be added. In this process, a Failure Mode and Effect Analysis (FMEA) is also carried out. FMEA is an evaluation method to record the possibility of a failure in the system [2]. Here, the researcher records the possibilities of what will happen and how the solution is on the Digilib Unesa dashboard. The improvement that was made to avoid deficiencies in reporting the amount of scientific work data from each faculty was to create a statistical table feature on the digilib application dashboard. The data taken in providing information in the digilib application is only data that has been published. In addition, the data is not displayed. Provide a menu of choices per year to facilitate the preparation of annual activity reports The improvement that was made to avoid deficiencies in reporting the amount of scientific work data from each faculty was to create a statistical table feature on the digilib application dashboard. The data taken in providing information in the digilib application is only data that has been



Fig. 4. The Statistical Data Menu is Displayed

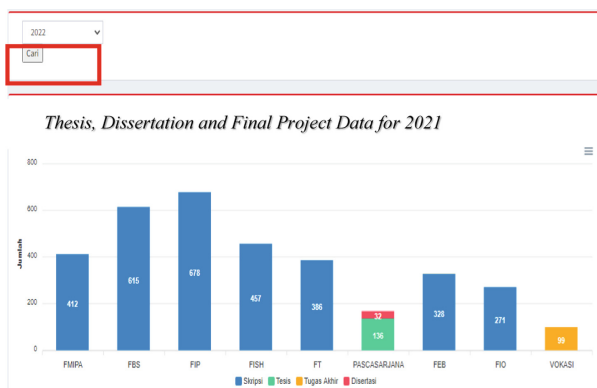


Fig. 5. Filter by Year

published. In addition, the data is not displayed. Provide a menu of choices per year to facilitate the preparation of annual activity reports [3].

On the Fig. 4, the statistical data menu that is displayed based on the faculty and number of collections. On the statistics menu, we provide a filter feature of scientific papers by year which can be seen on Fig. 5.

The research objectives that have been stated at the beginning, this research will show the number of collections of scientific works at State University of Surabaya, both published and unpublished. This distribution can be used as a performance evidence report for librarians in the State University of Surabaya central library as well as a reminder for unpublished collections. Published and unpublished collections can be seen on Fig. 6 and Fig. 7.

For reporting needs, on the digilib website, researchers added a feature to download statistics in SVG, PNG, or CVS format.

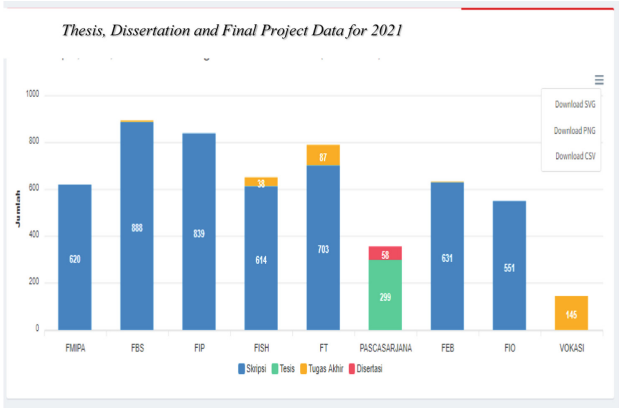


Fig. 6. Number of Published Scientific Papers

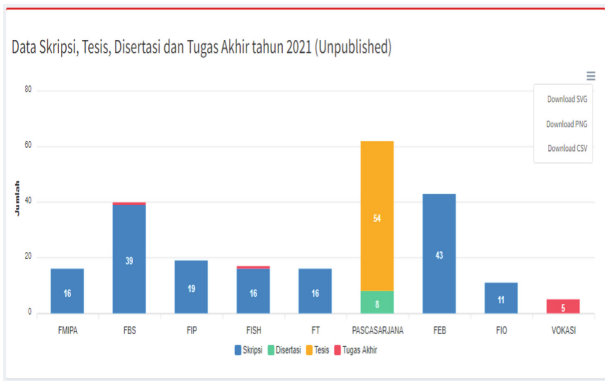


Fig. 7. Number of Unpublished Scientific Papers

3.5 Controls

In this research, researcher makes a monitoring plan from admin menu, so the statistical dashboard on digilib can continue to provide the necessary and accurate information (Fig. 8).

At this stage the researcher also makes a response plan to be followed up if an error occurred in performing independent upload validation, the menu is in the admin section, where the librarian can access it. So that it is expected to be more accurate in controlling the data and the validation process.

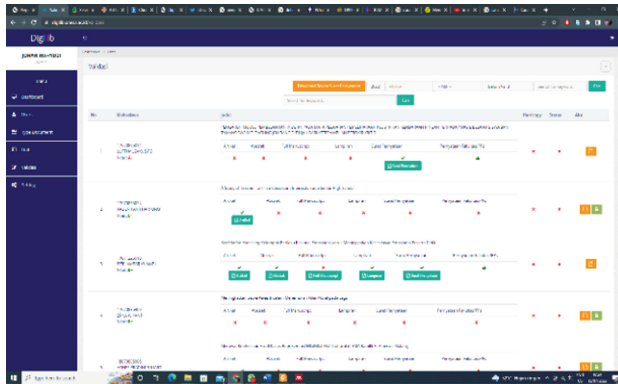


Fig. 8. Admin Menu

4 Conclusion

The conclusion obtained from this research is that the creation of an information system and statistical data is not only used for general purposes such as the number of existing collections, but can be used to determine how effective the digilib system is currently used by the State University of Surabaya.

In addition, this research can be useful as material for reports every year, regarding how many collections have been entered, and make it easier to control collection data.

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