Information Technology Development in Alumni Search: Validity Analysis

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Abstract

Alumni data collection activities as material for recapitulating the data needed as the completeness of accreditation documents and performance evaluation documents for tertiary institutions. This will not be achieved if the data collection is still using manual methods such as contacting the graduates one by one. This activity will take up time and the data that has been collected so far is not optimal. The purpose of conducting this research is to develop information technology in tracing graduates using the Google form at the product validity testing stage. This research is development research using 4D models. The validation test was carried out at the development stage, for this reason, the research was limited to the product development phase only. The instrument used for the validation test is in the form of a validated questionnaire for the product being developed. Questionnaires will be distributed and then the product will be validated based on the statements that have been prepared beforehand. The validators who validate the product are 4 expert lecturers. The assessment is carried out based on material aspects and media aspects. Product research results developed with an information technology approach are in the valid category. Until this stage, the product that has been declared valid is revised again based on suggestions by experts. It is hoped that after obtaining validation data for the product, the next step is to carry out practicality tests and effectiveness tests so that the product can be disseminated and used in education, especially in the graduate study tracer at the Department of Automotive Engineering FT-UNP.

Keywords: Tracer Study, Google Form, 4D Model, Validity Test

1. Introduction

A tertiary institution can be said to be of high quality if it has an evaluation process as part of obtaining accreditation from the government. There are always several standards for accreditation activities for undergraduate programs or diploma programs for tertiary institutions. These standards always change from time to time depending on government policy. Based on the standards that have been set, one standard is used as a reference for researchers to carry out this research activity, namely the Student and Graduate standards. On the other hand, there is a government policy towards the world of education by conducting performance evaluations. All activities will be reported based on the performance of each educational institution. From several main performance indicators, the job readiness of graduates is a point that must be completed. The need for data on graduates who work after studying, especially in tertiary institutions, needs attention. So that graduate data can be recapitulated according to demand, a tracer study is needed for these graduates.

Graduates are a product produced by educational institutions such as universities. The quality of graduates in the field is the quality of the college. To find out the quality of existing graduates, it will not be enough to just look at the output, it must be detected from the absorption of graduates in the world of work [1]. How many graduates can take part and compete in development which can be done by conducting graduate tracing activities [2]. For this to be achieved, a search or tracking is needed to obtain

data on graduates from tertiary institutions who have graduated or have joined the world of work. This tracking is usually called a tracer study or survey [3].

Over the last few years, activities to collect alumni data are still being carried out manually as is the case with tracer study forms given to graduates who have just graduated. Collect it by sending it to colleagues or directly going down to the field where the graduates are. Apart from that, data tracer studies can be done by telephone, which is very time-consuming. Sometimes the number of graduate participants spread out and the limitations in collecting data will become a difficulty. The data obtained feels rushed, such as the results being invalid and so on. Another obstacle that arises is the discrepancy between the questions that have been given and the limits that have been determined in filling out. As for filling in too difficult forms, convoluting is also a problem that must be resolved. The lack of response from graduates in filling out the tracer study form makes feedback ineffective.

A tracer study is a study on graduates usually held by educational institutions or universities [4]. This study activity is an academic activity that is necessary and must be carried out by tertiary institutions to obtain feedback from existing graduates. Tracer study is also a tool to obtain graduate data needed to develop an educational institution [5]. With tracer studies, data collection for development purposes can be realized quickly. Data from tracer study activities is very important for tertiary institutions, especially the automotive engineering department, FT UNP, apart from this for accreditation needs, on the other hand, it can be used to measure the level of success of learning for graduates during lectures on campus [6]. This study can provide various kinds of useful information to evaluate higher education, especially the automotive engineering department, at FT UNP. Furthermore, this study activity can and can be used to guarantee the quality of higher education institutions at Padang State University.

Success in obtaining data from this tracer study is needed to obtain data on the success of the learning process [7]. The findings of this tracer study are expected to serve as a basis for improving and perfecting education in the future [8]. On the other hand, tracer study data is also useful to see the success rate of graduates of an educational institution, especially tertiary institutions. The success of this process can be seen from how to find information and collect data so that we can compare the transition process from college to getting a job [9]. The success or failure of graduates of a tertiary institution is seen from the absorption of alumni by the community and the extent to which graduates can apply knowledge in society and the world of work.

One way to obtain information about graduate data is to build a graduate information system that can be accessed by graduates anywhere. In fact, in the process of collecting data and information on graduates, they have not been touched in the maximum use of technology [10]. The large number of graduates who are scattered, will be very much needed information about the condition of graduates as a data summary for tertiary institutions. Designing an online system for tracer studies, it is hoped that it can be accessed by graduates whenever and wherever graduates are [11]. So that tertiary institutions can see the picture of graduate performance directly because the data received can be directly accommodated by the system [12]. Therefore it is necessary to develop an information system that uses online technology so that in searching for graduate data information can be achieved optimally [13], [14].

The existence of information technology that has been developed will provide convenience in the data retrieval process [15], [16]. Information technology in the form of a Google form that can be accessed using a network will facilitate tracer study activities to obtain the necessary data [17]. Apart from the ease of accessing the web by all groups, using the website will be easier, more efficient, and more effective to do [18], [19]. The use of information technology systems in the form of a Google form will make it easier for universities to access and manage graduate data.

The development of a tracer study in the form of a Google form that can be accessed by alumni needs to be tested for feasibility or validity. This activity is useful in ensuring the products developed are feasible to be applied and used by alumni later [20]. This feasibility test was carried out using a validity test. A validity test is an activity to examine the content contained in the assessment instrument or product used [21], [22]. The purpose of this validation activity is to reduce errors in the product being developed by adding suggestions or improvements from the validator who evaluates the product [23], [24]. The next step is to carry out practicality and effectiveness activities for the product being developed.

One way to find out the results of the validation test of a product is to look at the overall product being developed [25], [26]. If the results of the validation have measured what should be measured, then

the feasibility of the product is unquestionable [27], [28]. To make this research more focused, the goal to be explored is to conduct a validation test to find out the feasibility of the product in the form of a google form that has been developed. The researcher hopes that after this product is developed and can be applied, it will obtain the benefits of tracking graduate data online to make it easier to retrieve data and information that is useful for accreditation activities in tertiary institutions, especially the automotive engineering department, FT UNP.

2. Research Methodology

Research conducted using research and development methods [29]. The model used in this study is the 4D developed by Thiagarajan et al. The phases of this model are the definition stage, design stage, development, and deployment. This development method was chosen to produce a product in the form of a tracer study in the form of a google form. The products developed will be tested for feasibility, practicality, and effectiveness to be applied to alumni or graduates later. This research is only presented at the development stage by conducting a product validation test in the form of a tracer study using Google Forms.
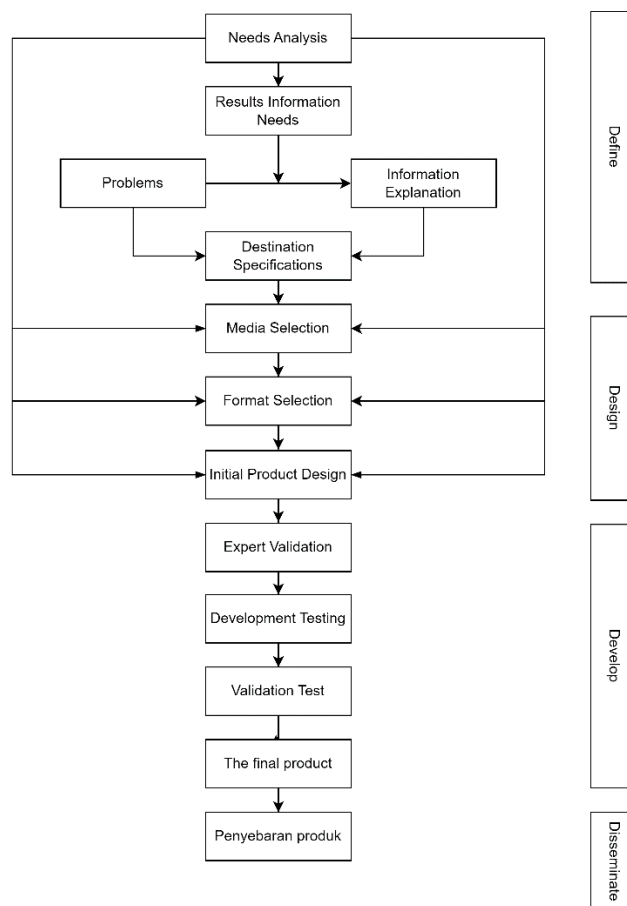

Figure 1. Procedures in Product Development Using 4D Models
(Source: Adapted from Thiagarajan [30])

Figure 1 explains that the defined stage is an activity carried out to find the requirements for the product being developed. This process is by analyzing needs by seeking explanations on the problems that arise from the results of information based on observations made. The next step is the design stage by designing a product in the form of making a google form framework. This process is carried out by selecting the format used in writing the Google form which includes material aspects and media aspects being developed. Before the deployment stage is carried out, the product developed must first carry out a validation test. The results of the validation by the validator will be supplemented by adding suggestions given by the expert team.

The data used in this study are in the form of qualitative data and quantitative data. Qualitative data in the form of data obtained through observation sheets such as criticism and suggestions as well

as input for product improvement. Quantitative data in the form of numbers derived from measurement results obtained from product feasibility testing. The instrument used is in the form of a validity or feasibility questionnaire which will be filled in by the validator team. The validity questionnaire used to obtain scores or data results uses a Likert scale which will later be interpreted into the validity table to obtain the final value of this test [31].

3. Result and Discussion

3.1. Result

The define stage is the initial stage in the 4D model which is the needs analysis stage which is used to obtain information related to the product to be developed. This stage is by looking for problems and analyzing problems that arise in the field regarding tracer studies to get the results of the information used for initial product design. The following describes the defined stage and can be seen in Figure 2.
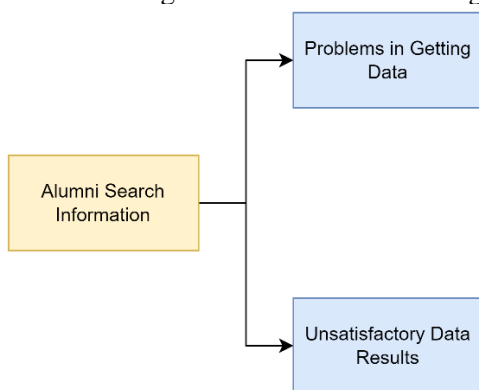

Figure 2. Product Define Stage

The design phase is intended to prepare initial guidelines in the preparation and development process of the study tracer product as a whole. The initial step in product design in the tracer study activities that will be developed is to select the media to be used. The media used in this tracer study is a statement packaged in a Google form to obtain data intended for alumni. The next step is to choose the format used in designing the Google form such as the letters used, the format of the columns presented, the arrangement of statements in the form of questions that are presented systematically, as well as interesting combinations of colors, images, shapes, and sizes. The following describes the form of the design stages in the product development procedure, which can be seen in Figure 3.
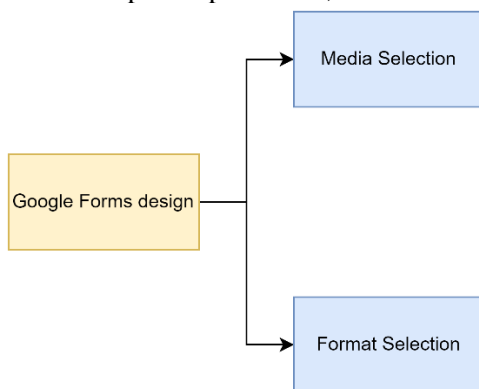

Figure 3. Product Design Stages

In developing tracer study products in the form of google forms, the step that must be taken is to visit the Google Drive site and then look for the Google Forms menu on the site or by visiting the Google Forms site directly, it will enter the Google Form view. Add a new document, the next activity is to change the appearance or choose a theme that suits what you want. The development stage for this product is by changing the appearance of the theme, display of statements, or questions that will be given. Questions can be answered in the form of short answers, paragraphs, multiple choice, and so on. The appearance of the google form developed can be seen in Figure 4.

Figure 4. The initial view of the Tracer Study of the Automotive Engineering Education Study Program

Figure 4 is an initial view of the tracer study being developed. This page has been adapted to the needs of graduates to be tracked. The start page has been equipped with a tracer identity that will be used by graduates. This page is equipped with illustrations to attract graduates' interest as tracer study users and fillers. On the other hand, this section is also equipped with instructions for using the product and positioning the product. The appearance of filling out the tracer study can be seen in Figure 5.
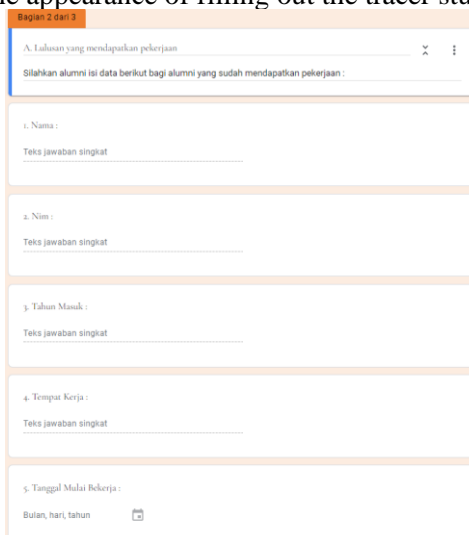

Figure 5. Display of Entries from Tracer Study

After the product is developed, the next step is to validate it by the validator. The validators who provided criticism, suggestions, and validation test results came from 4 expert lecturers. Validity instrument data was implemented using a Likert scale. After that, the data will be tabulated based on the assessment given by the validator on the validity aspect using a formula that has been modified by Trianto [32].

The validity value obtained is then interpreted in the validity criteria table [31]. Statement items from invalid validity instruments will be revised again according to what has been given by the validator. The result of this validity test is used as a guideline for conducting revisions or improvements which will then be carried out in the practicality and effectiveness stages. The aspects assessed at the validation stage are the feasibility of the content, presentation, language, and graphics of the product. The development stages can be seen in Figure 6 while the validation test results that have been assessed by the validator can be seen in Table 1 and Figure 7.
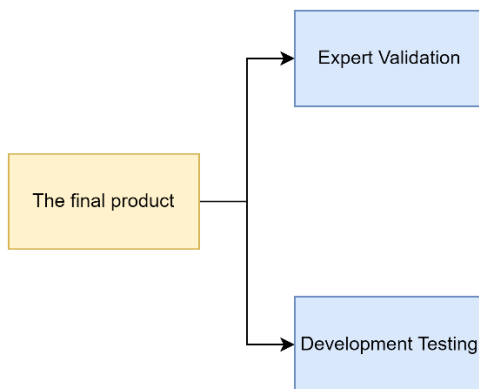
Figure 6. Develop Stages

Table 1. Results of Filling in the Validity Questionnaire

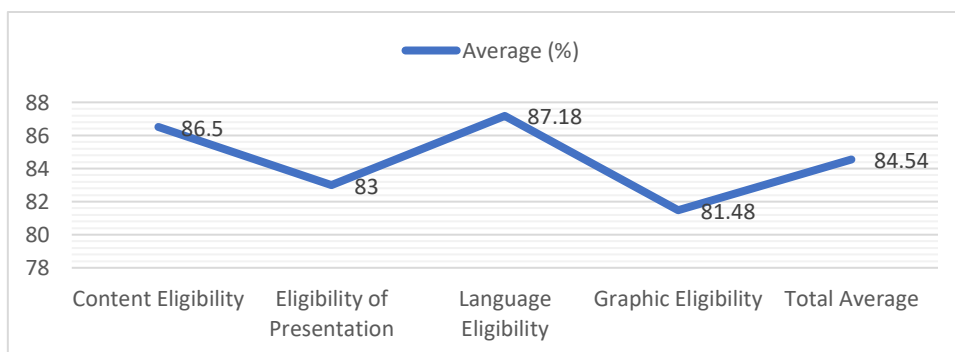| Aspect	Average (%)
Content Eligibility	86.5
Eligibility of Presentation	83
Language Eligibility	87.18
Graphic Eligibility	81.48
Total Average	**84.54**

Figure 7. Validation Test Results from the Validator Team

Based on the results of tests on products that have been developed, the validity test obtained data on content feasibility as much as 86.5%, presentation feasibility 83%, language feasibility as much as 87.18%, and lastly on graphic feasibility as much as 81.48%. The lowest validation test results were on graphic feasibility and the highest on language feasibility. The total percentage of the product validation test is 84.54%. The next step is to interpret the average percentage of the validation test into the data interpretation table and state that the product developed is in a valid category for use. The value in the valid category is based on the validity criteria developed by Purwanto [31] with a value of 80% -89% in the valid criteria. It doesn't just end here, the product being developed will be improved according to the suggestions given by expert lecturers for improvement of this product.

3.2. Discussion

Validation test activities on products developed have a structure in the development of information technology as the delivery of information for those who need it. The product developed consists of a start page as a provider of information regarding survey-filling activities that will be used by graduates. This section tells the importance of completing a survey or tracer study for graduates. Then to make it stronger and more important in this filling, the signature of the head of the department is attached. The next page contains the identity of the graduate which must be filled in for convenience in recapitulating data containing the name of the graduate, year of entry, and so on. All statements have been prepared and developed for accreditation materials and supporting documents for key performance

indicators at the point of graduate readiness. The results obtained in the development of this product is the validity test value. The feasibility of the product being developed is following the product development rules in the form of information technology using the Google form. The validity test was carried out with the help of a validator and the products developed were in the valid category with an average percentage value of 84.54%. This means that the product developed is following the category that should be presented. This is in line with the research [33] that the results of the validity of a product that is developed if carried out with the right steps and the right procedures, then you will get valid product results. According to [34], based on the material and media aspects that have been assessed by the validator, if they have been well developed, the final product will be declared valid.

There are several deficiencies and limitations in the development of this product, and for that it needs to be corrected according to suggestions by a team of experts. The results of the validation along with the suggestions given by the team of experts required revision of the product being developed. The purpose of this improvement is to improve the product so that it can be applied and accepted in the field. Revisions were made from the graphical factor, which needed illustrations and coloring and the use of good themes so that the appearance of the Google form was more attractive to use. Revisions were also made in the linguistics section, using good and correct language, so legibility and ease of understanding reading on the media would be well conveyed.

4. Conclusion

Based on the results of the analysis on the validity test that has been carried out, the product developed in the form of information technology using Google Forms for tracer study graduates is in the valid category. This was obtained from the results of the analysis carried out based on the data that had been obtained from the validator team. Tracer graduates are expected to utilize and use services such as Google forms so that the data collected can be absorbed to the fullest. Need further research to develop this product. For the maximum product to be developed and can be applied in the field, it is necessary to review it and carry out a practicality test phase to find out how practical the product being developed is. After going through the practicality test, the effectiveness test is used for product effectiveness so that it can be accepted by users.

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