

# Development of Web-Based Casting Techniques Learning Media

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## ABSTRACT

Based Learning Media Development web casting techniques in program Studies Engineering Mechanical Engineering Education FKIP Unsri. Development is done with the model Rowntree. Evaluating performed using Tessmer formative evaluation. Data were collected through validation, questionnaires, and interviews. The results showed that the validity of the material is 86.11% with a valid category, amounting to 87% of design premises very valid category. Thus, the product has validity 85.25% categorized as very valid. Scores of practicalities at the stage of one-to-one very practical evaluation seen from the comments and suggestions that show good comments and suggestions, the stages of evaluation of a small group of 79,61% with practical categories and stages of a field test of 74,78 % practical category. Thus, the product of the media flash good quality flip book so that it can be applied in casting techniques.

**Keywords:** *Web based learning media, Development, Valid, Practical.*

## 1. INTRODUCTION

The rapid development of information technology (IT) at the University supports the utilization of technology in learning. With the development of IT has changed the way students view and act in spending time completing tasks, working and addressing all problems. Change the way of view by changing its activities from the real world to the virtual world. The impact of IT development has been present on the joints of people's lives as well as on the world of education. The development of IT in the world of education is very rapid, evidenced by the development of learning media that utilizes the internet.

Thus, the University benefited greatly from the advancement of ICT because it benefited greatly both in terms of learning models and the benefits of computer-based learning media. Learning by utilizing computer-based media in more optimal value in supporting the learning process. Because with the computer-based learning media can provide ease to students in accessing materials and tasks provided by educators [1].

The College has several functions including developing an academic community that is innovative, responsive, creative, skilled, competitive, and cooperative through the implementation of research.

The result of graduates who master the branch of science and/or technology to fulfill the national interest and increase the competitiveness of the nation [2]. To support one of the functions of the college by optimizing website-based learning media. Web-based learning media can incorporate a wide range of media, including: images, animations, text, audio, and video.

In the field of science educators and learners can use website-based learning media by utilizing the internet network to enable education to be accepted by anyone and anywhere because there is currently a network of hot spots available in public places. This situation is very supportive if all learning media is designed to support and direct students to effective self-learning.

Based on the above description, it appears that mastery of casting technique competency is very important for mechanical engineering education students can master and utilize learning media in the form of interactive multimedia and video tutorials integrated as teaching materials on the web can help students add more information than the courses they get on campus. To make it easier for students to search for materials and study wherever students are, researchers intend to develop web-based learning media that contains casting techniques that can be accessed anywhere and anytime.

## 2. METHOD

### 2.1. Types of Research

The type of research used is development research that is better known as R&D (Research and Development). Research methods are used to produce a particular product, and test the effectiveness of the product.

This research method to find out if the media developed in the learning process is valid and practical. This research was conducted in the Mechanical Engineering Education Study Program, FKIP, Unsri. School Year 2020/2021.

The object of this research is a web-based learning medium in the field of casting techniques in the Mechanical Engineering Education Study Program FKIP Unsri. The subject is FKIP Mechanical Engineering Education Student.

### 2.2. Data Collection

To obtain validity data is used expert assessment that focuses on four characteristics namely content feasibility, language, feed, and graphicacy. Validation is done by providing a draft development of web-based learning media to experts and experts evaluating the draft. The data collection tool is a validation sheet given to experts.

Validation sheets given to experts in the form of Likert scales. According to Sugiyono, the Likert scale is a scale that can be used to indicate the attitudes, opinions or perceptions of a person or group of people about social phenomena [10]. The Likert scale used is created in the form of a Checklist with four categories of answers that are very good, good, not good, very bad. Data obtained from validity results by experts is used as a reference to revise the product until it is declared eligible for trial.

### 2.3. Poll Data Analysis

Data obtained through polls is analysed using a Likert scale to measure students' opinions on the use of web-based learning media. The poll results data obtained is calculated by the formula used to calculate the score is as follows: Number of scores per item number of respondents answering x answer score.

### 2.3. Poll Data Analysis

The data of the interview results at the preliminary stage conducted with unstructured and open interviews, as well as those conducted openly and unstructured analyzed qualitatively as a background booster of the

problems and solutions offered. As well as the second interview conducted at the one-to-one evaluation stage in the form of unstructured and open interviews analyzed qualitatively as input, suggestions for consideration materials revise the product.

Was conducted against three students in the 2019 Mechanical Engineering Education Study Program, the researchers asked students to use web-based learning media casting engineering materials. Furthermore, the researcher asks students to provide comments and suggestions that the researchers will later make the basis of revision actions.

The initial draft of the media that has been declared valid and revised, will then be tested to see the practicality of thirteen students of the 2019 Mechanical Engineering Education Study Program, each student is welcome to use web-based learning media casting engineering materials

Next, researchers asked students to fill out a questionnaire to see the practicality of the media. The average percentage of poll scores obtained at the small group stage is 79.61%, this percentage is in the category of good. Field test conducted with mechanical engineering education students in 2019 Indralaya class of 40 people began by informing students about the media used, researchers also explained the use of web-based learning media. Researchers guide students during learning activities, students are given the opportunity to ask about things that have not been understood in the use of media that has been described before. In the implementation of this learning process students study mold type materials in the course of casting techniques, the learning lasts for approximately 45 minutes

After the lecture is complete, the researcher asks the student to fill out the questionnaire that the researcher provides to measure the practicality of the media at the field test stage. The total number of scores is 2393 while the maximum number of polls is 3200. Then get 74.78% percentage of this percentage including practical category.

## 3. RESULT AND DISCUSSION

This development research aims to produce valid and practical web-based learning media. In this study the development model used is Rowntree product development model and Tessmer evaluation method. The three stages in this study include: the introductory stage, the development stage and the evaluation stage.

The preliminary stage includes identifying problems that arise during the learning activity and finding solutions. Furthermore, the development phase of the activities carried out makes product design. Web-based learning media that has been designed, then it will be evaluated validity.

The validity of the product from the assessment of three experts, namely content experts, material experts and language experts. Based on content validation test to, learning materials are worth testing without revision. According to the expert, there are some revision suggestions that are improving the writing of foreign languages and punctuation on the material, while according to design experts, media worth testing with revisions, there are some expert suggestions for design revision including display, video, less clear writing. To find out the shortcomings or weaknesses of the learning media developed, the initial draft of the media was tested to students at the person-by-person evaluation stage, a person-by-person trial.

#### **4. CONCLUSION**

The media produced in this study proved feasible and valid to be used in the learning process judging by material validation and media validation. The actual score obtained from material validation (content) is 66 out of a maximum score of 72, hence the result obtained 87.5% which belongs to the valid category. Then for media validation the actual score obtained is 83 out of a maximum score of 100, then the result obtained 83% that belongs to the category is valid.

The practicality of the media is seen from the polls at the small group and field test stages, at the small group trial stage obtained a poll score percentage of 79.61%, and the percentage of poll scores obtained at the field test stage was 74.78%. Thus, the average percentage of poll scores for small group trials and field tests is 77.19% that belongs to the practical category, so it can be concluded that web-based learning media courses measuring this technique are considered practical.

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