Development of Interactive Learning Media Talent-Based Human Resource Management through Work-Integrated Learning: Adapting to the Needs of Industry and the World of Work Today

Afwan Hariri Agus Prohimi[1], Syihabudhin[2], Lohana Juariyah[3], Rosmiza Bidin[4], Afis Baghiz Syafruddin[5], Ari Gunawan[6]

{afwan.hariri.fe@um.ac.id[1], syihabudhin.fe@um.ac.id[2], lohana@um.ac.id[3], rosmiza@upm.edu.my[4], afis.baghiz.1803316@students.um.ac.id[5], ari.gunawan.1704126@students.um.ac.id[6]}

Universitas Negeri Malang, Malang [1, 2, 3, 5, 6], Universiti Putra Malaysia, Malaysia[4]

Abstract. The development of human resource management has changed from time to time. This research aims to develop learning media and determine the feasibility of learning media. The implementation of this research uses the waterfall method, starting with requirements, design, implementation, verification, and maintenance. The Industry 4.0 job matching platform contains a learning management system, a job connection portal, learning materials, skills certification, and potential career recommendations. The validation tests used are material expert validation tests, media expert validation tests, and IT platform expert validation tests. The research results obtained were that the material expert validation test obtained an average of 87.6%, the media validation test obtained an average of 90.6%, and the IT platform expert validation test obtained an average of 90.6%. From the test results obtained, the category is "very feasible" so that learning media can be used.

Keywords: Learning, Human Resource Management, work-integrated learning.

1 Introduction

In an era of globalization and rapid technological development, the need for a qualified workforce is becoming increasingly important [1]. Companies and industries need employees who have the relevant skills and knowledge to meet the demands of an increasingly complex market. High-quality labor can make a positive contribution to increasing the productivity and competitiveness of a country or company [2]. However, there is often a gap between the skills possessed by the workforce and market needs. Therefore, the development of the right human resources is crucial to achieving sustainable economic growth [3].

Although the need for human resource development has been recognized, human resource management learning approaches and methods are still not evenly developed. Some organizations and educational institutions still rely on conventional methods such as lectures and lecturer-based training without utilizing the latest technology and a more interactive and personalized learning approach. With the development of increasingly sophisticated

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information and communication technology, the potential of HR learning through digital platforms, simulations, and e-learning approaches needs to be further explored to improve the effectiveness and efficiency of HR learning [4].

Related to HR learning, it is also important to see the development of research in other fields of learning media, especially in the world of education. Recent research has shown positive developments in the utilization of learning media such as videos, animations, educational games, and simulations to improve understanding and retention of learning materials. The application of interactive and interesting learning media can create a more pleasant learning environment, facilitate knowledge transfer, and increase student motivation to learn complex material [5]. However, challenges in implementing education transformation and human resource development cannot be ignored. Sustainable change requires a strong commitment from a wide range of stakeholders and may require adjustments to existing regulations and policies.

2 Literature review

Human resources learning-based digital is a human resource management learning approach that uses digital technology to improve students' training processes and self-development. This approach uses software, e-learning platforms, digital content, and online collaboration tools to provide human resource professionals with more effective and efficient learning experiences [6]. In human learning-based digital resources, students can access learning materials, interactive modules, videos, and other resources through the e-learning platform [1]. Learners can study independently, take online courses, and participate in discussions and collaborations with fellow participants or facilitators through the collaborative features provided by digital technology.

The development of talent-based human resources management is a human resource management approach that focuses on recognizing, developing, and utilizing individual talents and competencies in the context of technological developments and changes in the world of work [7]. This approach recognizes the importance of identifying, attracting, developing, and retaining individuals with relevant skills and potential to meet the rapidly evolving needs of organizations [8]. In the development of talent-based human resources management, several essential factors need attention. First, talent must be identified to determine students' abilities based on competency assessment, performance evaluation, and workforce needs analysis [9]. Second, talent development is based on individual potential through relevant training and development. Talent development can include technical training, the development of leadership skills, and continuous learning programs.

3 Methods

The waterfall method is a software development approach or methodology that follows a linear and sequential process. In the waterfall model, the development process is divided into distinct phases, and each phase must be completed before the next one begins. The typical phases in the waterfall model include planning, requirements analysis, design, implementation, testing, deployment, and maintenance. At the needs analysis stage,

understand well what students need to manage human resources. This activity is to identify the goals and objectives of HR management learning and the needs of students and teachers in developing HR management skills. Second, the design stage includes the curriculum, developing training materials, and planning how to deliver the material. This design must be based on the results of the needs analysis to ensure that the resulting solution meets the stated learning objectives.[10].

The implementation stage is a learning solution that has been designed in the school environment. This includes implementing the curriculum, using learning software, and implementing training or HR management programs in schools. The verification stage as an HR management learning solution is ready to be widely implemented in schools. This involves implementing HR management programs throughout the school environment by establishing plans. The final stage of the waterfall method is maintenance. Maintenance focuses on repairs required after a learning solution has been used for a long time. This includes correcting errors, improving the curriculum, adapting to the school's evolving needs, and routine maintenance [11].

The data will then be processed to obtain an overview of the results. These results will be a benchmark for the extent of success and achievements in a study. The results of data analysis are used as a guideline for improving learning media.

$$P = \frac{F}{N}$$

Information:

Q: Percentage of student scores

F: Frequency of student scores

N: Number of students

Table 1. Learning media feasibility scale

Percentage Score (%)	Interpretation
81% to 100%	It was very worth it
61% - 80	Worthy
41%–60%	Decent Enough
21%–40%	Less Eligible
0 % - 20 %	Very Inadequate

4 Results and Discussions

4.1 Requirement

The first step carried out by this research is a needs analysis by analyzing pre-existing products. One of the books that discusses integrated human resources is the work of Cooper [12]. The book contains strategies for work-integrated learning management and building relationships in universities and workplaces and is accompanied by the case studies listed in the book. Activities to compare similar products to determine the level of novelty of the work.

This is also done to support the results of the needs analysis that has been carried out. The implementation of human resource learning materials and media shows that several institutions and universities have provided direct learning facilities without using a learning management system and have not implemented work-integrated learning that is oriented to industry needs.

4.2 Design

Search for data from the field and related literature as initial material for preparing learning materials. Researchers will design a learning curriculum based on the information and results of the analysis that has been carried out. This learning curriculum will adapt to students' needs to explore their potential and direct them to a future career path based on the design that has been explained. The material that has been provided is then classified into four different book themes. Here's what the book looks like:

Fig. 1. Book view: "Creating a diverse and inclusive workforce."

Development of the Job Fit Industry 4.0 Platform

Fig. 2. Homepage display

This system is integrated into a job-fit industry 4.0 learning development system through cloud-based, work-integrated learning. It consists of various features. Responsive appearance in cloud learning and data security development is the main thing when developing later.

Fig. 3. Display of the learning management system (LMS)

The feature above displays user profiles that students can access. So that in this cloud-based future job development-based curriculum, the tracking system learning development can be implemented in decision-making. In addition, this feature can later bring together job seekers and employers so that there is a connection between industry and universities.

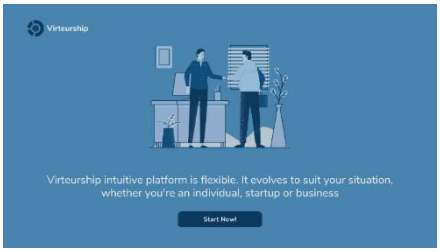

Fig. 4: Display of personalized matching jobs

Features in the development of this application consist of LMS, inventory, job fit industry, and matching job personalization; these various features are connected in terms of data and information in the case study work by industrial conditions; in the LMS feature, students can access various explanations cognitively.

4.3 Implementation

The results of material development will be validated by expert validators in the field of human resource management learning. The expert team will provide assessments and suggestions regarding the human resource management content that has been developed. The expert validator consists of three people: practitioners and a team of lecturers. Material validation testing is shown in the following data:

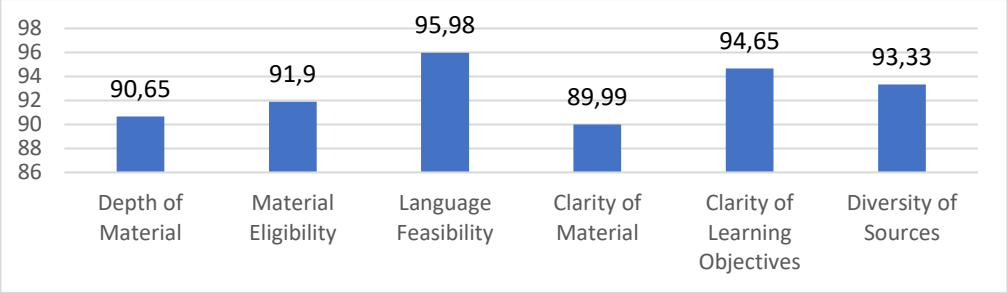

Fig. 5. Job-fit industry learning material test assessment data

Existing data processing can represent the level of success in developing learning media. Learning media has been validated by 3 people with an average result of 92.75%, which is categorized as "very feasible." The media developed fulfills six aspects: depth of material, suitability of material, suitability of language, clarity of material, clarity of learning objectives, and diversity. source.

Platform-based learning media must provide the best performance when used by students. The existing media has been validated by a team experienced in the field of technology-based learning media and learning innovation. Validators consist of three people who have expertise in relevant fields. Enter and provide suggestions as a provision to improve the quality of existing learning media. The data can be seen in the following display:

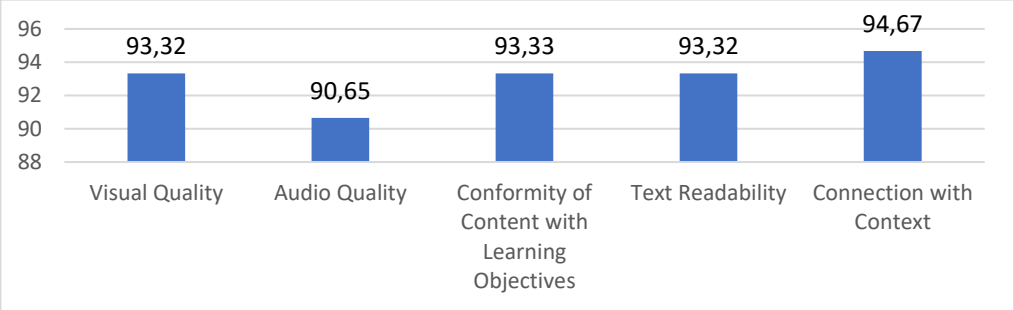

Fig. 6. Data on the expert test of job-fit industry learning media

The existing results show that the average score obtained is 93.06%, so it can be concluded that the media developed is "very suitable" for wider use by students in schools.

4.4 Verification

Testing the validity of learning platforms aims to measure the level of authenticity and suitability of technology-based media. This process involves a team of IT experts consisting of three experienced lecturers in the field of information technology. The aim is to get in-depth views and input regarding cloud-based learning platforms that support independent learning on independent campuses. To achieve this goal, an assessment instrument is used that aims to identify aspects that need to be improved in the platform. Data from platform validation results can be found in Table 2 below:

Table 2. IT expert test assessment data on learning platforms

Criteria assessed	Validators			Expected total score	Total empirical	Percentage	Criteria
	V 1	V 2	V 3				
A.User Experience							
1. User experience in using the learning website platform	4	4	4	15	12	80	Worthy
2. Navigation and learning website platform interface	4	5	5	15	14	93,3	It was very worth it
3. Layout and design of learning websites	5	5	5	15	15	100	It was very worth it
4. Flexibility and ease of access for students	4	5	4	15	13	86,67	It was very worth it
5. The learning website platform provides interactive features	4	5	5	15	14	93,3	It was very worth it
Results of Average Feasibility Aspects of User Experience						90.65	It was very worth it
B. Content Availability							
1. The learning website platform provides complete content	5	4	5	15	14	93,3	It was very worth it
2. The content presented includes concepts, theories, and best practices	5	5	5	15	15	100	It was very worth it
3. The learning website platform provides access to additional relevant resources	5	4	4	15	13	86,67	It was very worth it
4. The content presented on the learning website platform follows the latest developments	5	5	5	15	15	100	It was very worth it
5. The content presented on the learning website platform is easy understood	4	4	4	15	12	80	Worthy
Average Results Aspects of Content Availability						91.99	It was very worth it
C. Connection with Learning Context							
1. The learning website platform connects job fit concepts with the	5	5	5	15	15	100	It was very worth it

industrial context							
2. Learning websites provide information about trends and changes in human resources management	4	4	4	15	12	80	Worthy
3. The learning website provides examples and related case studies	5	5	4	15	14	93,3	It was very worth it
The average result of the aspect of connectedness with the learning context						91.1	It was very worth it
D. Visual Quality and Appearance							
1. The visual appearance of the learning website platform is attractive and professional, and the content	5	5	5	15	15	100	It was very worth it
2. the use of visual elements in the learning website platform helps understand concepts	4	5	4	15	13	86,67	It was Very Worth it
3. The layout and structure of the pages on the learning website platform make it easier for students	5	5	5	15	15	100	It was very worth it
4. Use of colors, fonts, and other design elements in the learning platform	5	5	5	15	15	100	It was very worth it
Results in Average Aspects of Visual Quality and Display						96,67	It was very worth it
E. Security and Privacy							
1. The learning website maintains the security of students' data	4	5	4	15	13	86,67	It was very worth it
2. The learning website protects the privacy and confidentiality of communications	5	5	4	15	14	93,3	It was very worth it
3. The learning website ensures that student information is not accessed or used by unauthorized parties	4	4	5	15	13	86,67	It was very worth it

Results: Average Aspects of Security and Privacy	88,88	It was very worth it
Percentage of Feasibility of Learning Platform Validation	92.25	It was very worth it

The data in the above table is 92.25%, which is classified as "very adequate" according to the findings of the validation evaluation of the learning website. The user experience, content availability, connectedness to the learning context, visual quality, and privacy and safety are the five aspects that comprise the results of the due diligence analysis conducted on the human resources management learning website platform. The five sections are intended as indicators to determine the eligibility of the learning platform as outlined in the 24 statement items. This media questionnaire was validated by a team of experts in informatics technology so that input and suggestions could be obtained for developing learning platforms. The results of the learning website validation based on the data above show a value of 92.25%.

4.5 Maintenance

In order to guarantee that a talent-based interactive learning system for HR functions effectively, efficiently, and in accordance with the specified objectives, a number of tasks must be completed. This maintenance allows developers to identify, fix, and improve various aspects of the system. System maintenance includes identifying and correcting errors or bugs that may arise in the operation of the system. These errors could be technical issues, unresponsive software, or other issues that may annoy users. At the maintenance stage, the developer evaluates the implementation of the system unit. Checking all system components is part of this, starting with the user interface and database and ending with the algorithms. If there are weaknesses or inefficiencies in the system unit implementation, improvements are required to ensure optimal system performance.

5 Conclusions

Creating industry 4.0 education that is job-fit through the use of a work-integrated learning cloud with a range of features. Responsive appearance in cloud learning and data security development is the main thing when developing later. So that in this cloud-based future job development-based curriculum, the tracking system learning development can be implemented in decision-making. In addition, this feature can later bring together job seekers and employers so that there is a connection between industry and universities. Industry 4.0 can develop into a job-fit environment. The material validation aspect for developing website-based learning media reaches 92.75%, included in the feasible criteria. Based on the data above, the media validation aspect shows a value of 93.06%, which is feasible.

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