Development of Online-Based Learning Media with Massive Open Online Courses Method on Instructor Methodology Competency in the Directorate of Competency Standardization and Training Programs, Ministry of Manpower of the Republic of Indonesia

Herdiansyah Prayuda[1*], Zainal Abidin Arief[2], Muktiono Waspodo[3]

[1,2]Universitas Ibn Khaldun Bogor
Jawa Barat, Indonesia
[3]Kementerian Ketenagakerjaan Republik Indonesia
Jakarta, Indonesia
✉ prayuda8582@gmail.com*

Check for updates

Abstract

This study aims for Vocational and Productivity Training Centers throughout Indonesia to implement the development of online-based learning media with the MOOC method on instructor methodology competency. This study integrates the Borg and Gall development method with ADDIE Learning Design. Data analysis uses qualitative and quantitative descriptive analysis. The results shown are the feasibility assessment by media experts obtained a score of 99.13%. The feasibility assessment by design experts obtained a score of 61.67% and the feasibility assessment by material experts obtained a score of 88.04%. Based on this assessment, it is considered feasible to use. The response of participants in the small group test was considered feasible with a score of 79.63%. In the large group trial, a score of 92.42% was shown which was categorized as very feasible. The effectiveness test was assessed by the test according to Donald Kick Patrick, namely the reaction level and learning level, the reaction level was tested with a cut-off point where the value was 96%, it can be seen that the value is above the cut-off point so that it can be categorized as very satisfied, thus the reaction test of this product is very effective. The learning level is calculated by looking at the significance between the values before and after the trial, the results show that the significance value is less than the specified value, which is at 0.001 <0.05 significance value so that there is a significant difference, thus this learning media can be categorized as effective.

A. Introduction

The development of the world of work is currently developing very rapidly along with the development of the industrial revolution 4.0 and towards the Industrial Revolution 5.0 (Aslam et al., 2020; Kolade & Owoseni, 2022; Zizic et al., 2022). Related to this, the development of the labor market has changed both in terms of work systems and positions, the development of the labor market has triggered the world of education and training to adjust education and training patterns so that graduates of education or training participants can fill the labor market (Donald et al., 2018; Oswald-Egg & Renold, 2021; Szabó-Szentgróti et al., 2021). According to data released by the Central Statistics Agency (BPS) in 2020-2022, the open unemployment rate based on education states that general and vocational high school education contributes

to the highest unemployment rate, in other words that education at that level has not been able to be absorbed into the labor market (Ahmad & Ma'rifataini, 2022; Aini & Purba, 2022; Dharshinni et al., 2023).

Especially in the world of job training which has so far bridged job seekers to enter the world of work in filling positions in the job market, it has not been able to meet the needs of the world of work due to the lack of instructors in the world of training throughout Indonesia, both government and private instructors (Disas, 2018; Kusnadi, 2020; Kusnadi et al., 2022). In addition, the budget allocation to produce instructors in a 1-year period is not much and does not match the needs of instructors needed throughout Indonesia. According to data from the 2021 vocational training and productivity information book issued by the Directorate General of Vocational Training and Productivity Development (Ditjen Bina Lavotas), the Indonesian Ministry of Manpower stated that the number of Vocational Training and Productivity Centers (BPVP) throughout Indonesia is 259 Work Units consisting of 21 Central Technical Implementation Units (UPTP) and 233 Regional Technical Implementation Units (UPTD). Of the number of task implementation units, both central and regional, the number of instructors in each technical unit is 1026 UPTP instructors and 1794 UPTD instructors with 32 vocations being trained.

Based on data released by the Directorate General of Bina Lavotas and the results of an interview with Mr. Bergianta Sinulingga, S.T., M.M. as the Coordinator of the Functional Position of Government Instructors at the Directorate of Instructor and Training Personnel Development (Bina Intala), Directorate General of Vocational Training and Productivity Development (Bina Lavotas), Ministry of Manpower of the Republic of Indonesia, the conditions for the need for instructors are as follows: 1. Existing instructors both in UPTP and UPTD have not been evenly distributed across all sectors, 2. The need for instructors in all sectors has not been met and is greatly needed to bridge job seekers, 3. The need for instructors is also not evenly distributed across all provinces which are greatly needed. By fulfilling the number and distribution of instructors in all sectors and provinces, it is hoped that it can reduce the unemployment rate nationally.

The implementation of training programs in accordance with the National Job Training System (Sislatkernas) where training programs are still carried out conventionally with the addition of up-to-date learning media according to technological developments, this is a challenge for the Ministry of Manpower to organize training to form competent instructors on a massive scale so that the need for instructors is met. With the development of the industrial revolution, the Ministry of Manpower requires carrying out training activities for Prospective State Civil Apparatus, Prospective Functional Positions, Upgrading Functional Positions, adjusting the learning/training process according to technological developments in stages, both in terms of learning/training management and Training Resources. These developments require improvements in various sectors, both in terms of facilities, training management and teacher/trainer capacity, as well as developing training implementation.

Based on the researcher's interview with Mr. Muhammad Syikhab Adrie, S.T., M.T. as the Coordinator of the Method and Information System Development Field at the Directorate of Stankomproglat Development, Directorate General of Lavotas Development, Ministry of Manpower of the Republic of Indonesia, the following results were obtained: 1. The learning process went well, only that participants sometimes felt bored in the implementation of training in the classroom; 2. The instructor taught using presentations and distributed training modules; 3. The teaching materials were still in the form of printed modules for several instructors; 4. The learning method used lectures and discussions; 5. The evaluation carried out was still conventional by working on written questions; 6. Learning outcomes required repetition to meet competency standards; and 7. With the implementation of conventional training, the number of instructors trained was not large because the budget quota for the training was limited.

From the interview results obtained, research is needed on the development of learning methods. There are quite a lot of learning methods that are currently developing, both teacher-oriented, namely Teacher Center Learning (TCL) and there is also Student Center Learning (SCL). Judging from the development of technology and environmental conditions, the development of learning methods is more inclined towards SCL by using better digital technology. According to this, researchers will develop online-based learning media with the Massive Open Online Course (MOOC) method. In this study, the intention is to be more effective and efficient in forming instructors. MOOC is an online learning method that can be followed by many participants using the internet. This MOOC is an easy and cheap learning alternative because it does not require large costs and special requirements to be able to take part in the training (Haba & Dastane, 2019; Wang & Zhu, 2019; Zhu et al., 2018).

Based on the background above, this problem arises due to the lack of competence and absorption of training graduates for the needs of the job market, namely the lack of massive formation of instructors using conventional methods and the development of online-based learning media.

By determining the focus of the research and the limitations of time, energy and costs, the problem is limited to the development of online-based learning media with the MOOC learning method to form instructors on a massive scale, more effective in terms of time and efficient in terms of budget costs in implementing instructor methodology training programs.

B. Research Methods

This study aims to be a pilot for all Vocational and Productivity Training Centers throughout Indonesia, both under the Ministry of Manpower and under the Regional Government, to implement the development of online-based learning media with the MOOC method on instructor methodology competencies. This study strengthens the National Job Training System Scheme, which has been implemented conventionally to digital so that training is more effective and efficient.

The place used for the study is the Directorate of Stankomproglat Development, Directorate General of Lavotas Development, Ministry of Manpower of the Republic of Indonesia, located at the Vocational Building, Jalan Jenderal Gatot Subroto Kaveling 44 Setiabudi, South Jakarta 12950. The research period is 5 months starting from September 2023 to January 2024.

The research method used in this study is Research and Development (RnD) using the Borg & Gall development model integrated with the ADDIE model.
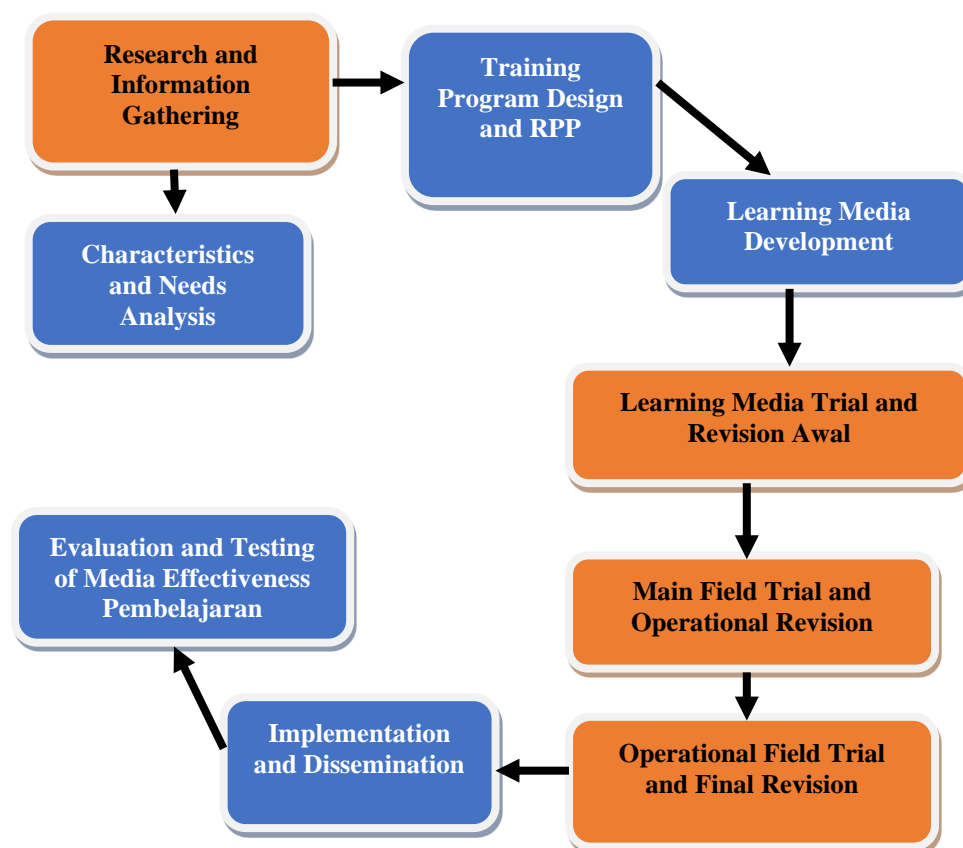

Figure 2. Design Development of Borg & Gall Model with Modified ADDIE Model Integration Research

The data analysis technique in this study uses qualitative data analysis. Data included in qualitative research include interviews, observations and questionnaires.

C. Results and Discussion

Needs Analysis

From the results of the analysis of the need for the development of online-based learning media with the MOOC method on the instructor's methodological competency, 93.9% was obtained. The Indonesian Ministry of Manpower, in this case the Directorate of Competency Standardization and Training Programs, needs to be able to carry out the formation of instructors.

Material Analysis

The results of the material analysis, the development of online-based learning media with the MOOC method on the instructor's methodological competence showed that 84.8% of respondents agreed that this development makes training easier to understand, more effective and efficient in achieving learning objectives.

Media Expert Validity

This test aims to determine whether the E-Training that has been prepared is suitable for use or needs revision with 10 people selected randomly for small-scale testing and 16 people for large-scale testing. After that they were given a questionnaire with a Likert scale calculation. The results of this validation are in the form of assessments, suggestions, comments and input that can be used as a basis for conducting analysis and revisions into the developed development media. The test results can be said to be feasible if the value tested is above 61.

Tabel 1. Media Expert Test Calculation

Test	Aspect	Skor	Information
Media Expert	Training Materials	97,4%	Very decent, no need to revise
	Technical	100%	
	Learning	100%	

Based on table 1, it can be concluded that the average of the media expert test on the existing aspects is 99.13%. Thus, according to the media expert test, the product created is very feasible and does not need to be revised.

Validity of Design Expert

Tabel 2. Design Expert Test Calculation

Test	Aspect	Skor	Information
Design Expert	Utility	63,33%	Worthy, needs to be revised
	Learning	60%	

Based on table 2, it can be concluded that the average of the design expert test on the existing aspects is 61.67%. Thus, according to the design expert test, the product that was created is feasible and needs to be revised.

Validity of Material Experts

Tabel 3. Material Expert Test Calculation

Test	Aspect	Skor	Information
Subject Matter Expert	Contents	89,41%	Very Good, no need to revise
	Benefit	86,67%	

Based on table 3, it can be concluded that the average of the material expert test on the aspects of material content and benefits is 88.04%. Thus, according to the material expert test, the product created is very feasible and does not need to be revised.

Effectiveness Test

Tabel 4. Pretest and Posttest Results

No	Training Partisipants	Test Scores	
		Pretes	Postes
1	A	50	80
2	B	43	70
3	C	56	100
4	D	43	100
5	E	43	100
6	F	43	100
7	G	46	80
8	H	46	100
9	I	53	100
10	J	43	90
11	K	46	100
12	L	36	80
13	M	60	90
14	N	33	70
15	O	43	90
16	P	43	40
17	Q	33	70
18	R	50	90
19	S	46	90
20	T	36	100

Tabel 5. Paired Sample t-test

Paired Samples Test

		Paired Differences							Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-Sided p
Pair 1	Pretest - Postest	-36.500	9.333	2.087	-40.868	-32.132	-17.490	19	<,001	<,001

The Learning test uses a pretest and posttest where the results of the trial before and after the treatment get a very high significance value with the pretest and posttest values being 0.001 where the value is less than 0.05 it can be concluded that there is a very significant or strong difference between the learning outcome test scores before the trial and the learning test scores after the trial, thus the results of the pretest and posttest can be said to be affective.

D. Conclusion

Several conclusions obtained from the formulation of the problem in this study, namely 1) Development of online-based learning media with MOOC learning method on instructor methodology competency starts from user characteristic analysis, namely training participants and need characteristic analysis. Then continued with preliminary study stage according to relevant research references. The next step is to create Training Program and training implementation planning/RPP which includes the plan that will be carried out in the training process and the limitations of the material presented. The next stage is to create teaching materials, both reading materials and broadcast materials needed in the training. 2) After the learning media is finished, a feasibility test is carried out starting from the media, design and material expert test, then a small group test of 10 people and a large group test of 16 people are carried out. From the feasibility test, revisions are made if there is input from experts in terms of material, design and media and then validated for the final draft. 3) The final draft was tested on 20 participants by adding the effectiveness test of the Donald Kick Patrick model at two levels, namely the reaction level and the learning level. The two tests obtained a cut-off point value at an average of 96 above the cut-off point of 50. Thus, the test was effective with the criteria of "very satisfied". For the Learning level, pretest and posttest were used where the results

of the trial before and after the treatment obtained a very high significance value with a pretest and posttest value of 0.001 where the value was less than 0.05.

E. Acknowledgment

References

Ahmad, A. K., & Ma'rifataini, L. (2022). Pendidikan Life Skill di Madrasah Aliyah: Studi Kasus MA Keterampilan Al Irsyad Gajah, Demak. *EDUKASI: Jurnal Penelitian Pendidikan Agama Dan Keagamaan*, *20*(2), 150–167. https://doi.org/10.32729/edukasi.v20i2.1252

Aini, Y. N., & Purba, Y. A. (2022). Analisis Penyerapan Tenaga Kerja Dan Program Link & Match Pada Lulusan Sekolah Menengah Kejuruan (Smk) Program Kelautan & Perikanan. *Jurnal Kebijakan Sosial Ekonomi Kelautan Dan Perikanan*, *12*(1), 23–37. https://doi.org/10.15578/jksekp.v12i1.10339

Aslam, F., Aimin, W., Li, M., & Rehman, K. U. (2020). Innovation in the era of IoT and industry 5.0: Absolute innovation management (AIM) framework. *Information (Switzerland)*, *11*(2), 1–24. https://doi.org/10.3390/info11020124

Dharshinni, N. P., Singh, G., Simamora, A., Naibaho, J. A. T., & Tobing, R. D. L. (2023). Penerapan Algoritma K-Means Pada Data Pengangguran Di Jawa Barat. *Data Sciences Indonesia (DSI)*, *3*(1), 23–34. https://doi.org/10.47709/dsi.v3i1.2767

Disas, E. P. (2018). Link and Match sebagai Kebijakan Pendidikan Kejuruan. *Jurnal Penelitian Pendidikan*, *18*(2), 231–242. https://doi.org/10.17509/jpp.v18i2.12965

Donald, W. E., Ashleigh, M. J., & Baruch, Y. (2018). Students' perceptions of education and employability: Facilitating career transition from higher education into the labor market. *Career Development International*, *23*(5), 513–540. https://doi.org/10.1108/CDI-09-2017-0171

Haba, H. F., & Dastane, O. (2019). Massive open online courses (MOOCs) - Understanding online learners' preferences and experiences. *International Journal of Learning, Teaching and Educational Research*, *18*(8), 227–242. https://doi.org/10.26803/ijlter.18.8.14

Kolade, O., & Owoseni, A. (2022). Employment 5.0: The work of the future and the future of work. *Technology in Society*, *71*(March), 102086. https://doi.org/10.1016/j.techsoc.2022.102086

Kusnadi, I. H. (2020). Efektifitas Program Pelatihan Berbasis Kompetensi Pada Unit Pelaksana Teknis Daerah Balai Latihan Kerja di Kabupaten Subang. *The World of Public Administration Journal*, *1*(2), 103–124. https://doi.org/10.37950/wpaj.v1i2.739

Kusnadi, I. H., Luki, N., & Faqihudin, F. (2022). Efektivitas Penyelengaraan Program Pelatihan Kerja Di UPTD Balai Latihan Kerja Dinas Tenaga Kerja Dan Transmigrasi Kabupaten Subang. *The World of Public Administration Journal*, *3*(2), 106–123. https://doi.org/10.37950/wpaj.v3i2.1228

Oswald-Egg, M. E., & Renold, U. (2021). No experience, no employment: The effect of vocational education and training work experience on labour market outcomes after higher education. *Economics of Education Review*, *80*, 102065. https://doi.org/10.1016/j.econedurev.2020.102065

Szabó-Szentgróti, G., Végvári, B., & Varga, J. (2021). Impact of industry 4.0 and digitization on labor market for 2030-Verification of Keynes' Prediction. *Sustainability (Switzerland)*, *13*(14), 1–19. https://doi.org/10.3390/su13147703

Wang, K., & Zhu, C. (2019). MOOC-based flipped learning in higher education: students' participation, experience and learning performance. *International Journal of Educational Technology in Higher Education*, *16*(1), 1–18. https://doi.org/10.1186/s41239-019-0163-0

Zhu, M., Bonk, C. J., & Sari, A. R. (2018). Instructor experiences designing MOOCs in higher education: Pedagogical, resource, and logistical considerations and challenges. *Online Learning Journal*, *22*(4), 203–241. https://doi.org/10.24059/olj.v22i4.1495

Zizic, M. C., Mladineo, M., Gjeldum, N., & Celent, L. (2022). From Industry 4.0 towards Industry 5.0: A

Review and Analysis of Paradigm Shift for the People , Organization and Technology. *Energies*, *15*, 5221. https://doi.org/10.3390/en15145221