Advances in Economics, Business and Management Research, volume 192
Proceedings of the Seventh Padang International Conference On Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA 2021)

Interactive Learning Media Innovation Based on Digital Correspondence Management for Office Administration Students in Indonesia to Improve Learning Outcomes

Buyung Adi Dharma[1], Andi Basuki[2], Madziatul Churiyah[3], Mohammad Arief[4]
Vina Nur Machabbatulillah[5]

[12345]*Universitas Negeri Malang, Malang, Indonesia*
[*]*Corresponding author. E-mail: buyung.adi.fe@um.ac.id*

ABSTRACT
Entering the 21st century learning era requires creative, innovative, communicative, collaborative, and competitive character skills that a person must have, push education should be able to prepare college students to have complete competence. The use of digital learning is one of the important components in learning to improve technology and information media skills. This investigation intends to deliver learning media that can be used when learning activities in the form of digital correspondence management on correspondence courses to improve student learning outcomes. This type of research and development uses the modified Borg and Gall Research and Development model. The data obtained are in the form of quantitative data from the calculation of the scores on the validation questionnaire, as well as the psychomotor test results, in addition there are qualitative data from interviews, criticism and suggestions. In light of the information that has been gotten, the information investigation method utilized is the autonomous example t-test and subjective illustrative examination. The results of validation and testing show that digital correspondence management has advantages, namely meeting requirements, supporting automation, and being user friendly. The application of digital correspondence management is able to improve student learning outcomes in correspondence courses.

Keywords**:** *21st Century Learning, Digital Learning, Learning Outcomes, Correspondence, Learning Media.*

1. INTRODUCTION

The enormous advancement of science and innovation has gotten key changes the world. Presently, the world has entered the time of 21st century learning. In the education sector in the 21st century learning era, what must be a concern is to prepare a more innovative technology-based learning system [1]. The learning process is emphasized on 21st century learning skills, which focuses on strengthening practice and implementing significant skills [2]. There is a need for digital technology-based learning that continues to develop in order to be able to increase the competence of graduates so that they have 21st century learning skills.

The 21th century education trend of learning which is marked by technological disruption has significant implications for the education system. Innovation based learning is a field of schooling that centers around innovation and the plan of viable learning frameworks joined in giving training to understudies by accentuating advanced innovation based learning items [3]. Competency-based instruction is one of the principle missions of advanced education in the current time.

Every student is expected to have skills in digital technology-based learning in order to create skilled and competent graduates so that they are ready to enter the world of work. The utilization of educational media in the instructing and learning interaction can create new interests and wants, produce inspiration and incitement of learning exercises, and can even prompt mental impacts in learning.The idea of developing learning media must be able to support student understanding in understanding learning material framed in adaptive, practical, and close to student needs [4]. Developing quality, digital-based learning media on learning has become the most

important part in building the dynamics of information-based learning [5].

Selection of technology-based learning media can provide better support for students with less abilities, increase the response to engagement in the teaching and learning process, provide opportunities for accelerated learning for bright and talented students, and develop student learning abilities independently through individual learning experiences [6].

The utilization of computerized learning can be utilized as an assortment of intends to build understudy inspiration and innovativeness. The utilization of computerized learning alludes to the utilization of modern data and correspondence innovation as an electronic learning medium [7]. Advanced learning-based learning is interesting, including that it can fundamentally improve the whole instruction framework, just as make another measurement in discovering that eliminates hindrances to time, distance, and financial status [8]. Computerized learning has great possibilities in different viewpoints, for example, from the understudy side, content stockpiling and the executives, metadata the board and ordering and there are expected advantages in Versatile Learning Conditions [9].

Currently, many findings reveal that digital learning-based learning is able to increase student interest as a motivational supportive situation factor. For example, research by Teo [10] on the effectiveness of the application of digital learning in Korea states that the transformation of education with technology has succeeded in increasing the effectiveness and legitimizing the success of digital learning as a digital technology-based learning guide. Then Mahboobi [11] with research on the implementation of digital learning in several universities in Afghanistan, El-Sofany [12] regarding the use of cloud-based digital learning at King M Transport's Institute of Thechnology Ladkrabang, Thailand and research by Al-Rahmi [13] on the application of digital learning at Universiti Technology of Malaysia has had several positive results from the development of digital learning in universities.

Behind the numerous chances offered in the utilization of advanced learning as a learning medium in the 21st century learning period, not all nations have had the option to apply it in the field of instruction. One of them is the Office Administration Education study program in Indonesia. The impact is that learning activities in the network are not maximal. Based on this, there are opportunities and demands to develop digital learning based on digital learning that can be accessed via smartphones and computers so that the learning environment in the 21st century learning era is more efficient and attractive [8]. The reason for this investigation is to carry out the turn of events of digital correspondence management in Correspondence Courses for Office Administration Education college students in Indonesia. The media developed has various features that are tailored to the requirements for lecturers and students, including the login profile feature, instructions, about the application, settings, create a letter according to style, learning materials, performance-based authentic assessments that support the improvement of student skills in the 21st Century Learning in accordance with the world of work.

This research is very important because it is based on the description of the need for digital learning development in the teaching and learning process in correspondence courses computerization skills, time management, and technical working skills, changes in the direction of learning in the 21st century era learning requires a learning approach that is in accordance with its characteristics [14]. In addition, in the Correspondence Course, there is a lot of material that is abstract in nature so it requires a comprehensive visual explanation. Indonesia, which adopts the concept of 21st Century Learning must also start transforming higher education learning into digital learning that is systemized and can be operated on computer and smartphone devices owned by students.

2. METHODOLOGY

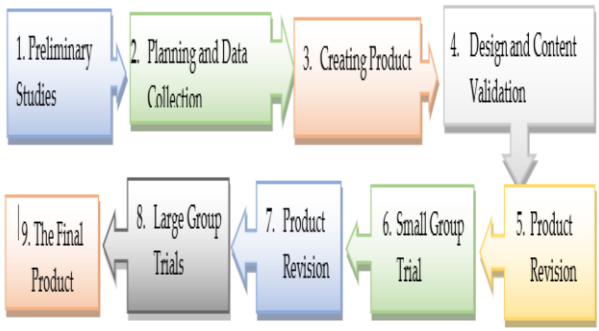

Figure 1 Research Steps

This study uses a research and development (R & D) approach from Borg and Gall which has been modified into nine steps, namely: 1) the researcher collects information related to problems and potentials in the office administration education program in Indonesia; 2) the researcher carried out several processes for the preparation of lecture material in accordance with the Semester Learning Plan, collected supporting materials in material development, determined expert validators, and students as initial field trials, determined the control class and experimental class; 3) researchers begin to design instructional media; 4) the media produced by the researcher was tested for feasibility by the media expert validator and the material expert validator; 5) products that have been validated are revised based on input and suggestions both orally and in writing listed on the questionnaire sheet for the evaluation of material experts and media experts; 6) the revised product was tested on 40 students; 7) products that have been tested in small groups are revised according to student input listed on the small group trial questionnaire results sheet; 8) the revised product was then tested on a large group involving students of the Office Administration Education study program at the Universitas Negeri Malang, Universitas Negeri Makasar, Universitas Pendidikan Indonesia; 9) products that do not experience problems when passing large group trials are the final product in this study.

The data collection instrument was carried out by collecting through distributing questionnaires, interviews, giving postest questions. The subjects of this examination were material specialists, media specialists, and 40 little gathering preliminary understudies, just as 120 huge gathering preliminary understudies. The information created in this examination incorporate subjective information and quantitative information, where subjective information is gotten through reaching inferences dependent on broad suppositions, remarks, ideas, and reactions.

While quantitative information comprises of poll information from material master approval results, survey information from media approval results, poll information from little gathering preliminaries, practicum scores for understudy learning results. The information investigation procedure was the consequence of the approval of material specialists, media specialists, little gathering preliminaries, dissected utilizing the rate elucidating strategy to show the achievability level of the learning media. While the understudy learning results information were broke down utilizing the free example t-test to show contrasts in understudy learning results in the exploratory class and the control class.

3. RESULTS AND DISCUSSION

The product produced in this research and development is a website-based learning media created as a learning media for the correspondence course practice in the Office Administration Education under graduate study program in Indonesia with the learning outcomes of technology-based Indonesian correspondence courses. Digital correspondence management is a form of quality learning containing material accompanied by practicum media.

Digital correspondence management has various advantages as a learning medium. First, the features in the digital correspondence management application as a learning medium meet the requirements as a digital technology-based learning medium and support automation that is adapted to various devices. Digital-based learning media are made to facilitate the independent and group learning process and can provide motivation and hone user thinking because learning becomes easier and more fun and follows the trend of digital technology. In addition, learning media that are designed to be student-centered can handle boundaries and point to information with online learning media which can make a greater contribution to users [15].

Second, digital correspondence management as a learning medium is designed to be very user friendly with a responsive design, structured information and consistency, good color contrast, and intuitive. The purpose of user interface design is to design an effective interface for software systems, and a good user interface must integrate user interaction and information presentation so as to reduce distraction in learning dynamics [5]. The advantages of digital learning can also be accessed anytime and anywhere. This is because digital correspondence management has enormous access to learning information.

In addition, digital correspondence management as a learning medium is said to be of high quality because it is packaged in the form of learning media that is connected to each of its features and its use is accessed through developing technology, in the form of laptops, computers and mobile phones.

Learning media produced by digital correspondence management can be opened via google by typing http://mythemes.rf.gd/. The display of digital correspondence management and general operation methods for lecturers can be seen in Figure 2-3 below:

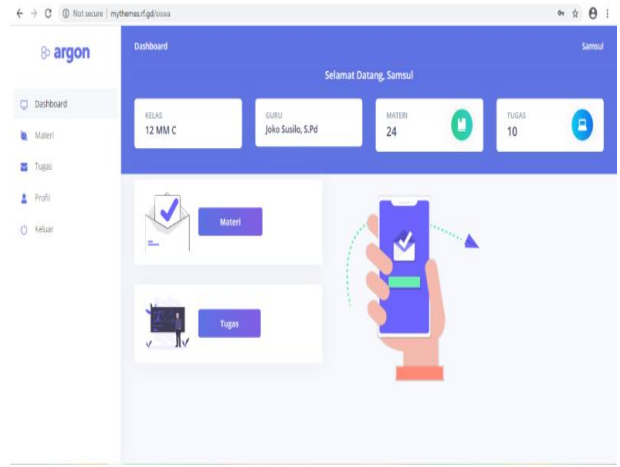

Figure 2 Features for Lecturers in Digital Correspondence Managemen

The following is an initial display in the form of a button to login and register for students by logging in using the student username and password.

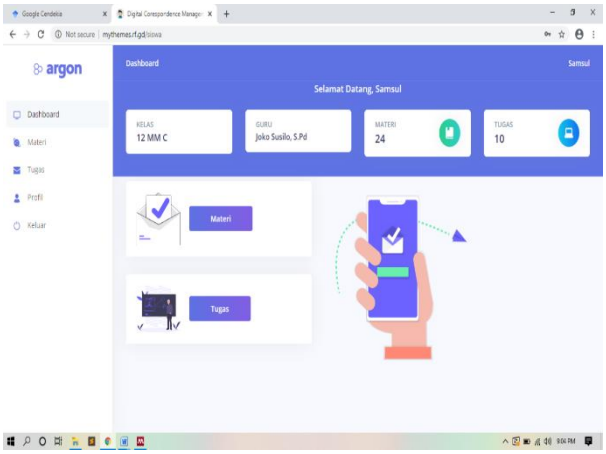

Figure 3. Features for Students in Digital Correspondence Management

There are two login methods in digital correspondence management, namely as lecturers and students with 7 features consisting of login profile features, instructions, about the application, settings, create a letter according to style, learning materials, authentic assessment based on supporting performance. student skills in the 21st Century Learning era.

Besides, applications that have been customized are approved to decide the attainability of the application as a learning medium. The possibility of advanced correspondence the executives learning media dependent on material specialists depends on a few pointers that have been accomplished [10]. The markers of accomplishment in this investigation incorporate the significance of learning materials and practicum media, the completeness of media presentations, and providing convenience in understanding the material through practice and learning to be student-centered. Then the feasibility of learning media in terms of validation of learning media, digital correspondence management is said to be feasible based on the achievement of feasibility indicators for the appearance of practicum media, ease of access, navigation and operation, and this practicum media according to the level of understanding and ability of students.

The consequences of digital correspondence management approval by material specialists, media specialists, and little gathering preliminary understudies all in all are as subjective information and quantitative information. In the test or preliminary advance, there are three sorts of media preliminaries that should be passed, in particular (1) singular testing including material specialists and media specialists; (2) little gathering test; (3) Sadiman's huge gathering test. This approval preliminary is utilized to portray the quality and achievability of the aftereffects of the site based learning media that has been made. In the accompanying, quantitative information approval and little gathering preliminary subjects are introduced in Table 1 underneath.

Table 1. Overall Validation Result Data

No	Validation	Percentage	Validity Criteria
1.	Material Expert	83,5%	Very Valid
2.	Media Expert	95%	Very Valid
3.	Small Group Trial	98%	Very Valid
	Average	**92%**	**Very Valid**

Source: Data validation results

In light of Table 1, it is realized that the general normal level of approval is 92%, so it tends to be reasoned that the learning media developed by researchers, namely digital correspondence management, are stated as 'Very Valid' and suitable for use in learning correspondence courses for office administration education students in Indonesia. Learning media is said to be valid if the value is collected in the substantial class and the approval appraisal of the media is changed in accordance with the viewpoints utilized and the advancement of digital management correspondence is exceptionally legitimate and appropriate for use as learning media.

Learning outcomes are representative of the achievement of student competencies after passing through their learning experiences [3]. Learning outcomes that are viewed are based on psychomotor aspects, namely by looking at the results of practicum assignments related to technology-based Indonesian correspondence material.

In this research and development, researchers used trial subjects from Universitas Negeri Malang, Universitas Negeri Makassar, and the Universitas Pendidikan Indonesia. The assessment of learning outcomes in the trial class and control class dependent on the posttest given to the test class and control class was then prepared in SPSS through the ordinariness test and free example t test. The ordinariness test in this examination was done utilizing the Shapiro-Wilk test with the assistance of SPSS variant 25. The ordinariness test information was done on understudy taking in results from the post-test scores of the exploratory class and the control class. The results of the post-test normality are in Table 2 below:

Table 2. Comparison of the Average Learning Outcomes of the Experiment Class and the Control Class

		Shapiro-Wilk		
	Class	Statistic	df	Sig.
Learning Outcomes	1 Control Class	.958	120	.215
	2 Experiment Class	.973	120	.552

Source: Normality test table

In view of Table 2, the consequences of the Shapiro-Wilk ordinariness test show that the aftereffects of the post-test inquiries for the test class and control class have an importance esteem individually, specifically 0.215 in the control class and 0.552 in the exploratory class, which results> 0.05. From this worth, it is inferred that the aftereffects of the posttest scores are typically appropriated. Subsequent to testing the ordinariness of the information, the Free Example t-Test was completed on the post-test consequences of the exploratory class and the control class. The Free Example t-test in this investigation was led to test the distinctions in the consequences of the posttest scores of the trial class (working on utilizing media) and the aftereffects of the posttest scores of the control class (not utilizing media). While the consequences of the free example t-test on the understudy learning results of the control class and the test class are introduced in Table 3 underneath.

Table 3. The Results of the Independent Sample T-Test

Independent Sample t- Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Learning Outcomes	Equal variances assumed	.724	.398	-14.496	66	.000	-9.382	.647	-10.675	-8.090
	Equal variances not assumed			-14.496	65.109	.000	-9.382	.647	-10.675	-8.090

Source: The results of the independent sample t-test.

Result of the independent sample T-Test it is realized that the Sig. The Levene's Test for Equity of Changes is 0.398> 0.05, which implies that the information fluctuation between the test class and the control class is homogeneous or the equivalent. So the translation of the yield of the Autonomous Example t-Test table above is guided by the qualities contained in the Equivalent changes expected to be table. In view of the Autonomous Example t-Test yield table in the Equivalent differences expected, it is realized that the sig. (2-followed) esteem is 0.000 <0.05, so as the reason for dynamic in the Autonomous Example t test, it tends to be inferred that Ho is dismissed and Ha is acknowledged. Along these lines it tends to be reasoned that there is a huge contrast between the normal understudy learning results in the post test class and the control class.

The amendment interaction on the learning results of post-test and useful assessment of every understudy from the test class and from the control class that has been done, the understudy learning results acquired demonstrate that there is a huge distinction in the normal learning results between the exploratory class and the control class. The normal learning results of the test class are higher than the normal learning results of the control class. This is because when taught using learning media, experimental class students are more active, more interested and motivated to learn. In addition, the use of digital correspondence management learning media makes it easier for the experimental class to train their psychomotor. In the control class (L) who did not practice using digital correspondence management. So it can be concluded that there is an increase in computer skills and competencies, the use of digital learning is able to motivate students which leads to a better level of participation, and makes it easier for students to access and explore learning content which shows that there is a significant positive effect of learning media on learning achievement.

4. CONCLUSION

This research and development produces correspondence learning media based on mobile learning in the form of digital correspondence management for students of the Office Administration Education study program in Indonesia as well as the provision of new books for users and digital correspondence management that can be accessed directly. Development products can be downloaded via the google play store or via the link http://mythemes.rf.gd/. The results of the feasibility test of the digital correspondence management learning media as a whole according to material experts, media experts, and small group trials are very valid and appropriate for use as training materials in the learning cycle.

Digital correspondence management learning media is more effective to improve learning outcomes than learning that does not use digital correspondence management that can be seen from student learning outcomes, where the average psychomotor value of the control class < experimental classes. This indicates that digital correspondence management has been appropriate as a learning medium and is able to reduce distractions in the transfer of knowledge in the 21st century learning era.

Similar research is important to be conducted on a broader subject and different research variables, to see the validity of similar products. Learning through mobile learning also needs to be measured in relation to other variables.

ACKNOWLEDGMENT

Thanks the authors give to Universitas Negeri Malang who has given us the opportunity to carry out research and development of learning media, and the validators and test subject involved who have been willing to take the time to provide the required data, as well as all parties who cannot be named one by one in supporting the process of making this scientific article.

REFERENCES

[1] M. Elyazgi, "Validating Pupils' Behaviour Intention to Use E-Book Technology in their Learning," 2018, doi: 10.14419/ijet.v7i2.29.13810.

[2] N. Ongardwanich, S. Kanjanawasee, and C. Tuipae, "Development of 21st Century Skill Scales as Perceived by Students," *Procedia - Social and Behavioral Sciences*, vol. 191, pp. 737–741, Jun. 2015, doi: 10.1016/j.sbspro.2015.04.716.

[3] D. N. Sari, I. N. Suputra, and A. Chasanah, "Improving Student Learning Outcomes With a Staffing Administration Module Based Guided Inquiry In Basic Competencies Suggested Leave Regulations," *JPBM (Jurnal Pendidikan Bisnis dan Manajemen)*, vol. 3, no. 3, Art. no. 3, Nov. 2017, doi: 10.17977/um003v3i32017p210.

[4] A. Ana and Y. Achdiani, "PENERAPAN SELF REGULATED LEARNING BERBASIS INTERNET UNTUK MENINGKATKAN KEMANDIRIAN BELAJAR MAHASISWA," *INVOTEC*, vol. 11, no. 1, Art. no. 1, 2015, doi: 10.17509/invotec.v11i1.4835.

[5] G. L. Troseth and G. A. Strouse, "Designing and using digital books for learning: The informative case of young children and video," *International Journal of Child-Computer Interaction*, vol. 12, pp. 3–7, Apr. 2017, doi: 10.1016/j.ijcci.2016.12.002.

[6] L. L. Hadar, "Opportunities to learn: Mathematics textbooks and students' achievements," *Studies in Educational Evaluation*, vol. 55, pp. 153–166, Dec. 2017, doi: 10.1016/j.stueduc.2017.10.002.

[7] I. Falahudin, "Pemanfaatan Media dalam Pembelajaran," no. 4, p. 14, 2014.

[8] L. Efriyanti and F. Annas, "Aplikasi Mobile Learning Sebagai Sarana Pembelajaran Abad 21 bagi Pendidik dan Peserta Didik di era Revolusi Industri 4.0," *Jurnal Educative: Journal of Educational Studies*, vol. 5, no. 1, Art. no. 1, Jun. 2020, doi: 10.30983/educative.v5i1.3132.

[9] M. Jou, R. D. Tennyson, J. Wang, and S.-Y. Huang, "A study on the usability of E-books and APP in engineering courses: A case study on mechanical drawing," *Computers & Education*, vol. 92–93, pp. 181–193, Jan. 2016, doi: 10.1016/j.compedu.2015.10.004.

[10] T. S. H. Teo, S. L. Kim, and L. Jiang, "E-Learning Implementation in South Korea: Integrating Effectiveness and Legitimacy Perspectives," *Inf Syst Front*, vol. 22, no. 2, pp. 511–528, Apr. 2020, doi: 10.1007/s10796-018-9874-3.

[11] S. A. Mahboobi, "Success Factors for e-learning implementation in Afghan Higher Education institutions," *Technium Social Sciences Journal*, vol. 18, pp. 101–116, Apr. 2021.

[12] H. F. El-Sofany, A. A. Tayeb, K. Alghatani, and S. A. El-Seoud, "The Impact of Cloud Computing Technologies in E-learning," *International Journal of Emerging Technologies in Learning (iJET)*, vol. 8, no. S1, Art. no. S1, Jan. 2013.

[13] W. Al-Rahmi *et al.*, "Use of E-Learning by University Students in Malaysian Higher Educational Institutions: A Case in Universiti Teknologi Malaysia," *IEEE Access*, vol. PP, pp. 1–1, Feb. 2018, doi: 10.1109/ACCESS.2018.2802325.

[14] M. Amasha and S. Al-Omary, "Quizrevision: A Mobile Application using the Google MIT App Inventor Language Compared with LMS," *International Journal of Advanced Computer Science and Applications*, vol. 8, Jan. 2017, doi: 10.14569/IJACSA.2017.080641.

[15] A. Rusmiyati, "Impact Of Media QR Code To Grow The Interest Of Students Learn Sociology In Social Conflict Materials," *Metafora: Education, Social Sciences and Humanities Journal*, vol. 3, no. 2, Art. no. 2, Dec. 2019, doi: 10.26740/metafora.v3n2.p1-16.