


Interactive Multimedia "Melajah Cecimpedan Bali" for Elementary School Students Based on Android

Putu Satria Udyana Putra^{1*}, Santi Ika Murpratiwi², I Nyoman Widhi Adnyana³, Ni Putu Suci Meinarni⁴, Ni Wayan Yunita Sari⁵

^{1,2,3,4,5}Institut Bisnis dan Teknologi Indonesia

Article Info	ABSTRACT
Keywords: Cecimpedan Bali, Balinese Culture Preservation, Student Learning Media, Traditional Arts	Bali is famous for its strong and inherent culture in an area, one of which can be seen from the traditional arts that are still preserved by the community. Cultural heritage in the form of traditional arts in Bali still has a lot to be developed, preserved by the community and the younger generation. One of Bali's cultural heritage is Cecimpedan which is a Balinese puzzle. In an increasingly advanced era, traditional arts are beginning to be forgotten by the younger generation. One of the efforts that can be made so that culture in the form of traditional arts is preserved in the global flow that is advancing from year to year, through the use of interactive learning media in the learning process. The purpose of this research is to introduce cecimpedan to the younger generation, that learning traditional arts in the form of Balinese cecimpedan is no less fun than learning modern culture. The data obtained in this study from observation, questionnaires, and interviews. Based on the results of the questionnaire with a percentage of 97.2% or 72 respondents stated that the material presented in this interactive multimedia application is easy to understand.
This is an open access article under the CC BY-NC license 	Corresponding Author: Putu Satria Udyana Putra Institut Bisnis dan Teknologi Indonesia, Denpasar, Indonesia satria@instiki.ac.id

INTRODUCTION

Bali is famous for its strong and inherent culture in an area, one of which can be seen from the traditional arts that are still preserved by the community. Traditional arts are arts created by many people that contain elements of beauty whose results become common property (Aditama et al., 2022; Putra et al., 2020; Setiawan, 2022). Cultural heritage in the form of traditional arts in Bali still has a lot to be developed, preserved by the community and the younger generation. One of the cultural heritage of Bali is Cecimpedan Bali. This is also supported by the Balinese government program, namely the Balinese Language Month which is carried out to preserve the script, literature and utilization of the Balinese language in various forms, one of which is in the implementation of technology.

Cecimpedan Bali is a heritage of cultural wealth in the form of traditional arts that have been passed down from generation to generation and are still preserved by the community today (Arnawa, 2022). Cecimpedan is a guessing game in Balinese or a riddle that can train children's reasoning in thinking which is usually used as a joke, race, play and some of it

(Arnawa, 2019). In this global era, many people are more interested in modern values than traditional values. This is probably because people do not understand the meaning of modern. They think that modern is the same as westernized lifestyle. One of the efforts that can be made so that culture in the form of traditional arts is preserved in the global flow that is increasingly advanced from year to year through the use of interactive learning media in the learning process (Ariningsih et al., 2020; Kurniawan et al., 2024).

Schools play a very important role in efforts to preserve traditional arts, of course, with interactive learning media students will be more interested in learning traditional arts, learning methods will be more varied and the teaching and learning process will be more enjoyable. Learning media is anything that is used to channel messages and can stimulate the thoughts, feelings, attention, and willingness of the learner so that it can encourage the learning process. Multimedia can develop sensory abilities and attract attention and interest. Computer Technology Research (CTR), states that people can only remember 20% of what they see and 30% of what they hear. But people can remember 50% of what is seen and heard and 80% of what is seen, heard and done at once.

To find out the knowledge of students in recognizing the Balinese cecimpedan, the author made a questionnaire distributed to third and fourth grade students at SD No.1 Kutuh from the results of the questionnaire there are questionnaire data that shows 57% of students do not recognize the types of cecimpedan 91.6% are interested in learning cecimpedan. And 93.6% stated the importance of learning cecimpedan.

Based on the problems experienced by SD No. 1 Kutuh and from the results of the questionnaire which states that 100% are interested in learning media that contains text, images, animation, and sound. So the author will conduct research by developing Interactive Multimedia about Cecimpedan Bali for grade III and IV students at SD No. 1 Kutuh. It is expected that the existence of Cecimpedan Bali which is packaged in the form of interactive multimedia can help students in the learning process and help students in recognizing traditional art in the form of Balinese cecimpedan.

Interactive multimedia is a multimedia designed by someone so that its display fulfills the function of informing messages and has a side of interactivity to its users (Mamis et al., 2023). In this case there is a reciprocal relationship between users involved in interaction with the application program. With the interactive learning media will lead to an interesting learning process, more interactive, increase the attractiveness and attention of students in learning (Adnyana, 2023; Yuliasih et al., 2023).

Interactive Multimedia based on android is not a substitute for teachers in schools but as a learning media that can help the learning process of students when they want to understand the material about cecimpedan. With the existence of interactive learning media based on android, materials that have not been understood by students can be studied by utilizing interactive multimedia based on android as a learning medium (Ekayana et al., 2022; Nugraha et al., 2023). Multimedia has a use as a presentation of material, overcoming limitations of space, time, and can overcome student passivity.

METHODS

This research method is taken from the problems faced by students who are not familiar with Balinese cecimpedan. The theme of this research is used as a background in the design of this interactive multimedia-based learning media. From this background, problem boundaries are then made. This is done so that the discussion can be focused on the matter under study.

To support this research, valid data is needed to strengthen the arguments in the research (Ibrahim et al., 2023; Mertha et al., 2021; Muktiono, 2023). Data collection is carried out by several methods such as observation, interviews, questionnaires, literature review and documentation (Putra et al., 2022; Wasista et al., 2024; Yuliasih et al., 2023). The data is analyzed based on relevant theories to fit the problem of the object under study.

And the last is realizing interactive media to support the research. This stage consists of the design concept created and determining the visual strategy of interactive multimedia, compiling the application menu structure, after that making the application interface. If all stages are passed, then the next test is in the form of a questionnaire whose respondents are students of SD No. 1 Kutuh. Then after the testing stage is complete, the application can be published.

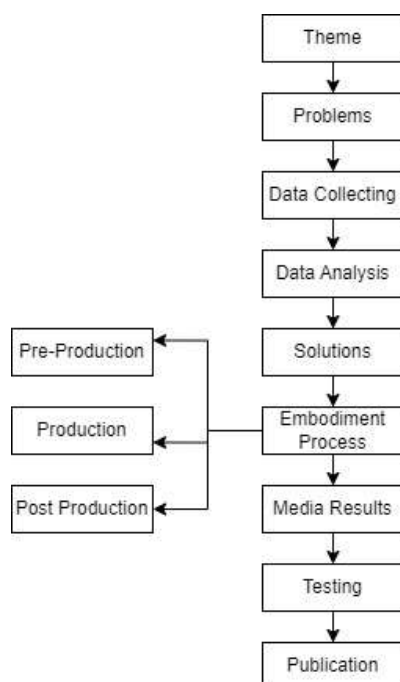


Figure 1. Design Stages

The pre-production process is the process of preparing all production needs so that the production process can run according to the concept and produce applications that are in line with expectations. The pre-production process of interactive multimedia melajah cecimpedan Bali starts from creating characters, backgrounds, buttons, and other supporting images using vector graphics processing applications. The production stage includes setting up worksheets, importing image assets, sound effects, adding keyframes, using action scripts.

Furthermore, post-production is the stage where the final completion process of interactive multimedia in the scene contains images, buttons, music and background which are then published.

RESULTS AND DISCUSSION

Pre-production Implementation

The pre-production process is the process of preparing all production needs so that the production process can run according to the concept and produce applications that are in line with expectations. The pre-production process of interactive multimedia *melajah cecimpedan Bali* starts from creating characters, backgrounds, buttons, and other supporting images using vector graphics processing applications, the author uses vector graphics processing because it has complete features, is suitable for illustration, and has sharp image quality. The pre-production stages of interactive multimedia *melajah cecimpedan Bali* are as follows:

Character Creation Process

The process of making character drawings aims to sketch character images to match the concept of this interactive multimedia, making character sketches using tools found in vector graphics processing applications. The character creation process can be seen in Figure 2.



Figure 2. Character Outline

The characters used in this interactive multimedia are a man and a woman dressed in Balinese traditional clothes that will be used on the main menu page, language page, and examples of *cecimpedan*.

Button Making Process

Sketching the buttons needed in this interactive multimedia consists of material, close, music, home, back, next, application info, start learning, *cecimpedan*, ordinary, *cecangkriman*, Balinese, Indonesian, quiz and game buttons. This button will be used as a connecting button from scene to scene.

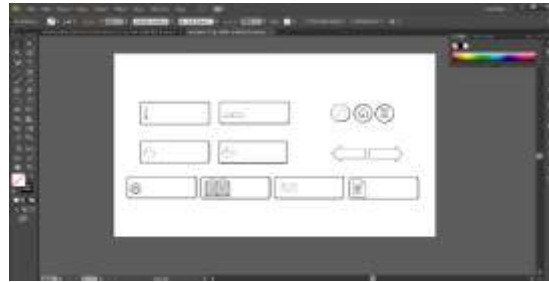


Figure 3. Outline Button

Background Creation Process

Making the background on this interactive multimedia is 800 x 480 pixels according to the size of the android screen. The background sketch can be seen in Figure 4.



Figure 4. Background Outline

Coloring Process of Sketch Drawing

The coloring of the images aims to make the sketches more vivid and interesting when viewed by the audience. The colors used consist of primary, secondary, and tertiary colors, using colors according to the concept and target that will use this interactive multimedia. The coloring results can be seen in Figure 5.

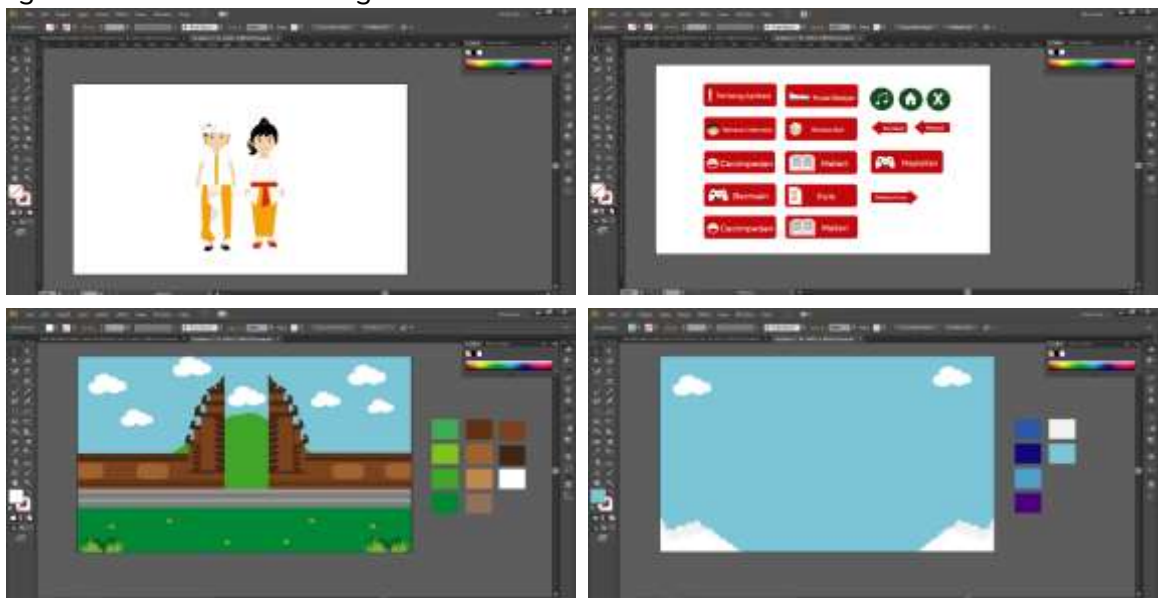


Figure 5. Image Coloring Process

Visualization

Visualization is the stage of displaying the results of interactive multimedia that has been made. Each page will be interconnected using the buttons on each page. The interactive multimedia display that has been made can be seen as follows:

Intro Page

On the intro page, a splash screen will appear which displays a zoom in and zoom out animation of the INSTIKI logo leading to the intro page. The splash screen page will appear when the learning media is run, after the animation on the splash screen is complete, the intro page will appear. On the intro page there are illustrations, application info buttons, start learning and music buttons. The action button functions to On or Off the music, to the application info page and to the main menu page.



Figure 6. Splash Screen Display



Figure 7. Intro Page Display

Main Menu Page

On the main menu page there are several buttons such as the Indonesian language button which will direct users to the Indonesian language menu, the Balinese language button which will direct users to the Balinese language menu. At the top right there are also music, home and close buttons. The music button functions if the user wants to turn on and off the music, the home button functions if the user wants to go to the main menu page while the close button functions if the user wants to exit the application. The main menu display can be seen in Figure 8.



Figure 8. Main Menu Page Display

Indonesian and Balinese Menu Page

On the Indonesian and Balinese menu pages there are 4 pages, namely the material menu, cecimpedan, games, and quizzes. The material page contains an explanation of cecimpedan, the cecimpedan menu contains examples of cecimpedan, the game menu contains educational games while the quiz menu contains practice questions about cecimpedan.

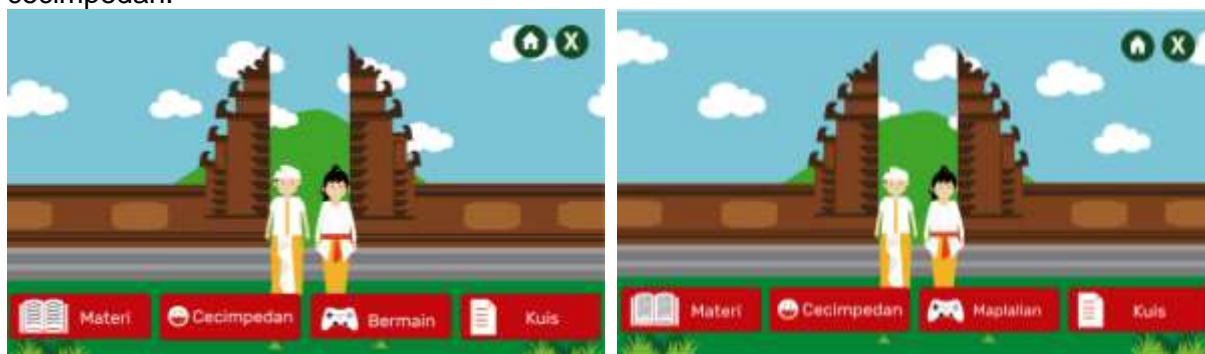


Figure 9. Display of Indonesian and Balinese Menu Page

Indonesian and Balinese Material Menu Page

The menu page of Indonesian material and Balinese material contains material about cecimpedan including what is cecimpedan and examples of cecimpedan. The purpose of having two languages in explaining this cecimpedan material is so that students who do not understand Balinese know what the content and meaning of the material presented in this interactive multimedia.

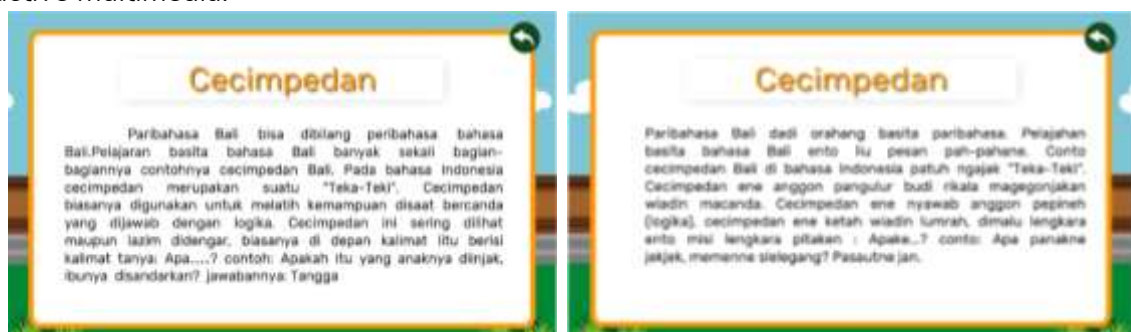


Figure 10. Menu Page Display of Indonesian and Balinese Materials

Cecimpedan Menu Page

The cecimpedan menu page has 3 menus, namely alit-alit, ordinary and cecangkriman. On the alit-alit, ordinary, and cecangkriman pages display examples of the cecimpedan and answers to sample questions displayed in the form of illustrative images with illustrative images the user will have an idea of the questions and answers presented.



Figure 11. Display of Cecimpedan Menu Page

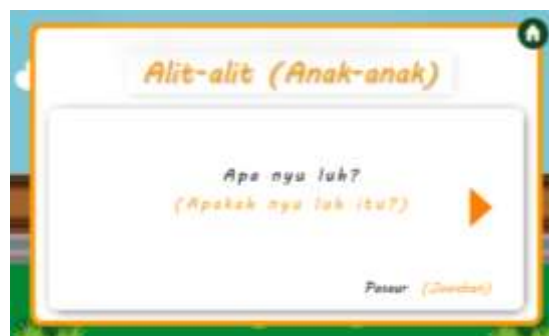


Figure 12. Display of Alit-Alit Menu Page



Figure 13. Display of Alit-Alit Answer Page

Application Info Menu Page

The application info page contains the purpose of making interactive multimedia applications, of course containing the logos of INSTIKI and SD agencies. Giving identity in the form of the INSTIKI logo aims to make users who use this application remember more and can distinguish this application from other applications, besides that users will know that interactive multimedia applications are made by one of the agency's residents. Giving the SD

logo aims to make users know that the target of making this application is for elementary school students.



Figure 14. Application Info Menu Page Display

Game Menu Page

The game menu page contains a start menu button, this button will direct the user to the game page. The game page contains educational games in the form of puzzles that can train students' patience when playing this game.



Figure 15. Game Menu Page Display

Quiz Menu Page

On the quiz menu page contains a start button that can direct the user to the quiz menu, the quiz menu page contains several questions about cecimpedan that can train students' knowledge in understanding the material presented in this interactive multimedia.

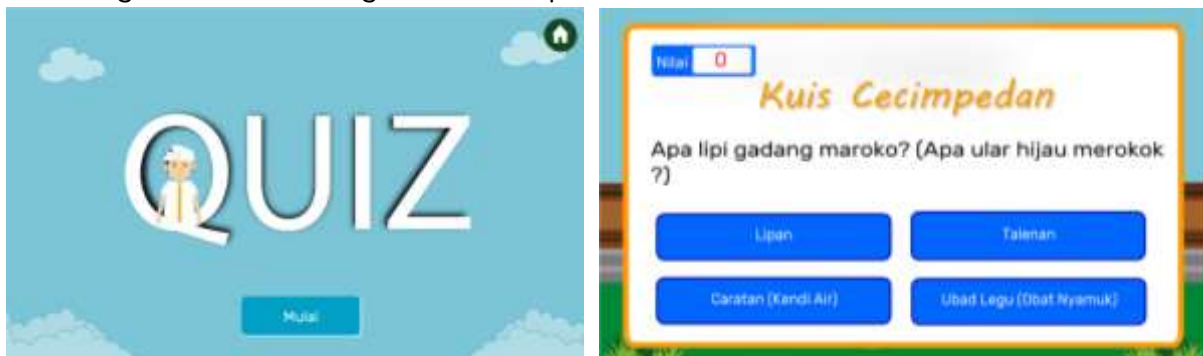


Figure 16. Quiz Menu Page Display

Analysis of Test Results

Testing of interactive multimedia applications melajah cecimpedan Bali is done with 3 types of testing, namely student respondent testing, media expert testing and material expert testing. Testing student respondents, namely third and fourth grade students at SD No. 1 Kutuh using a google form questionnaire.

The test results of the interactive multimedia questionnaire melajah cecimpedan Bali, where the distribution was carried out by online in the form of google form. Where the respondents stated that 100% or 72 respondents said the images in this application were attractive, 100% or 72 respondents said the colors on the background / background in this application were attractive, 100% or 72 respondents said the colors on the background / background in this application were attractive, 93.1% or 67 respondents said this application was easy to use, 93,1% or 67 respondents said the buttons in this application were easy to use, 100% or 70 respondents said the text/font of this application was easy to read, 94.4% or 68 respondents said they understood more about cecimpedan, 97.2 or 70 respondents said they knew more about the types and examples of cecimpedan, 97.2 or 70 respondents said the material presented in this application was easy to understand. Based on the calculation of media expert testing, it can be concluded that this interactive multimedia melajah cecimpedan Bali gets a feasibility percentage of 86.6% where the value can be categorized (Very Good). Based on the results of the calculation of material expert testing, it can be concluded that this interactive multimedia melajah cecimpedan Bali gets a feasibility percentage of 88.3% where the value can be categorized (Very Good).

CONCLUSION

In the design and realization of this interactive multimedia melajah cecimpedan Bali has passed through various stages and has produced multimedia that can be a medium in preserving Balinese culture, in addition to efforts to preserve the use of Balinese language in various technological implementations. The learning media melajah cecimpedan Bali has a cheerful concept with bright colors, background music, narration, and text that creates a pleasant learning atmosphere. To determine the feasibility of interactive multimedia melajah cecimpedan Bali by distributing questionnaires distributed to third and fourth grade students and distributing questionnaires to media experts and material experts. Questionnaires distributed to third and fourth grade students received 72 respondents, with 97.2% of respondents saying the material presented in this application was easy to understand. The questionnaire distributed to media experts received 2 respondents, saying that the interactive multimedia melajah cecimpedan Bali received a percentage of feasibility as a learning medium of 86.6%. Questionnaires distributed to material experts get 2 respondents, getting the conclusion that this interactive multimedia melajah cecimpedan Bali gets a feasibility percentage of 88.3%. Suggestions for future research are to develop the language used in learning media so that it can be learned more widely.

ACKNOWLEDGMENT

Thanks to the DRPM of the Indonesian Institute of Business and Technology for the support of the Instiki Research and Development Program (IRDP) research grant and all parties who supported the success of this research activity.

REFERENCE

- Aditama, P. W., Meinarni, N. P. S., & Larasati, A. (2022). DIGITIZATION OF BALINESE FOOD AND BEVERAGE PRODUCTS THROUGH E-AJENGAN BALI TO SUPPORT SMEs IN BALI. *Proceeding International Conference on Information Technology, Multimedia, Architecture, Design, and E-Business*, 2, 9–15.
- Adnyana, N. W. (2023). The role of interactive multimedia as a problem solving-based learning media for elementary school students. *Cendikia: Media Jurnal Ilmiah Pendidikan*, 13(4), 578–584.
- Ariningsih, K. A., Putra, P. S. U., & Adnyana, I. N. W. (2020). Mayadenawa In Digital Comic Preview. *Vidyottama Sanatana: International Journal of Hindu Science and Religious Studies*, 4(2), 238–242.
- Arnawa, N. (2019). Personification in cecimpedan: the semantic structure of the tradition of Balinese children. *Opción: Revista de Ciencias Humanas y Sociales*, 89, 253.
- Arnawa, N. (2022). Linguistic devices in traditional forms of Balinese humour. In *Humour in Asian Cultures* (pp. 62–87). Routledge.
- Ekayana, A. A. G., Putra, P. S. U., & Destiansyah, B. T. (2022). Android-based learning media in supporting the recovery of science learning class vii. *Jurnal Inovasi Dan Teknologi Pembelajaran (JINOTEP) Kajian Dan Riset Dalam Teknologi Pembelajaran*, 9(2).
- Ibrahim, M. B., Sari, F. P., Kharisma, L. P. I., Kertati, I., Artawan, P., Sudipa, I. G. I., Simanihuruk, P., Rusmayadi, G., Nursanty, E., & Lolang, E. (2023). *METODE PENELITIAN BERBAGAI BIDANG KEILMUAN (Panduan & Referensi)*. PT. Sonpedia Publishing Indonesia.
- Kurniawan, A., Pattiasina, P. J., Rahman, A., Lestari, N. C., & Al Haddar, G. (2024). Utilization of Youtube as a Problem Solving-Based Learning Media. *TECHNOVATE: Journal of Information Technology and Strategic Innovation Management*, 1(2), 62–68.
- Mamis, S., Putra, I. N. A. S., Yusa, I. M. M., Aryanto, D., Yasa, N. P. D., Wahidiyat, M. P., Novitasari, D., Jayanegara, I. N., Mutiarani, R. A., & Sutarwiyasa, I. K. (2023). *DASAR-DASAR DESAIN KOMUNIKASI VISUAL (DKV): Panduan Lengkap Untuk Memasuki Dunia Kreatif Visual*. PT. Sonpedia Publishing Indonesia.
- Mertha, I. M. S., Satwika, I. P., & Paramitha, A. A. I. I. (2021). Analisa Usability pada Website Platform Marketplace Edukasi Menggunakan Metode Heuristic Evaluation System Usability Scale. *Jurnal Krisnadana*, 1(1), 37–46.
- Muktiono, A. (2023). READING THE LANGUAGE OF BUILDINGS: THE ROLE OF SEMIOTICS IN ARCHITECTURAL VISUAL COMMUNICATION. *Jurnal Multidisiplin Sahombu*, 3(01), 180–187.
- Nugraha, P. G. S. C., Putra, P. S. U., Udayana, I. P. A. E. D., & Putra, I. P. D. G. A. (2023). Smart Mobile Application for Detecting Balinese Masks to Introduce Balinese Culture to World

- Tourism. *Jurnal Info Sains: Informatika Dan Sains*, 13(02), 354–362.
- Putra, P. S. U., Efendi, M. A., Aditama, P. W., Novitasari, D., & Setiawan, I. N. A. F. (2022). Interactive Game Application Themed" Perang Puputan Klungkung". *Jurnal Mantik*, 6(3), 3657–3666.
- Putra, P. S. U., Yasa, I. W. A. P., & Jayanegara, I. N. (2020). CERITA BERGAMBAR SEBAGAI MEDIA KREATIF PENGENALAN TRADISI OMED-OMEDAN DI DENPASAR. *SENADA (Seminar Nasional Manajemen, Desain Dan Aplikasi Bisnis Teknologi)*, 3, 369–376.
- Setiawan, D. (2022). *Seni Kriya Nusantara*. Cahya Ghani Recovery.
- Wasista, I. P. U., Giri, I. K. R. P., Artadi, I. M. P., Kerdiati, N. L. K. R., Trisna, N. M. S. W., Darmastuti, P. A., Utami, N. K. Y., ST, M. D., Putra, W. E. J., & Yupardhi, T. H. (2024). *Desain Interior: Teori dan Perkembangannya*. SIDYANUSA.
- Yuliasih, M., Adnyana, I. N. W., Putra, P. S. U., & Pongpalilu, F. (2023). *SUMBER & PENGEMBANGAN MEDIA PEMBELAJARAN (Teori & Penerapan)*. PT. Sonpedia Publishing Indonesia.