

Animation Design Stage in Merarik as a Medium for Introducing Culture and Customs

Christofer Satria¹, I Gede Mugi Raharja², I Kt. Suteja², I Wayan Swandi²

¹Universitas Bumigora, Mataram, Indonesia

²Institut Seni Indonesia Denpasar, Denpasar, Indonesia

Article Info

Article history:

Received June 03, 2025

Revised June 10, 2025

Accepted July 03, 2025

Keywords:

Animation

Merariq

Pipeline Method

ABSTRACT

In the creative industry today, animation is one of the popular media used by many entertainment industries to introduce the customs and culture of a region. Animation is a process in which an image or object is manipulated to create a predetermined sequence of movement. *Merariq* is the escape or kidnapping of a girl from the supervision of her guardian, and her social environment has been formed as a cultural heritage that is passed down from generation to generation for the Sasak people in general. *Merariq* has several stages that must be passed through to run it. **The purpose** of this design is to provide information about the meaning and stages involved in the design. **The methodology** used in this design is the pipeline method, which is a method that includes several stages (pre-production, production, and post-production). **The results** of this design are in the form of animations of the stages in *merariq*, which are designed using 2D techniques as a medium to explain the process of elopement (*merariq*) in Sasak culture. Animation is typically created within the limited animation genre, a style commonly found in Japanese animated films. **The implications** of the results of this study are a medium for learning and preserving the *Merariq* culture, which has recently become increasingly rare among the Sasak people.

Copyright ©2025 The Authors.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Christofer Satria,

Universitas Bumigora, Mataram, Indonesia,

Email: chris@universitasbumigora.ac.id

How to Cite: C. Satria, I. G. M. Raharja, I. K. Suteja, and I. W. Swandi, "Animation Design Stage in Merarik as a Medium for Introducing Culture and Customs," *International Journal of Engineering and Computer Science Applications (IJECSA)*, vol. 4, no. 2, pp. 111-120, Sep. 2025. doi: [10.30812/ijecsa.v4i2.5161](https://doi.org/10.30812/ijecsa.v4i2.5161).

1. INTRODUCTION

Almost everywhere, there are tribes, cultures, and customs with their own unique characteristics and distinct identities. One of them is on Lombok Island, West Nusa Tenggara (NTB). Lombok Island is inhabited by the Sasak tribe, which has unique traditions that shape their lives. Humans are creatures created in pairs and endowed with feelings of love, lust, and reason. Humans are social creatures whose lives are always enriched by the presence of others. This means that humans cannot live alone without the help of others, allowing them to establish relationships with other humans. God created humans in pairs, so that a sense of calm, happiness, and comfort arises. This is similar to what Ainur Rofiq expressed, that humans were created by God so that in humans, a sense of calm, pleasure, peace, and happiness arises [1]. To foster these feelings, humans need friends or partners to share their lives with. All living creatures in this world, especially humans, as God's most perfect creations, engage in marriage through various unique steps and activities. Especially in Indonesia, which has a cultural diversity that is not typically found in other countries. In Indonesia, especially on the island of Lombok, there is a marriage procession that is still firmly held by the Sasak people, one of which is in Sade Village [2]. *Merariq* in the Sasak language is a verb that generally refers to the pre-wedding actions that begin with the groom running away from the girl (future wife) under the supervision of her guardian, and is also used to describe the initial procession of her marriage. There are many meanings in *merariq*, including: 1. Some interpret it as the process of running away (with the consent of both partners); 2. Some interpret it as an act of stealing, in the Sasak language, it is called stealing a girl from the supervision of her parents. *Merariq* in the sense of running away or stealing a girl from the supervision of her guardian and her social environment has been formed as a cultural heritage passed down from generation to generation for the Sasak people in general [3]. In some communities, it is believed that by running away or stealing the girl from the supervision of her guardian, the *bajang* or Sasak youth as a means of proving masculinity, as well as courage, seriousness, and a picture of responsibility in marriage and in family life later [4].

The marriage system (*merariq*) has numerous implications for the social system's order, which can lead to conflict between families. One of the conflicts in *merariq* is that there is no blessing from the family. Before the *merariq* process occurs, the young man or *terune Sasak* conducts an exploration with the girl or *dedere*, which is a part of the dating relationship. If both people have feelings for each other, then the young man's courage is required. The young man is required to come to the girl's house to seek and express love between them, or to attend a *midang* (a tradition of introducing prospective brides and grooms to the community by holding a parade). If their love is compatible (parents' blessing) then the next stage is discussing plans for marriage. The procession after establishing a relationship, is then the couple runs together for their marriage [5]. *Merariq* has positive and negative sides, where the positive side of *merariq*, among others: *Merariq* can expand the ties of friendship between villages, strengthen the sense of family, respect each other's customs between villages, and can create happiness for couples who can marry their loved ones. *Merariq* also has a negative side, among others: there is authoritarian behavior or attitude of the husband in determining family decisions, the practice of marriage and divorce is very large, there is a greater opportunity for polygamy for men (husbands), the title of noble women will be lost if they marry a lower caste man (*jajar karang*), and the value of marriage is tarnished if it is associated with the payment of *pisuke* money (Kusuma). The explanation above can be concluded that from the many existing phenomena and uniqueness that occur, the designer tries to design an animated work (6 stages in *merariq*) using several combinations of design and technology where currently technology is developing rapidly, besides that the designer also wants to provide information to the wider community, especially the Lombok community itself about the stages in *merariq*.

Animation in multimedia is the use of computers to create movement on the screen. There are several Animations based on their creation techniques [6] namely: Cell animation is a cell that is separate from the background sheet, plus one cell for each object that moves independently in the background. This sheet makes it easy for the animator to separate and redraw parts of the image that change between frames. The frame consists of a background cell and the cells above it [6]. Sprite animation has similarities with traditional animation techniques; objects are placed on graphics with a solid background and 49 animated. Sprites are parts of the animation that move independently, such as flying birds, rotating planets, bouncing balls, or rotating logos. Sprites move as independent objects. in this animation, single or sequential images can be embedded in sprite animation. Sprites can be animated in one place, such as rotating planets or birds moving in a straight line. Sprite animation and frame animation have several differences. Each sequence of images, only the screen containing the sprite can be frozen. The inside displayed on the screen for each frame cannot be fixed [7]. Track animation is an animation of an object that has a movement path along a curved line that is defined as a path. This animation is very useful when creating moving animations such as trains, planes, and cameras that move along rails/tracks. Sometimes sprite animation is also called path animation when the sprite is positioned and moves like a path along a curved line. Sprites that move along the path can be simple fixed bitmaps that do not change, or they can be bitmaps that are sorted to create a loop [8].

Merariq in the Sasak language is a verb that is generally interpreted as a unity of pre-wedding actions that begins with running away the girl (future wife) from the supervision of her guardian and is also used as the initial procession of her marriage. There are

various interpretations in interpreting *merariq*, some interpret it as the process of running away (with the consent of both partners), some interpret it as an act of stealing, in the Sasak language it is called stealing a girl from her parents' supervision (Wardani). *Merariq* in the sense of running away or stealing a girl from the supervision of her guardian and her social environment has been formed as a cultural heritage passed down from generation to generation for the Sasak people in general [9]. In some communities, it is believed that by running away or stealing the girl from the supervision of her guardian, the bajang or Sasak youth as an arena for proving masculinity, as well as courage, seriousness, and a picture of responsibility in marriage and in family life later [10]. The phenomenon of *merariq* culture found in the Sasak community is a form of local wisdom that involves a belief, which people carry out as a sign of a man's courage to his future wife. There are several reasons behind the Sakra community's practice of marrying *merariq*, namely that it is a custom already existing in society and part of the culture, and one that is observed by most people in Sakra [11]. The second reason is the opposition received from parents regarding the relationship being carried out, so the *Merariq* method is chosen as a way out. The next reason is the ignorance of the woman that her partner took her away.

A sketch is a rough and lightly drawn picture or an outline of an unfinished picture or painting. Or a sketch can also be interpreted as a plan for a picture or painting that will be made later. Temporary sketches are made using paper or canvas. So it can be said that sketching before drawing is a basic and important activity to train skills, as well as to minimize mistakes that the maker will make [12]. Sketches are generally known as the first basic drawing that is made quickly to start a work of art, such as a painting. However, in reality, sketches are the outlet for ideas from various works that generally utilize visual media, such as paintings, logos, and comics. In general, the definition of a sketch is a rough drawing design that is used to concretize [13] ideas that are still abstract and trapped in thought alone. Therefore, sketches are very important in the creative world. Sketches are not always used to design visual media; they can be an environmental layout, such as the environmental layout and visitor flow plan at a show that is also depicted through sketches [14]. Color is one of the elements of beauty in art and design, besides other visual elements." According to Sanyoto, "Color is objectively/physically as the nature of light emitted, or subjectively/psychologically as part of the experience of the sense of sight.", and according to Nugroho, "Color is the impression obtained by the eye from light reflected by objects it knows.". Furthermore, Laksono stated that "The color we see is part of the light that is transmitted or reflected."

Several previous studies related to the research theme have similarities and differences; the study discusses a 5-minute and 20-second animation video with the Malin Kundang folk tale [15]. The similarity of this study with the one conducted is that both discuss animation. However, the difference lies in the animation application system through Augmented Reality media. The study entitled "Designing 2-Dimensional Animation Educational Videos Based on Motion Graphics Regarding the Dangers of Addictive Substances for Teenagers" discusses multimedia content and visual communication media (dynamic) motion, providing opportunities for researchers to convey interesting, dynamic, and easy-to-understand health information by utilizing visual media based on motion graphic animation. This animated video can be an introduction to information about the dangers of addictive substances, their types and classifications, and the impacts of these addictive substances [16]. The similarity between this study and the one conducted lies in the discussion of creating animations. However, the difference lies in the design of the animation theme of the stages of *merariq* in the Sasak culture. The research entitled "Designing a 2D Animation Film of Balinese Folk Tale: 'Racing Deer and Snails'" discusses the folk tale that is raised is the Balinese folk tale of Racing Deer and Snails', a version of Made Taro, which is included in 2D animation [17]. The similarity between this research and the research conducted lies in the use of animations. However, the difference lies in making animations based on Augmented Reality. The three studies above have never designed an animation with application in Augmented Reality (AR) with the theme of the stages of *merariq* in the Sasak culture. This study can be considered original and novel in its approach to the cultural preservation system of contemporary media. The benefits of the results of this study as an alternative to more contemporary cultural preservation media.

2. RESEARCH METHOD

The animation production pipeline is a step-by-step guide to creating a video or animation (see Figure 1). According to [12], a pipeline is a production flow or standard flow used in the world of shooting. In the field of animation, a pipeline refers to the process that animators follow to produce animated works. There are three stages in the animation pipeline: pre-production, production, and post-production. The animation pipeline process is a complex collaboration and involves many people with different skills [13]. This is because each stage of the animation pipeline requires specific skills that a single person typically masters. Experts believe that the pipeline is the core of animation creation. This is because the animation pipeline outlines the process of transforming an idea into an animated work of art. From the video pipeline chart, the designer can chart the animations to be created (see Figure 2).

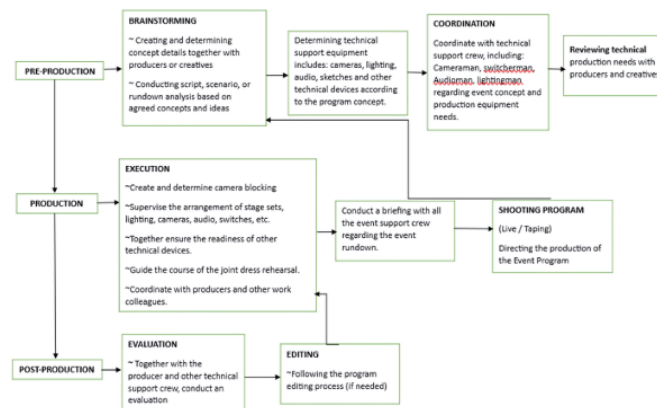


Figure 1. Pipeline Method Chart and its use in Making a Video

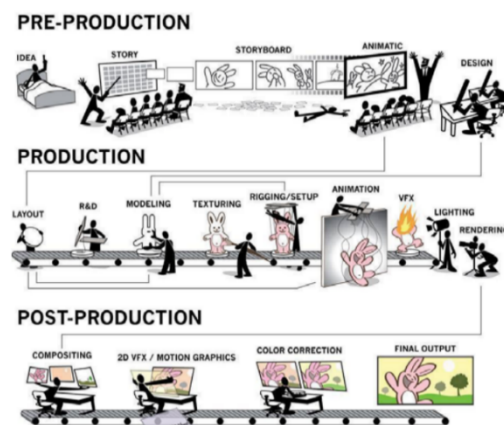


Figure 2. Pipeline Method Chart and its uses in Creating Animated Videos

3. RESULT AND ANALYSIS

The findings of this study are presented in the form of animations integrated with the Augmented Reality (AR) system. Research by I Nyoman Agus Suarya Putra et al. indicates that the dialogue clarity is good in this animated film. This 2-dimensional animated film effectively conveys the moral message contained in the Balinese folk tale "Balapan Menjangan" and "Siput," and can be well received by children aged 8-12 years. However, the findings obtained in this study are more interactive, utilizing mobile phone media to interact with and scan the animation. In this section, the creator explains the visualization (form) and description of the work. This is done after going through various stages of observation of the beauty and phenomena of the customs in *merariq* (elopement), the application of the pipeline method of animation is adjusted to the visual elements, composition, and character to make this work an animation of 6 stages in *merariq*. The review of the work aims to reveal the values contained in the animated work created, thus making it easier for the public to understand the message and meaning of the visualized work [18]. The animated work that was created has undergone the final touch process, resulting in seven animations that depict the stages of a Sasak tribe wedding in Lombok (*merariq*). From the results of this work, a discussion of the work will be carried out regarding the ideas, techniques, content, and meaning contained therein.

3.1. Sketches of the Drawing

This sketch is the initial sketch of the making of the animation that will be made, there are 6 stages in *merariq* namely *merariq*, *masejati* (Figure 3), *selabar*, and *nuntu wali*, *ngawinan/nikahan* (Figure 4), *sorong serah aji krama*, and the last is *nyongkolan*

(Figure 5). From this sketch of the *merariq* stages is the beginning of making the animation that will be made so that the designer has inspiration or ideas to make the animation.

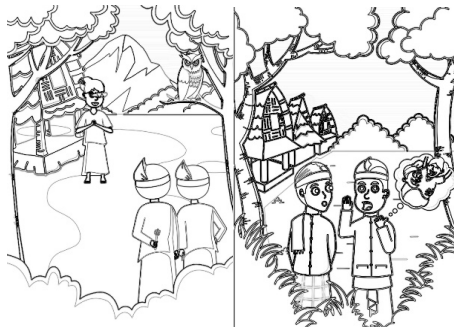


Figure 3. First Stage (*Merariq*) and Second Stage of *Masejati*



Figure 4. Third Stage (*Selabar and Nuntut Wali*) and Fourth Stage (*Nikahan or Ngawinan*)

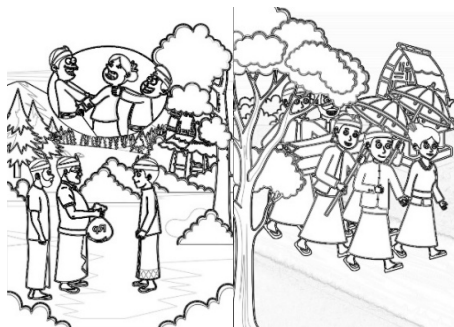


Figure 5. Fifth Stage (*Sorong Serah Aji Krama*) and Sixth Stage (*Nyongkolan*)

3.2. Sketch Coloring

The coloring of each existing stage is done to provide an impression and meaning of each existing stage; besides that, the coloring is also done to help the designer in creating the animation that will be made. In the initial stage (Figure 6), the coloring is seen to emphasize the “*merariq*” nuance, and the next stage in the Masejati ritual emphasizes symbolic variations that reflect the initial transition in the process.



Figure 6. Coloring First Stage (*Merariq*) and Second Stage of *Masejati*

Figure 7 illustrates the coloring of the 3rd stage (*Selabar* and *Nuntut Wali*) and the 4th stage (*Nikahan/Ngawinan*), where the use of color becomes richer to convey changes in status and the depth of ritual meaning. Finally, Figure 8 shows the 5th stage (*Sorong Serah Aji Krama*) and the 6th stage (*Nyongkolan*), where the color palette becomes warmer and more festive, signifying the peak of a sacred and joyful tradition.



Figure 7. Coloring Third Stage (*Selabar* and *Nuntut Wali*) and Fourth Stage (*Nikahan* or *Ngawinan*)



Figure 8. Coloring Fifth Stage (*Sorong Serah Aji Krama*) and Sixth Stage (*Nyongkolan*)

3.3. Frame-by-Frame Animation

Animation is created using the OpenToonz software with a frame-by-frame technique to create smooth and natural movements. The creation of this animation editing is in the form of frame by frame where each stage is made one by one so that it becomes six animations adjusted to the stages in the drawing. Each stage has a different duration, in the first stage it has a duration of 12 seconds,

the second stage has a duration of 15 seconds (Figure 9), the third stage has a duration of 9 seconds, the fourth stage has a duration of 17 seconds (Figure 10), the fifth stage has a duration of 10 seconds and the last stage has a duration of 15 seconds (Figure 11). The creation uses the Opentoonz application where in the creation of this animation it is made and edited one by one by making sketches, coloring, creating characters and moving characters so that it becomes an animation for each existing stage [18].



Figure 9. Frame-by-frame Animation First (*Merariq*) and Second Stage of *Masejati*



Figure 10. Frame-by-frame Animation Third Stage (*Selabar and Nuntut Wali*) and Fourth Stage (*Nikahan or Ngawinan*)



Figure 11. Frame-by-frame Animation Fifth Stage (*Sorong Serah Aji Krama*) and Sixth Stage (*Nyongkolan*)

3.4. Finalization and Export

After the animation is finished, the next stage is to export it in video format for integration into an animated video (see Figure 12).

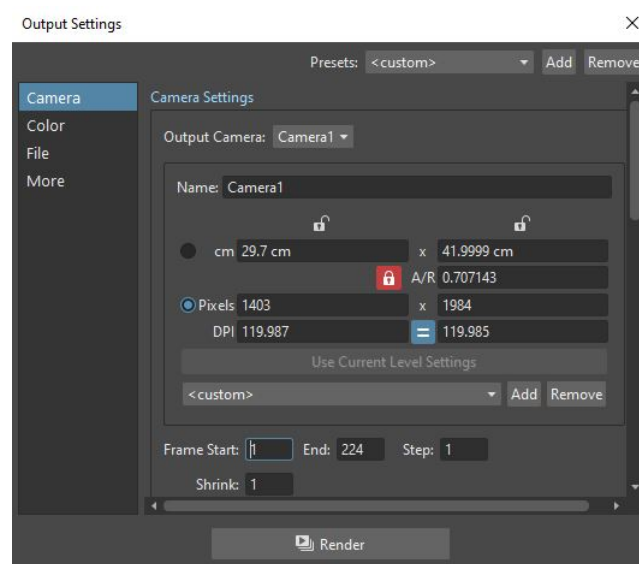


Figure 12. Finalization and Exporting Animation Video

4. CONCLUSION

In designing the animation of the stages in *Merariq*, which discusses the stages in the implementation of *merariq* (elopement) aims to introduce further to the Indonesian people, especially the people of Lombok and teenagers, about the stages in *merariq*. With the existence of this animated work of the stages of *merariq*, the designer hopes that the general public and the people of Lombok themselves, especially teenagers, will be more familiar and know that not only is there beauty in the implementation of this *merariq* but some stages must be followed if you do *merariq* (elopement). Introduction to the customs of *Merariq*, especially in its deeper stages, by using this animated video, it is hoped that this work can make something interesting and make the people of Indonesia and the people of Lombok, especially teenagers, more familiar with and always maintain these customs of *merariq* so that they are not lost in the future.

ACKNOWLEDGEMENTS

The author offers praise and gratitude to Jesus Christ, the Almighty God, because it was through His grace that the author was able to complete the process of designing the animated video stages in *merariq*. This design would not have been possible without the help, support, and guidance of all parties involved. The author would like to express his appreciation and gratitude to the following parties. The author is acutely aware of himself as an ordinary human being with both shortcomings and advantages, and is also aware of the role of humans as social beings and individuals. Humans will find meaning in their relationships with other humans and will always need other people. Based on this, with humility and sincerity, the author expresses his deepest gratitude to:

1. Mr. Prof. Dr. I Wayan Adnyana, S.Sn., M.Sn. As the Rector of the Institut Seni Indonesia Denpasar, for the great moral support in the lecture process so far.
2. Mr. Dr. I Kt Suteja, SST, M.Sn as Head of the Department of the Doctoral Program of Arts Study, for his assistance and guidance in academic lectures.
3. Prof. Dr. Drs. I Gede Mugi Raharja, M.Sn as Promoter
4. Dr. I Kt Suteja, SST, M.Sn as Co-Promoter I
5. Prof. Dr. Drs. I Wayan Swandi, M.Si as Co-Promoter II

6. Dr. I Gede Yudarta, S.SKar., M.Si, as (PA) Academic Advisor
7. All lecturers in the Doctoral Program of Arts Study that the author cannot mention one by one.
8. All Leaders and Officials at Universitas Bumigora
9. All Sources in this study
10. Beloved parents Prof. Dr. Ir. Anthony Anggrawan, M.T., Ph.D, and Mrs. Lina Juliana S.E., as parents, and all family for their support and motivation so far, until now I can carry out the dissertation, as well as for all the prayers, advice, support, guidance, sacrifices, both material and non-material. Without them, it would be impossible for the author to have reached this stage in the education phase.
11. Beloved sister Juwita Oktavia S.Sn., dr. Victoria Cynthia Rebecca Sp.A., and extended family for all the prayers, advice, support, guidance, sacrifices, both material and non-material. Without them, it would be impossible for the author to have reached this stage in the education phase.
12. Beloved wife Aprillia Dwi Dayani M.E., for all the prayers, advice, support, guidance, sacrifices, both material and non-material.
13. Beloved children, Michael Glenn Anggrawan and Madelyn Grizelle Anggrawan, who have become my motivation to finish quickly.
14. All friends of the 2020 Doctoral Program of the Arts Study Program, whom the author cannot mention one by one, thank you for your support and encouragement in joy and sorrow, so that the author can be at the Dissertation level.
15. Mr. Hasbullah, Yoga, Sasih, Budi, Mahatir, Wie, Mahesa, Husain and DKV Bumigora students, who have helped the creator and helped the creator to become the team for making this work.
16. The author also extends sincere gratitude to all parties who cannot be mentioned individually for their invaluable support, motivation, attention, constructive criticism, and suggestions.

The author acknowledges that this design is still far from perfect, both in terms of content and visual appeal. Given the author's limited abilities and experience, constructive suggestions and criticisms are highly expected to help perfect this design. Finally, the author has high hopes that this design will be useful for readers, especially students who are researching or designing about *merariq*, and for the community who want to know more about wedding customs in Lombok.

REFERENCES

- [1] A. Rofiq, "Tradisi Slametan Jawa dalam Perpektif Pendidikan Islam," *Attaqwa: Jurnal Ilmu Pendidikan Islam*, vol. 15, no. 2, pp. 93–107, Sep. 2019. DOI: [10.54069/ATTAQWA.V15I2.13](https://doi.org/10.54069/ATTAQWA.V15I2.13).
- [2] A. Mahadika and V. R. Satria, "The Traditions of Sasak Tribe in Sade Village, Central Lombok, Indonesia," *International Journal of Social Science and Religion (IJSSR)*, pp. 285–296, Jun. 2021. DOI: [10.53639/ijssr.v2i3.52](https://doi.org/10.53639/ijssr.v2i3.52).
- [3] A. Salehudin, "The Sasak People of Lombok: Indigenous Communities at The Crossroads of Globalization," *Al-Albab*, vol. 8, no. 2, pp. 281–297, Dec. 2019. DOI: [10.24260/alalbab.v8i2.1416](https://doi.org/10.24260/alalbab.v8i2.1416).
- [4] A. D. Putrawan, "Sistem Birokrasi dan Kekuasaan Masyarakat Suku Sasak," *IN RIGHT: Jurnal Agama dan Hak Azazi Manusia*, vol. 2, no. 2, pp. 285–295, 2021. DOI: [10.14421/inright.v2i2.1251](https://doi.org/10.14421/inright.v2i2.1251).
- [5] R. Yusuf and I. Fajri, "Differences in behavior, engagement and environmental knowledge on waste management for science and social students through the campus program," *Heliyon*, vol. 8, no. 2, e08912, Feb. 2022. DOI: [10.1016/j.heliyon.2022.e08912](https://doi.org/10.1016/j.heliyon.2022.e08912).
- [6] M. Suyanto, *Analisis & Desain Aplikasi Multimedia untuk Pemasaran*. Penerbit Andi, 2004.
- [7] A. Schödl *et al.*, "Video Textures," in *Proceedings of the 27th Annual Conference on Computer Graphics and Interactive Techniques - SIGGRAPH '00*, Not Known: ACM Press, 2000, pp. 489–498. DOI: [10.1145/344779.345012](https://doi.org/10.1145/344779.345012).
- [8] M. Marji, *Learn to Program with Scratch : A Visual Introduction to Programming with Games, Art, Science, and Math*. San Francisco : No Starch Press, 2014.
- [9] H. Ilhami and M. Soehadha, "Cultural Commodification in the Bau Nyale Tradition in Sasak Community," *BELIEF: Sociology of Religion Journal*, vol. 1, no. 1, p. 36, Sep. 2023. DOI: [10.30983/belief.v1i1.6416](https://doi.org/10.30983/belief.v1i1.6416).
- [10] D. Carr and R. L. Utz, "Families in Later Life: A Decade in Review," *Journal of Marriage and Family*, vol. 82, no. 1, pp. 346–363, Feb. 2020. DOI: [10.1111/jomf.12609](https://doi.org/10.1111/jomf.12609).

- [11] P. Adrian, A. Prima Dewi, and I. Imawanto, "Juridical Review of the Implementation of Early Marriage (Merariq Kodeq) in Sasak Customs in Review of the Marriage Law (Study in Lepak Village, Sakra Timur Sub-District, East Lombok District)," *Media Keadilan: Jurnal Ilmu Hukum*, vol. 15, no. 1, p. 15, Jul. 2024. DOI: [10.31764/jmk.v15i1.23631](https://doi.org/10.31764/jmk.v15i1.23631).
- [12] V. S. Hadiarianti, "Sketsa 7 Potret Presiden Republik Indonesia dalam Media Postcard: Sebuah Studi Tentang Perlindungan Hak Cipta," *Jurnal Paradigma Hukum Pembangunan*, vol. 2, no. 3, pp. 207–218, 2020.
- [13] P. A. Rodgers, G. Green, and A. McGown, "Using Concept Sketches to Track Design Progress," *Design Studies*, vol. 21, no. 5, pp. 451–464, Sep. 2000. DOI: [10.1016/s0142-694x\(00\)00018-1](https://doi.org/10.1016/s0142-694x(00)00018-1).
- [14] P. Y. Chu *et al.*, "Effects of Various Sketching Tools on Visual Thinking in Idea Development," *International Journal of Technology and Design Education*, vol. 27, no. 2, pp. 291–306, Jun. 2017. DOI: [10.1007/s10798-015-9349-5](https://doi.org/10.1007/s10798-015-9349-5).
- [15] N. P. Tanuwijaya and T. Wibowo, "Perancangan Video Animasi 2 Dimensi Cerita Rakyat Malin Kundang dengan Aplikasi Toon Boom Harmony," *Journal of Information System and Technology (JOINT)*, vol. 1, no. 2, pp. 124–145, Dec. 2020. DOI: [10.37253/joint.v1i2.4316](https://doi.org/10.37253/joint.v1i2.4316).
- [16] I. P. Sari, "Perancangan Video Edukasi Animasi 2 Dimensi Berbasis Motion Graphic Mengenai Bahaya Zat Adiktif Untuk Remaja," *Edsence: Jurnal Pendidikan Multimedia*, vol. 1, no. 1, pp. 43–52, Jun. 2019. DOI: [10.17509/edsence.v1i1.17957](https://doi.org/10.17509/edsence.v1i1.17957).
- [17] N. W. Wardani *et al.*, "Perancangan Film Animasi 2D Cerita Rakyat Bali "Balapan Menjangan dan Siput"," *Jurnal Manajemen dan Teknologi Informasi*, vol. 12, no. 2, pp. 136–143, Oct. 2022. DOI: [10.5281/zenodo.7170835](https://doi.org/10.5281/zenodo.7170835).
- [18] S. L. Franconeri *et al.*, "The Science of Visual Data Communication: What Works," *Psychological Science in the Public Interest*, vol. 22, no. 3, pp. 110–161, Dec. 2021. DOI: [10.1177/15291006211051956](https://doi.org/10.1177/15291006211051956).