3D Puppets Animation for Encouraging Character Education and Culture Preservation in Surakarta

S H Heriwati, B H Prilosadoso, B Pujiono, Suwondo, A N Panindias

Abstract: The creation of this art is an effort to preserve traditional arts, especially wayang kulit (shadow puppets) and as a medium for character education for the younger generation as a solution to the phenomenon of increasingly intense globalization in the present, wherein the increasingly fragile condition of the nation's morality with the increasingly hedonism and individualistic culture of life in the younger generation in Surakarta. This art creation research method is descriptive qualitative located in the Surakarta and surrounding areas, data sources include the puppet show itself, literature, and competent informants and related art creation. Stages of analysis from various sources resulting from information from both the literature review and interviews were conducted using an interactive model, where each component of the analysis included the stages of data collection, data reduction, presentation and conclusion drawing. Next is the process of designing puppet show art with a collaboration of 3D dimensional animation through several stages, namely Envisioning Phase, Planning Phase, Developing Phase, Stabilizing Phase, and Deploying Phase. Stages of wayang kulit story selection are adjusted to the segmentation of the younger generation of viewers and the current state of society in the community, the drafting of customized shadow puppet performances and collaborations with 3D dimensional Animation technology, and the selection and design of prototypes of wayang kulit figures as intermediary characters. Puppet animation 3D dimensions.

Keywords: 3D Puppets Animation, Character Education, Culture Preservation, Surakarta

I. INTRODUCTION

The stronger the flow of globalization where the younger generation is still looking for identity and do not know much about the meaning behind the traditional works of ancestral heritage that we have, although behind all that there are norms that can be learned and applied in life. Based on the phenomenon in the present, wherein the condition of national morality is increasingly fragile with the growing culture of hedonism and individualism that hit the lives of our society, especially among the younger generation. The decline in awareness of moral values that have been passed down through generations by ancestors has begun to be shifted by norms and rules from the west which tend not to be in accordance with the conditions of our society. Not all people leave the culture, but the next generation is shrinking because the majority think that the locality culture is not in harmony with current conditions which tend to lead to modern culture [1].

The solution is to ward off or reduce the culture, one of which is through traditional cultural arts, one of which is through wayang kulit. Through the development of an increasingly globalized world, capable of displaying its durability and ability to anticipate that era, wayang kulit succeeded in achieving high-quality art. Globalization, commercialization, and the development of communication technologies of popular culture greatly influence the development of shadow puppet shows or other puppets. The durability and power of this puppet flower have been tested in the face of challenges from time to time with the content of local wisdom that always accompanies the wayang journey in every period. A solution is needed through various collaborative media so that the existence of shadow puppets can still exist throughout the era. The critical approach to projects as discussed here explores some considerations for how we can assess their potential in changing the paradigm of cities, space, and dwellings [2].

Puppet as Indonesia's ultimate culture on November 7, 2003, has been crowned by UNESCO, which is a Masterpiece of Oral and Intangible Humanitarian Heritage, or Master of Culture of World peace. The world appreciates the wayang praising the great work of the non-material world culture, this determination is a momentum to arouse awareness of various groups towards the culture and strength of the nation, thereby elevating Indonesia's image in the eyes of the international community. The stories and characterizations are used as models of philosophical learning, moral ethic, and character for the younger generation. The stories are acculturated in various aspects of performance and art, where they are presented in shadow puppet shows [3]. Wayang content contains a lot of character education which is a transformation of life values in one's personality so that it becomes one in people's lives in the community. In addition, it is hoped that puppets will get a positive response and interest.
from the community, especially the younger generation. Traditional conservation and development efforts, such as wayang kulit purwa in Surakarta by creating new traditional forms to attract the interest of the community, especially for the millennium generation as a solution to the aspects of conservation and development of traditional arts. The presence of digital media changes the world and the way we think about ourselves and the universe [4].

The animation is included in one of the sub-sectors of the creative industry which includes businesses whose current business opportunities are very promising and capable of absorbing large numbers of creative workers. The animation industry does not only target children but also teenagers and adults. The animation industry market can spread to various fields, including architecture and interior design, archeology, series films, advertising, education, games, art, and multimedia industries such as web design. In the last decade, with the rapid progression of computing capacities and the progress of graphic design technologies, multimedia learning environments have evolved from sequential static text and picture frames to increasing sophisticated visualizations [5].

Based on this background it was tried to develop a solution in the form of designing puppet content with 3D animation applications that can be used as a medium for delivering information and are useful but easily accessible and enjoyable, with multimedia (text, images, animations, videos) being supported. The animation is a visualization technique that is widely used in the world of cinema today, both as a whole unit, part of live-action, and united with live-action. Actually, the world of film has its roots in the world of photography, while animation has its roots in the world of images, namely illustration and graphic design. 3Dimension Animation Technology is very good if it is used in a medium of learning and recognition in the form of two-dimensional and three-dimensional good objects, as well as shadow puppet stories that demand visualization power from users, besides 3Dimensional animation, can combine virtual objects into virtual environments. real that is able to be displayed in realtime that will attract children's understanding and motivate to play and get to know shadow puppets.

Some notions of 3D animation are stereoscopic modes, flexible and dynamic teaching. With that, we can build dynamic models closer to the truth and make abstract and dull knowledge concrete and interesting. Therefore, 3D animation can be widely applied in various fields. 3D animation technology is applied in teaching multiple disciplines. For example, applied 3D animation in hand painting course. This system fully utilized computer graph, image processing technology, and network resources, and a new method to rapidly interact 3D animation technology was proposed [6].

II. LITERATURE REVIEW

A. Wayang Kulit (Shadow Puppets) as a Character and Local Wisdom Education

The art of shadow puppets before being beautifully carved into the stone in Borobudur and Prambanan temples has become a myth, story, or picture that has existed for hundreds of years before. The masters of wayang creators on Java can wisely accept the influence of Islamic teachings that forbid realistic drawing so that puppets change into highly stylized human compositions, full of enrichment so that they are called Wayang Purwa (kawitan, beginning). Wayang kulit is the original art of Indonesia (especially Java). Wayang kulit art is art that covers almost the entire branch of art; ranging from sculpture, painting, literature, the art of speech, symbolic art, music, sound art, and also acting. Because it has a depth of philosophy, making wayang kulit as a symbol of life in the Java language called "wewayanganing urip" [7].

The appearance of wayang kulit both from the characterization aspects and the story will contain a noble philosophy. The values of puppet stories can be a mirror of the identity and character development of a nation. Wayang kulit, a form of shadow play, relies on manipulation shadow and shadow casting for storytelling [8]. Character is the identity, personality, and character inherent in a person that is related to psychological and physical dimensions. The character micro-structure is the quality and quantity of reactions to oneself, others, and certain situations, and character, character, and psychological characteristics. Shadow puppet’s play contains high quality of art and craft. The art and craft of the character itself take in many forms such as painting, crafting, and they also bring together visual art, vocal and instrumental music, drama literature, and dance, as well as the art of the puppeteer, who need to be skilled enough to bring life to shadow play’s characters [9].

Showing wayang kulit as part of the tourism aspect economically, the development of the performance of traditional arts into art tourism can be beneficial for all parties involved in the area, namely the community, artists and local government. Through aspects of empowerment, development from the performance of traditional arts to performing arts for tourism will increase the number of cultures in the area because the presentation of artistic performance for tourism is different from the original performances [10].

The shadow puppets content contains a lot of content about character education is a transformation of the values of life in one's personality so that it becomes one in the behavior of the lives of people in the community. Wayang kulit is a form of performance art that is very popular and liked by various layers of society in Java, especially in the areas of Central Java and East Java. In addition to the popularity of wayang kulit, it is also the only type of puppet that exists on Java that still survives today. Puppets are one of the forms of performing arts that involve artists, accompanists, media expressing art, performance spaces, showtimes, and audiences audience or viewers) also use flat shapes (wayang kulit as the main medium containing elements of the play and elements of work include language, sound, form, and movement. Languages can be observed through spells, pocapan, ginem, as well as the head of sulukan and tembang. Sound can be observed through gending, both male and female vowels, dhodhogan and keprakan. Can be observed through puppet figures. Motion can be observed through Sabet, namely all puppet movements in the performance. The four elements of the performance show support each other and complement each other so that it becomes a harmonious unity of the show.
B. Animation in 3 Dimensions of Shadow Puppets for the Generation of Millennials

Technological advances allow the combination and coordination of verbal presentation modes (such as narration and text on screen) in nonverbal presentation modes (such as graphics, video, animation, and environmental sound) in only one device (computer) [11]. Nowadays animation plays an increasingly important role with the emergence of computers. A lot of content has been developed for various scientific disciplines or professional training. From image galleries to complicated numerical simulations, animation gives us complementary learning experiences [12]. This increasingly rapid development also provides benefits and impacts in traditional arts. Animation technology is very helpful to develop as well as can make a difference in the appearance of wayang kulit, so that it can be enjoyed by millennial generations. The definition of animation itself comes from the word 'to animate' which means moving, reviving. Like a dead object, then moved through changes little by little and regularly so that it gives a living impression. The animation is the process of creating motion effects or the effects of form changes that occur for some time. The proliferation of animation and animated characters is not simply an effect or symptom of the intersection of computer technology and structural transformations in global capitalism [13].

As well as the field of animation, especially regarding 3D animation, where animation is usually displayed at a speed of more than 24 frames per second, it means understanding the creation of moving images in 3-dimensional digital space. 3D animation is an animation made using models such as those from wax, clay, dolls and can use an animated camera to record frame by frame. When images are projected sequentially and quickly, the wax or clay doll will look like alive and moving. 3D animation can also be made using a computer, where one of them is through the role of an animator. The animator must have two things: a clear concept of what will entertain the audience; and tools and skills to place these ideas clearly and clearly [14].

This is done by creating a frame that simulates each image, filmed with a virtual camera, and the output is rendered or realtime video if the purpose is to make the game. While the concept of 3D animation can be explained that a model that has shape, volume, and space. 3D animation can be likened to the heart organ of games and virtual reality, but usually, this animation is also used in graphic presentations to add visual effects or movies. As 3D computer animation research matured, more resources were devoted to image rendering than to animation. Because 3D computer animation uses 3D models instead of 2D drawings, fewer techniques from traditional animation were applied [14]. While visual media make multimedia puppet scenes have artistic effects, scenes become more lively and realistic. The audience's imagination will also be exploited to follow the scenes played in the show. Animators are experts in conveying information through moving images, be they character personalities, their actions, or story elements [15].

The purpose of this study was to develop animated wayang kulit (shadow puppets) media through a variety of media, one of which was the field of animation aimed at preserving the art traditions of wayang kulit di Surakarta. All of the methods that this paper introduces are developed by formulating the principles or rules in the animation literature [16].

III. RESEARCH METHODS AND PROCEDURE

This research will specifically design a 3-dimensional animation work from the form of shadow puppets so that it is expected to be able to attract the audience especially the generation of millennials. Through a qualitative descriptive research approach in order to produce works that will answer from the research. Qualitative research methods by using a questionnaire aimed to learn details on the subject [17], the main focus to describe and explain the role of multimedia information technology as an effort and alternative to developing the tradition of wayang kulit art in the modern era, especially for the segmentation of the younger generation. Research on culture reveals the way that a large part of the world’s intangible heritage includes practices that interweave tradition and commodification as well as blur the boundaries between nations [18]. As the main data source is the character of the shadow puppet theater itself with the technique of collecting data using in-depth observation and interviews with 5 (five) animation practitioners, 5 (five) lecturer, 5 (one) puppet puppeteers, and 10 (ten) young generations. Test the validity of the data by using data triangulation techniques, namely data source triangulation and theory triangulation. Data triangulation is used to check the validity of data by using other things. Data analysis techniques use interactive chain analysis with steps including data collection, data reduction, data presentation, and conclusion drawing [19].

IV. RESULTS AND DISCUSSION

A. Respondents Profile

The stages of this study also conduct interviews so that the resulting work can be accepted and knows its weaknesses and strengths. Interviews were conducted by respondents from various elements, namely: 5 (five) animation practitioners, 5 (five) lecturer, 5 (one) puppeteers, and 10 (ten) young generations can be generated that shadow puppets through 3-dimensional animation media show that the work can be accepted by the millennial generation both from the aspect of the story and the visualization that is very interesting to watch by the wider community, especially the younger generation. Respondents profile data can be seen in Table I.
Making a Model (Modeling), where the stage of making objects that will be needed in the next animation stage. This object can take the form of simple objects (basic shapes) such as spheres, cubes until complicated objects such as a model of puppet characters, weapons, costumes, property and so on, for example making models of antagonist characters and protagonists in a puppet story skin. The study of characters taken from the characters of the shadow puppet theater shows the stories of Ramayana and Mahabharata [20]. 2). Animation, a process of moving characters in computer animation does not require animators to make in between movements like those done in traditional animation. The animator only determines the key (keyframe) on the object to be moved. 3). Texturing, this process determines the character of an object material in terms of texture (surface). The material of an object can be created by applying certain properties such as reflectivity, transparency, and refraction. This stage is used for objects that are used to impress real (real). 4). Rendering as the final stage of the process of creating puppet art with 3Dimensi animation technology, where rendering is the final calculation process of all stages in making images and animations 3D dimensions of shadow puppet stories. The rendering process, all data that has been entered in the process of modeling, animation, texturing, and lighting will be translated into an output form. Various Modeling of Prominent Characters 3d animated puppets can be seen in Figure 1.

**Table-1: Respondent’s Profile**

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<td>64</td>
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<tr>
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<td>Lecturer</td>
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<tr>
<td>Puppeteer</td>
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<td>Doctorate</td>
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From the data obtained it can be seen that most of the respondents stated that the development of shadow puppets with 3-dimensional animation media was in accordance with the times, animated puppet characters were easily accepted by young people, and moral messages in puppet stories were easily understood. So the development through 3-dimensional animation is very much needed in the preservation and development of purwa shadow puppets in Surakarta in the future.

**B. 3Dimension Animation Design of Shadow Puppets**

3Dimensi animation design with collaboration content of shadow puppet shows can be said as a step to solve problems with clear targets as a medium of character education and efforts to preserve the traditional arts. Design or design can be explained as an attempt to formulate the most objective physical elements and are actions and initiatives to change human work. Broadly speaking, the 3Dimensi animation design collaborated with the shadow puppet show includes 5 (five) stages, namely as follows:

- **Stages of Problem Identification (Envisioning Phase)**
  Stages where the objectives, benefits, and scope of this design are set in writing. The purpose of this stage is to utilize new technology in the development of shadow puppet shows, especially the application of technology that utilizes 3D animation technology in wayang kulit content, such as the selection of stories from the Ramayana story or from the Mahabharata epic, then the purpose of selecting puppet story concepts, the benefits of the material delivered, the segmentation of the design product you want to target (the younger generation).

- **Planning Phase**
  The stage where the wayang kulit story with 3Dimensional animation will be made through the stages of the idea of story selection, the selection of the puppet characters to be displayed, the settings, the background will be done at this stage which is realized in the form of a draft (rough sketch).

- **Design Stages (Developing Phase)**
  The stages of design animation about the dimensions of the puppet story include four parts that must be done, namely: 1).
the preservation of traditional arts. The role of the community, government, and academics to work together is to realize what is aspired, especially the development of wayang kulit. Development in the design of puppet characters through 3D animation and other technological aspects is still wide open, so that creative and innovative idea can be used to develop this traditional art.

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REFERENCES


AUTHORS PROFILE

Dr. Sri Hesti Heriwiati, M. Hum graduated with a Doctorate from the Sebelas Maret University of Surakarta in 2014. Now as a lecturer at the ISI, the solo researcher in general lecture in Indonesian language and literature. Currently implementing applied research funded by the second year Kementerian Riset dan Pendidikan Tinggi.

Basnendar Henry Prilosadoso, S.Sn., M.Ds, as a lecturer in the Visual Communication Design Study Program, Faculty of Art and Design, Indonesian Art Institute (ISI), Surakarta, now taking the Post-Graduate Doctoral Program in Art Assessment, Indonesian Art Institute (ISI), Surakarta, besides doing a lot of research on the fields of art and design, as cartoonists, and graphic design freelancers. Several times participated in exhibiting art and design both at national and international levels.

Dr. Bagong Pujiono, M.Sn, born in Kebumen, Central Java, in 1980. Doctoral graduate from the Indonesian Art Institute (ISI) Surakarta in 2015. Aside from being a mastermind artist, he is also a Lecturer in the Pedalangan Department. Some manuscripts and wayang kulit and wayang golek performances, including Sang Urumisra, Sri Tanjung, Babad Majapahit, Kewlidheng, and so on. Produce written works in the form of research, publications, and papers including the aesthetics of Kebumen Golek Puppet, the variety of Kebumen Golek Puppet, Wayang Beckar Animation, Chess in Tradition Theater, Gedhog Puppet, Rare Wayang, and so on.

Asmoor Nurhadi Panindias S.Sn. M.Sn. was born in Surakarta on June 26, 1977. Obtained a master's degree in art from the Program Studi Magister Penciptaan Seni of the Postgraduate Program of the Indonesian Art Institute in Yogyakarta. Now he holds the position of lecturer at the Indonesian Art Institute (ISI) Surakarta in Visual Communication Design Study. Actively become a researcher and creator of art and design in the field of visual communication design with visual identity studies.

Suwoondo, S.Kar., M.Hum born in Tulungagung, on May 25, 1958. Obtained a master's degree in art from the Performing Arts and Fine Arts Study from the Postgraduate Program of Gadjah Mada University in Yogyakarta. As a lecturer in the Pedalangan Study Program, Faculty of Performing Arts, Indonesian Art Institute (ISI), Surakarta. Some manuscripts and wayang kulit performances, including Lakon Kumbo Karno Guru, Lakon Partadewa, Lakon Kesuma Kembang, and so on.