Motion Graphic Animation for Public Service Advertisement

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Abstract. Dissemination and promotion can be done in a more efficient way, such as digital infographic or even animated video intended as a public service advertisement. Moreover, many institutions started to promote digital through the website, and also using motion graphic 2D animation that is interesting and easily accepted by the public. This study aims to design the motion graphic 2D animation and its usability testing on one of the institutions which is Kelurahan Ngadirejo. Method used is production stage motion graphic 2D animation and usability testing. This research have resulted motion graphic 2D animation in a public service advertisement which had usability system usability scale (SUS) tested with an average SUS score of 71.07% classified as an application having good quality.

Keywords: Animation, motion graphic, public service advertisement, system usability scale.

I. Introduction

Citizens who wish to obtain administrative services in kelurahan must bring the required requirements, but often people forget or do not even know. So far the information about kelurahan is only delivered through a circular letter, word of mouth, or announcement on kelurahan information board. Whereas in the digital age, dissemination and promotion can be done in a more efficient way [1]. Such as the creation of digital infographic or even animated video intended as a public service advertisement. It will emerged to serious game in social view [2].

Kelurahan has the area of task coverage in an area under the administration of kecamatan. Kelurahan headed by lurah and assisted by the secretary. In performing their duties, kelurahan serves the people who are registered as residents of the certain area in those particular kelurahan.

Aware of digital era, Kelurahan Ngadirejo started to promote digital through the website, but it is still not enough, the media that can be played continuously and disseminated easily is needed, so public service advertisement that inform about Kelurahan Ngadirejo is made, to be watched by the community of Kelurahan Ngadirejo. Public service advertisement itself is aimed to inform or influence particular targetted audience [3]. But the challenging part is how to make this kind of advertisement become remarkable and the message can be received well [4]. Because of that this creation of public service advertisement for presents Kelurahan Ngadirejo has been done by using motion graphic 2D animation that is more interesting and easily accepted by the public.
II. Methods

A. Time and Place

Collecting data and production have been conducted for 1 month starting from January 2018 to February 2018 and this place of actual practice in Kelurahan Ngadirejo Jl. Keden 30 Ngadirejo, Kartosuro Sukoharjo, Central Java, Indonesia.

B. Production Stage

During the production of this motion graphic, there are three stages for production, those are pre-production stage, production stage, and post-production stage [5]. Every stage have to continue and related to result to another stage as shown on Figure 1.

1) Pre-production Stage

Gather requirement had been done by doing several interviews and consultation with the person in charge in kelurahan. During this session the willingness of story of the motion graphic is obtained. Storyboard Making, after getting the requirement and story that is wanted by client, storyboard is made for guidance of production in form of raw image. The design of the storyboard is for introducing Kelurahan Ngadirejo and its services for society in Ngadirejo. Along with storyboard making, script also be made for voice talent source dubbing. Design Assets, based on storyboard that already made, the assets such as background and objects is made in vector form [6].

2) Production Stage

Animation, the phase for animate the object and background that has been made before. Add effect of transition and animate the object. Dubbing is made by voice talent based on the script. The dub sound is aimed to give more explanation about the animation. Music is chosen properly to get the vibe of motion graphic up and to enrich the way of the graphic motion appearance. In the other hand the motion graphic is not to flat. Client review is for making sure the requirement is fulfilled before final result. This session is applicable for changing and more request.

3) Post-production Stage
Compositing all music, animation, and voice dub recorded becomes one united video. Editing during compositing is non-avoidable since this session hand in hand with client review. Editing also to erase unused scene and noise in voice dub recorded.

A. Software
During the process of making the motion graphic for public service advertisement, there are several softwares that can be used, Animiz Animation Maker for making animation, CorelDraw for editing video and Sony Vegas Pro for editing sound, rendering is done in different software.

III. Results and Discussion
A. Animation Creation Stage
1) Pre-Production Stage
   a. Storyboard
   Storyboard represents every scene available on the entire animated film and describes a basic atmosphere or situation such as character poses, camera positions, and dialogs. Storyboard is made for easiness the process of production stage [7]. Either this project also need storyboard as guidance for every scene. The specification of this motion graphic is 2-3 minutes and in form of (.mp4) format. Figure 2 is the storyboard of this public service advertisement.
   b. Designed Asset
   For object in the motion graphic (designed object) should be represented the story or the plot of this particular public service advertisement. Designed of each component that will be used in the motion graphic by using CorelDraw which are shown on Table I.

2) Production Stage
   a. Animation
   At the first production process, the storyboard is converted into digital and animated form. Directly do it in Animiz Animation Maker Workplace. This project contains 4 different scenes. Import the assets for each scene then start creating motion for it. This process make image seems move, each scene has its own movement techniques likes opacity, entrance, zooming, and exit transition. Some effect of Animiz Animation Maker is applied to for giving smoothness.

   b. Dubbing and Music
   Dubbing by voice over in order the motion graphic message will be delivered well. The script of motion graphic dubber is based on the storyboard that made before. Then chose suitable music as backsound to support in order to produce a better motion.
Figure 2. Story board of public service advertisement

| Material | Format | Description                  |
|----------|--------|------------------------------|
|          | png    | Icon location                |
|          | png    | Icon requirement             |
|          | png    | Icon SKCK                    |
|          | png    | Icon moving in               |
|          | png    | Icon moving out              |
|          | png    | Icon ID card                 |
|          | png    | Icon family card             |
|          | png    | Icon death declaration       |
|          | png    | Icon bith declaration        |
|          | png    | Icon fotocopy of ID card     |
|          | png    | Icon fotocopy of family card |
|          | svg    | Icon cloud                   |
|          | svg    | Sun                          |
|          | svg    | tree                         |

3) **Post Production Stage**

a. **Compositing**

Composite all result of the previous production stage. Where the animation and result of dubbing should be fitted. The patient and skill is very needed, since in this stage we should choose and trimming unused scene, cutting, and merge selectively.

b. **Rendering**

Rendering is the process of storing the end result of the project in the form of movie files. Each scene converted into frame and counting in frame per second measurement. Those frames will be processed into animated movie with particular desired resolution [8].

**B. Results**

In this chapter, will be discussed about scene display in according to the storyboard that has been made. Some scene cuts which is in this video describes Kelurahan Ngadirejo as general to promote this Kantor Kelurahan among societies, especially society in Ngadirejo be shown in Figure 3.
During the requirement analysis process, the customer gives the suitable information that they want to import in motion graphic. In the beginning, the requirement is too complex and detail, though the motion graphic becomes too long and repetitive. Then a little bit changing occurred when the motion graphic had been seen. The requirement change into more general form.

This public service advertisement still have lackness in animation movement, transition, even the voice over still have some noisy. But overall the content is satisfy the requirement from Kelurahan Ngadirejo authorities in hence promote Kelurahan Ngadirejo to societies. This animation has clear and complete information so that the video will be delivered well and in accordance with the purpose of making the video.

Figure 3. Scenes of Motion Graphic

C. Usability Testing

The usability test of the motion graph animation application is done by using the SUS standard (system usability scale) which has 10 item statement items that the user must answer [9], [10]. In detail the 10 items listed in Table II. These ten statements describe how the use of this application is used by users. Assessment by users is done by giving an assessment of the statement on a scale of 1 (Strongly disagree) up to a scale of 5 (strongly agree). This SUS test took 35 respondents. The test results obtained an average SUS score of 71.07%, for each detail. According to the SUS score
A precentil score \( \geq 70\% \) stated that the system or application is of good quality [11] as shown on Table III.

**TABLE II. MOTION GRAPHIC SYSTEM USABILITY SCALE ITEMS**

| No | SUS items                                                                                     |
|----|----------------------------------------------------------------------------------------------|
| 1  | I think that I would like to use this media motion graphic system frequently                   |
| 2  | I found the motion graphic system unnecessarily complex                                        |
| 3  | I thought the motion graphic system was easy to use                                            |
| 4  | I think that I would need the support of a technical person to be able to use this system     |
| 5  | I found the various functions in this motion graphic system were well integrated                 |
| 6  | I thought there was too much inconsistency in this motion graphic system                       |
| 7  | I would imagine that most people would learn to use this motion graphic system very quickly     |
| 8  | I found the motion graphic system very cumbersome to use                                       |
| 9  | I felt very confident using the motion graphic system                                          |
| 10 | I needed to learn a lot of things before I could get going with this motion graphic system      |

**TABLE III. USER SUS SCORE**

| User | SUS Items | Total | SUS Score (Total * 2.5) |
|------|-----------|-------|--------------------------|
| 1    | 3 2 3 4 6 | 30    | 75                       |
| 2    | 3 3 3 3 0 | 27    | 67.5                     |
| 3    | 4 2 3 4 3 | 33    | 82.5                     |
| 4    | 3 2 3 3 3 | 28    | 70                       |
| 5    | 3 2 3 2 2 | 27    | 67.5                     |
| 6    | 3 3 3 2 3 | 27    | 67.5                     |
| 7    | 3 3 3 3 3 | 29    | 72.5                     |
| 8    | 3 3 3 3 3 | 28    | 70                       |
| 9    | 3 1 3 3 2 | 24    | 60                       |
| 10   | 4 3 3 3 2 | 34    | 85                       |
| 11   | 3 2 3 2 1 | 25    | 62.5                     |
| 12   | 3 4 4 4 3 | 36    | 90                       |
| 13   | 2 2 2 2 2 | 22    | 55                       |
| 14   | 4 3 3 4 3 | 35    | 87.5                     |
| 15   | 3 0 3 0 3 | 23    | 57.5                     |
| 16   | 4 3 3 3 3 | 33    | 82.5                     |
| 17   | 4 3 3 3 3 | 32    | 80                       |
| 18   | 2 2 3 3 2 | 23    | 57.5                     |
| 19   | 4 1 2 0 4 | 27    | 67.5                     |
| 20   | 3 3 4 1 3 | 29    | 72.5                     |
| 21   | 4 3 3 3 2 | 27    | 67.5                     |
| 22   | 3 2 3 3 2 | 27    | 67.5                     |
| 23   | 3 2 3 3 2 | 26    | 65                       |
| 24   | 4 3 3 3 2 | 34    | 85                       |
| 25   | 4 3 3 3 3 | 32    | 80                       |
| 26   | 4 3 3 3 3 | 35    | 87.5                     |
| 27   | 3 1 3 3 2 | 26    | 65                       |
| 28   | 3 2 3 3 2 | 27    | 67.5                     |
| 29   | 3 2 3 3 3 | 25    | 62.5                     |
IV. Conclusion

Motion graphics for animation for public service advertisements that are designed to build successfully implemented on Kelurahan Ngadirejo with the results of usability System Usability Scale (SUS). SUS score is an average of 71.07% of users classified as applications having good quality based on SUS percentile scores.

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References

[1] K. Schreiner, “Digital Games Target Social Change,” IEEE Comput. Graph. Appl., vol. 28, no. 1, pp. 12–17, Jan. 2008.
[2] E. Sudarmilah, U. Fadillah, H. Supriyono, F. Y. A. Irsyadi, Y. S. Nugroho, and A. Fatmawati, “A review: Is there any benefit in serious games?,” in AIP Conference Proceedings, 2018, vol. 1977.
[3] X. Nan, M. Futerfas, and Z. Ma, “Role of Narrative Perspective and Modality in the Persuasiveness of Public Service Advertisements Promoting HPV Vaccination,” Health Commun., vol. 32, no. 3, pp. 320–328, Mar. 2017.
[4] N. Kim and S. Y. Yu, “Effect of the Characteristics of Models of Public Service Advertisements on Public Service Behavior Intension: Mediated Effect on Attitude of Psa,” Indian J. Sci. Technol., vol. 8, no. S8, p. 250, Apr. 2015.
[5] S. Barnes, “Studies in the Efficacy of Motion Graphics,” Digit. Journal., vol. 5, no. 10, pp. 1260–1280, Nov. 2017.
[6] E. Sudarmilah, R. Ferdiana, L. E. Nugroho, A. Susanto, and N. Ramdhani, “Tech review: Game platform for upgrading counting ability on preschool children,” in 2013 International Conference on Information Technology and Electrical Engineering (ICITEE), 2013, pp. 226–231.
[7] A. Maedche, A. Botzenhardt, and L. Neer, Eds., Software for People. Berlin, Heidelberg: Springer Berlin Heidelberg, 2012.
[8] P. Gervás, “Metrics for desired structural features for narrative renderings of game logs,” Entertain. Comput., vol. 5, no. 4, pp. 245–250, 2014.
[9] P. Kortum and S. C. Peres, “The Relationship Between System Effectiveness and Subjective Usability Scores Using the System Usability Scale,” Int. J. Hum. Comput. Interact., vol. 30, no. 7, pp. 575–584, Jul. 2014.
[10] N. Harrati, I. Bouchrika, A. Tari, and A. Ladjailia, “Exploring user satisfaction for e-learning systems via usage-based metrics and system usability scale analysis,” Comput. Human Behav., vol. 61, pp. 463–471, Aug. 2016.
[11] K. Orfanou, N. Tselios, and C. Katsanos, “Perceived usability evaluation of learning management systems: Empirical evaluation of the System Usability Scale,” Int. Rev. Res. Open Distrib. Learn., vol. 16, no. 2, Apr. 2015.
