

2D Animation Public Service Announcement : Insomnia (Sleep Disorder)

Roslinawati Jaafar
Malaysian Institute of Information Technology
Universiti Kuala Lumpur
50250 Kuala Lumpur Malaysia
roslinawati@unikl.edu.my

Rosnas Syazwana Zakaria
Malaysian Institute of Information Technology
Universiti Kuala Lumpur
50250 Kuala Lumpur Malaysia
rosnas.zakaria10@s.unikl.edu.my

Abstract— Insomnia is a condition in which you have difficulty falling and staying asleep. Acute insomnia can last anywhere from one night to several weeks. When a sleep disturbance occurs for at least three nights per week for three months or more, it is considered chronic. This, in turn, causes bodily symptoms such as mood swings, irritation, and weariness, as well as impairing their daily activities. The major goal of this study is to use public service announcements to educate the public about insomnia (sleep disorder). Aside from that, this study resulted in the creation of a 2D animation Public Service Announcement about Insomnia (sleep disorder). Overall, the objective of this study is to determine the impact of a 2D animation public service announcement in improving public awareness about insomnia (sleep disorder). The ADDIE model was utilized as a methodology to guide the procedure throughout the research process. Analysis, Design, Development, Implementation, and Evaluations are the five stages of the ADDIE Model. Based on the findings of this study, 67.7 % of respondents strongly agreed that the message in the PSA video is memorable. Aside from that, 48.4 % of respondents strongly agreed that the video's message is simple and easy to comprehend. The viewer has gained more exposure and knowledge because of this study, which shows that 2D animation has raised public awareness regarding insomnia (sleep disorder).

Keywords— Insomnia, Sleep Disorder, Public Service Announcement (PSA), 2D Animation.

I. INTRODUCTION

Insomnia is a disorder in which you have difficulty falling and staying asleep. Acute sleep disorders can last anywhere from one night to several weeks. When a sleep disturbance occurs for at least three nights per week for three months or more, it is considered chronic. This causes physical symptoms such as altered mood, irritation, and weariness, as well as having an impact on daily activities. A high amount of stress, depression, weariness, and worry are some of the variables that might lead a person to develop a sleep problem. There is a unit treatment that is used to treat sleep disorders, such as improving sleep quality and taking medicine.

The main objective of this study is to expose public about Insomnia (sleep disorder) using 2D Animation Public Service Announcement (PSA). 2D Animation Public Service Announcement (PSA) were chosen as a media to help increase awareness, gathering new data, and changing behaviour in

response to the problem. As a result of this 2D Animation Public Service Announcement, sufferers received extra information or facts about their problem. Furthermore, the 2D PSA also assist sleep disorder sufferers in overcoming their problem by providing information on how to achieve better sleep. A survey was also conducted to evaluate the effectiveness of the 2D Animation Public Service Announcement in giving awareness to society about Insomnia (sleep disorder).

A. Problem statement

People who suffer from insomnia (sleep problem) cannot be healed right away because one of the reasons for insomnia is a high level of stress, which means that before we can treat the insomnia, we must first conquer the foundation. Treatment, such as publicity therapy, can take a long time to work, and there are a variety of possible side effects that might disrupt daily life. Therapists have little control over their patients' sleeping patterns.

Aside from that, Malaysian continues to lack an emphasis on insomnia (sleep disorder). People are unaware of how damaging it is to have an impact on a positive person. By providing a 2D Animation Public Service Announcement (PSA), the focus on insomnia and possible treatment options can be brought to light.

In addition, there is still lack of information about Insomnia in Bahasa Melayu and awareness among Malaysian about this problem.

B. Research questions

- What is the level of awareness on Insomnia in Malaysia?
- How will 2D Animation Public Service Announcement (PSA) help in raising awareness about insomnia?
- How can we solve the problem of insomnia?

II. LITERATURE REVIEW

This section will discuss about insomnia and using 2D animation PSA as an approach in spreading awareness about autistic people. The researcher also reviewed and compared existing research and method used in giving awareness about insomnia.

A. What is insomnia ?

Insomnia is a serious sleep condition that happens when you have one or more of the following issues, according to (Mayoclinic, n.d.).

- Napping is difficult for you, and you wake up frequently throughout the night.
- You have a habit of waking up too early and not being able to fall asleep again.
- You don't get enough sleep or it's of poor quality.

Insomnia symptoms can be caused by a variety of physiological, social, and environmental factors, and even if the victim has the maximum potential for a good night's sleep, they commonly lead to poor sleep. On the other hand, sleep deprivation occurs when a person no longer has the capacity to receive a complete night's sleep. Short sleepers, who can usually get by on just 5 hours of sleep, make up a small percentage of those who have trouble sleeping.

There are two categories of insomnia: primary and secondary. Number one insomnia is defined as sleeplessness that cannot be attributed to a scientific, psychological, or environmental cause (consisting of drug abuse or medications). Secondary insomnia occurs when insomnia symptoms are caused by a primary medical condition, psychiatric illness, or other sleep difficulties. It could also be caused by the overuse, aggression, or public exposure of such medications. Only when insomnia causes a significant amount of distress or anxiety, or when it results in daytime impairment, is insomnia considered a disease

B. Types of insomnia

Insomnia is divided into 5 types:

- Adjustment Insomnia

(Medicine, n.d.) it was positioned, Adjustment insomnia is sometimes known as acute insomnia or short-term insomnia. It is usually brought on by a difficult situation and lasts for a few days or weeks. Adults' one-year prevalence of alternating insomnia is likely to be between 15-20%, according to epidemiologic study. Adjustment insomnia can affect anyone at any age but determining a link between a specific stress and sleep problems in toddlers can be difficult. Adjustment insomnia is far more common in women than in males,

and it is much more common in older adults than in younger adults and teenagers.

- Chronic Insomnia

Chronic insomnia is a sleeping disorder that lasts a long time. Chronic insomnia is defined as an inability to fall or remain asleep for at least three evenings per week for three months or more. Insomnia can be caused by a variety of factors. It can be linked to stressful situations like acute insomnia, but it can also be linked to irregular sleep schedules, poor sleep hygiene, persistent nightmares, intellectual fitness difficulties, underlying physical or neurological abnormalities, medications, a bed partner, and other sleep disorders. (Information Sheet for Primary Care Behavioral Health Providers, n.d.)

- Onset Insomnia

The inability to fall asleep is known as beginning insomnia. This type of insomnia can be short-term or long-term. Any of the causes of acute or persistent insomnia can make it difficult to fall asleep. Mental or clinical illnesses are the most prominent reasons. These include things like stress, tension, and sorrow. According to a study, those with recurring onset insomnia are more likely to have any other sleep disorder, such as stressed leg syndrome or periodic limb motion sickness (Park et al., 2009). Caffeine and other stimulants will keep you awake at night as well.

- Maintenance insomnia

Insomnia is frequently linked to issues falling asleep, according to (How to Remedy Sleep-Maintenance Insomnia, from Harvard Women's Health Watch - Harvard Health, n.d.). Sleep-deprivation insomnia is characterized by difficulties falling asleep or waking up too early and attempting to fall asleep again. Difficulty sleeping also leads to anxiety about not getting enough sleep, which interrupts sleep even more, creating a vicious cycle.

- Behavioural insomnia of childhood

Insomnia affects children in various ways. If an infant associate falling asleep with an event (being hugged or rocked), an entity (a bottle), or an environment (the mother and father's mattress), she or he will not sleep until the relationship is dissolved. The limit-putting kind is when an infant stalls and refuses to fall asleep due to a loss of honestly enforced bedtime boundaries. (Medicine, n.d.)

C. Causes of insomnia

Insomnia can be caused by a variety of issues or factors, including:

- Chronic (ongoing) pain-causing conditions, such as arthritis and headache difficulties
- Conditions that make breathing difficult, such as bronchial allergies and coronary heart failure
- Thyroid hyperactivity
- Gastrointestinal issues, including heartburn
- Stroke
- Sleep disturbances, as well as stressed legs syndrome and sleep-related breathing difficulties
- Warm flashes and menopause

As a side effect, any pharmacological treatment can cause secondary insomnia. Certain bronchial allergy medications, such as theophylline, as well as hypersensitivity and bloodless medicines, can cause insomnia. Beta blockers may potentially be to blame for the illness. These medications are used to treat coronary heart disease. Insomnia can also be caused by overuse of medicines. Caffeine and other stimulants, cigarettes and nicotine products, and alcohol are all examples.

D. Symptoms of insomnia

In addition to sleep disruption, insomnia can cause a variety of issues, including:

- weariness or sleepiness during the day
- anger, despair, or tension
- symptoms of the gastrointestinal tract
- a lack of drive or energy
- negative focus and attention
- a lack of coordination that leads to errors or accidents
- apprehension or anxiety about sleeping
- the use of sedatives or alcoholic beverages to help you fall asleep
- headaches caused by anxiety

If socializing, working, or studying is a problem. According to researchers, a loss of sleep is a chief reason in automobile crashes.

E. Treatment of insomnia

Treating insomnia typically involves sleep-inducing medication, cognitive behavioral therapy for insomnia (CBT-i), or a combination of both of these measures.

CBT-i has the potential to produce long-term effects. It consists of a combination of the following treatments:

- **Cognitive therapy:** Changing the attitudes and values which might be stopping you from napping
- **Relaxation training:** Mind and frame relaxation
- **Sleep hygiene training:** Changing awful conduct that result in sleep deprivation
- **Sleep restriction:** Limiting the time in mattress after which step by step growing it

- **Stimulus control:** Just going to mattress while you're tired, waking up on the identical time each day, leaving the mattress while you can't sleep, taking naps, and simply the use of the mattress for sleep.

For many people, medication is a last resort after CBT-i methods have not been effective at improving their sleep. Sleep-inducing medication falls into 2 categories that is over-the-counter products or prescription sleeping pills.

F. What is public service announcement ?

PSA stands for public service announcement and is a commercial that is broadcast in the public interest. PSAs are intended to raise public awareness and influence popular perceptions, beliefs, or even movements in opposition to a certain issue. Those messages can be instructive, motivating, or even startling in order to elicit emotion and action.

PSAs may include interviews, dramatizations, animations and many other types of video and audio content. There are many different stylistic approaches when making a PSA. Decide which one is the most appropriate and effective for the message that you're trying to convey.

G. What is 2D animation?

Two-dimensional animation, also known as 2D animation, is a method of creating the illusion of motion in a two-dimensional space using a creative approach and media layout. As man or woman sketches are sequenced collectively throughout time, characters, places, objects, and outcomes appear to transfer. This is a common technique used in live-action films and television shows, but it's also used in video games, websites, mobile apps, and ads.

Drawing a picture by hand before using 2D animation, often known as vector-primarily based animation, can be advantageous. Only a few of the most widely used 2D animation software application programmers are Adobe Photoshop, Adobe After Effects, and Toon Boom Harmony. As a result, it may be beneficial to pursue more education in order to gain access to crucial technology skills.

H. Related Work

TABLE 1. Comparison of case study

| Insomnia PSA Case Study | | | | | |
|--------------------------------------|---|---|--|---|--|
| CRITERIA / CASE STUDY | What Causes Insomnia? | Insomnia: Causes, Symptoms and Treatment | Psychiatry - Sleep Disorders | Insomnia - A Stop Motion | Kartun 2D Insomnia - Adkurniawan |
| Year | 2018 | 2020 | 2016 | 2010 | 2011 |
| Production/ Artist | TED-Ed | Dr Aishwarya Kelkar | Medskl.com (Elliot Lee M.D) | IDC YM | Adkurniawan |
| Theme | 2D Animation PSA | 2D Animation | Infographic style | Stop Motion | 2D Animation PSA |
| Content | Causes Insomnia | About causes, symptoms, and treatment | The timeline event of what you need to know about sleep disorder. | The timeline event of tips for people suffering from insomnia | Causes of insomnia |
| Language | English | English | English | English | Malay |
| Duration | 5 minutes 11 seconds | 1 minute 8 seconds | 2 minutes 33 seconds | 1 minute | 9 minutes 2 second |
| Types Of Interactivities / Animation | Infographic, 2D Animation | 2D Animation | 2D Animation, Infographic | Stop Motion, Infographic Animation | 2D Animation |
| Text | Yes | Yes | Yes | Yes | Yes |
| Audio | Background music with narrator's voice | Background music with narrator's voice. | Only narrator's voice | Only background music. | Background music with narrator's voice |
| Strengths | <ul style="list-style-type: none"> Narrator's voice is very clear Interesting way to convey all the information | <ul style="list-style-type: none"> Narrator's voice is very clear Smooth animation and artwork. | <ul style="list-style-type: none"> From a text to another text. Infographic legible to read Interesting way to convey all the information | <ul style="list-style-type: none"> Smooth animation with nice artwork. | <ul style="list-style-type: none"> Narrator's voice is very clear |
| Weaknesses | Too simple. | Difficult to understand because don't have any text. | Too simple. | Difficult to understand at the beginning of the video. | The background music is too loud than narrator voice |

Table 1 summarized the analysis and comparison of several PSAs produced by others about insomnia. This enables the researcher to delve deeper into the project and produced a 2D animation PSAs in giving awareness to society about insomnia (sleep disorder).

III. RESEARCH METHODOLOGY

According to (Hafiz et al., 2020), careful planning is required before the development method begins to ensure successful learning impacts from instructional courseware or 2D Animation Public Service Announcement (PSA). The ADDIE Instructional Concept Model was used to during the development of this Public Service Announcement. The ADDIE Model is used as a technique because it is clean and simple to employ inside the improvement procedure. Due to the multimedia venture work, ADDIE is the best choice for multimedia development. Due to the time constraints of the jobs, ADDIE is still a viable option to consider. As shown in Fig. 1 the ADDIE Model has five stages: analysis, design, development, implementation, and evaluation.

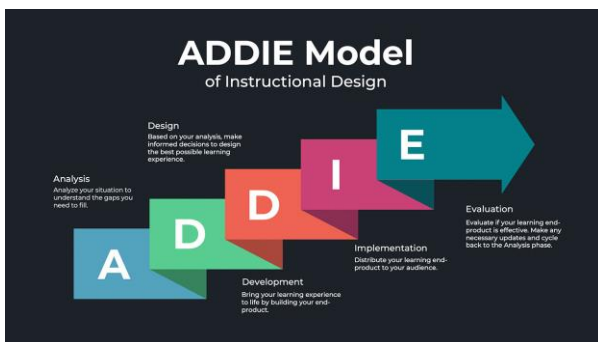


Fig. 1. Addie Model

A. Analysis

The first step is to analyse and understand the topic of the research. This is important as it will directly determine the outcomes of the succeeding phases. Analysis is done in multiple parts, which includes determining the source of the problem, the objective, goals, and audience, as well as determining the content material.

B. Design

The design approach emphasizes on learning goals, content, subject matter analysis, and media collection during the analysis phase. This process involves creating a storyboard to help guide the production of 2D Animation PSA.



Fig. 2. Storyboard design

C. Development

After the design stage has been finalized, confirmed, and approved, then the actual development or production stage began. This is where 2D graphics and animation were created. Designing layout and recording voiceover for the PSA were also done during this phase. Developers used Adobe Illustrator to design the graphics and layout, while Adobe After Effect was used to create animation. Three PSA was produced namely "What is Insomnia?", "Root cause of Insomnia" and "Treatment for Insomnia" as in Fig. 4, Fig. 5 and Fig. 6.



Fig .3. Character design



Fig. 4. What is Insomnia? 2D PSA

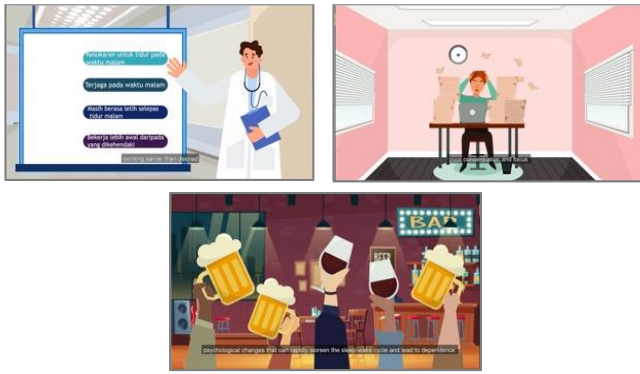


Fig. 5. Root cause of Insomnia 2D PSA

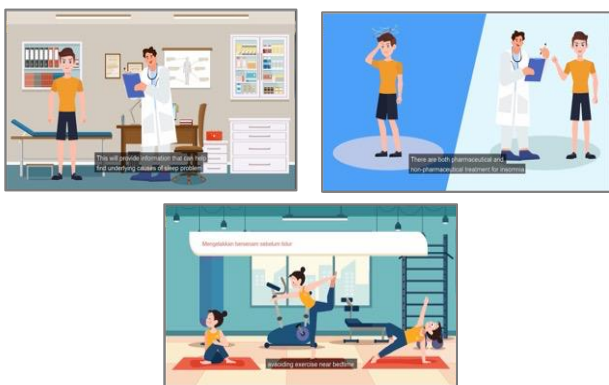


Fig. 6. Treatment for Insomnia 2D PSA

D. Implementation

The next stage of the methodology is the implementation, where everything was put together. Music, color grading and even cutting or trimming some footage was done to enhance the final product. This stage is also where the PSA is reviewed multiple times to determine if there were changes needed to be made.

E. Evaluation

The final stage of the methodology is evaluation. Once the PSA production has finished and ready to be packaged, the testing was conducted. As a summative assessment, researcher employ a survey and quantitative data collection to assess the effectiveness of PSA in giving awareness to society about insomnia.

IV. RESULT AND DISCUSSION

In this section, the researcher addressed the evaluation process as well as discussion of the results obtained based on the questionnaire that had been used to collect data. Evaluation was conducted to determine whether the completed PSA was able to convey the message and aid in the research. The testing involves the audiences to watch all the PSAs and then answer the questionnaires provided. Test audience who watched the 2D PSA were given 22 questions to complete. The online questionnaire was distributed to a total of 31 respondents. The questionnaire was divided into three sections and included both closed and open-ended questions.

In Section A of the questionnaire, the respondent's demographics, such as age, gender, and awareness, were determined. Section B then focused on Insomnia content, such as how noticeable it is to others and how it affects people's quality of life. Finally, Section C focus on the user interface and experience watching 2D Animation Public Service Announcement (PSA).

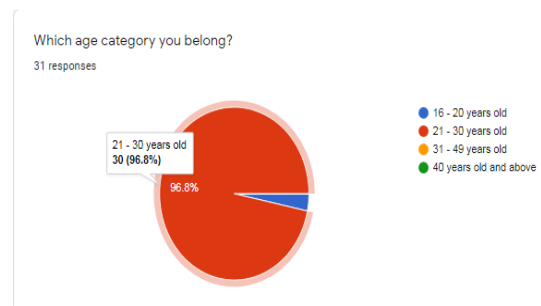


Fig. 7. The age category of the respondent

Fig. 7 reveals that females account for 58.1 % of those who responded to the survey, while men account for 41.9 % of those who responded. 96.8% of respondents are between the ages of 21 and 30. Finally, 58.1 % of Malaysians are aware of insomnia, which indicate that there still those who are not aware of insomnia

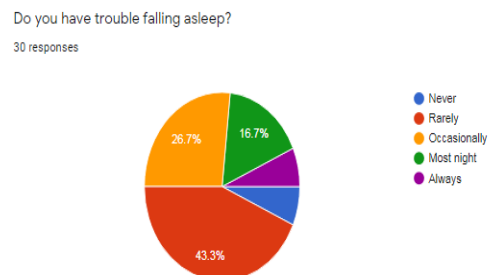


Fig. 8. Respondents that having trouble falling asleep

Fig. 8 shows that 43.3 % of respondents had difficulties falling asleep only occasionally, 26.7 % have trouble falling asleep occasionally, and 16.7% have trouble falling asleep most

nights. All these percentages comprised men and women of both genders.

How satisfied are you with your current sleep pattern?
29 responses

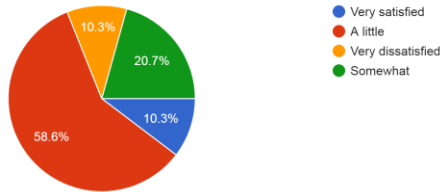


Fig. 9. Respondent that is satisfied with their current sleeping pattern

Fig. 9 demonstrates that 10.3% respondents were satisfied with their sleeping pattern. More than half of the respondents, 58.6 % were a little dissatisfied with their present sleeping routine. 20.7 % somewhat not satisfied. Finally, 10.3 % of people were very dissatisfied with their current sleeping habit.

Please select how worried or distressed you are about your current sleep problem?
30 responses

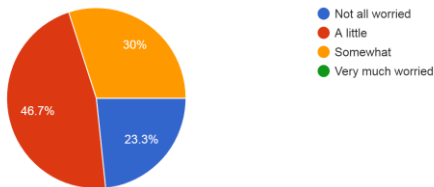


Fig. 10. Condition of respondent about their current sleeping problem

Fig.10 demonstrates that most of the respondents are in the category of a little, which accounts for 46.7 % of the total. Furthermore, the second-largest number in the pie chart above, 30% falls under the category slightly. In all, 23.3 % are unconcerned.

The message of the video is straight forward and easy to understand.
31 responses

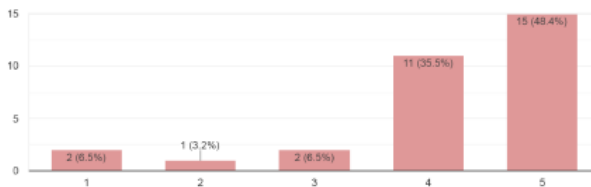


Fig. 11. Message is clear and easy to understand

Fig. 11 shows that 48.4% out of the respondents strongly agreed that the message of the video is straightforward to

understand and the 35.5% agree. It indicates that majority of the respondents understand the message from the video

Based on the three video that you watched, what makes the PSA video memorable to you? (You can choose more than 1 option provided.)
31 responses

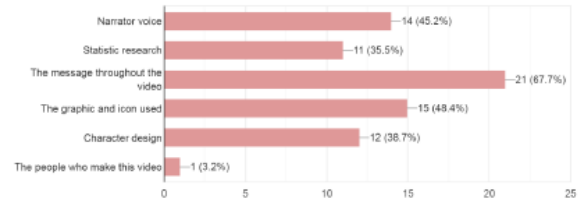


Fig. 12. PSA video memorable

Figure 12 reveals that 67.7% choose the message delivered throughout the video as the most memorable. All in all, it can be concluded that when the message is delivered successfully to the audience or respondent the purpose of the research is accomplished.

V. CONCLUSION

In conclusion, most of the respondents agree that the 2D Animation Public Service Announcement was able to achieve the objectives that arise during the creation of this research. Thus, it is safe to say that the PSA was able to spread awareness about insomnia (sleep disorder), especially here in Malaysia where such awareness was relatively low

There are still several flaws within the 2D PSA, mostly related to the content about insomnia. It is recommended for future studies to delve more about the content related to insomnia in in Malaysia. It may include more infographics or statistics about the cases in Malaysia. Finally, this project could also be improved by producing it using 3D animation to attract a larger audience.

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