**Using Motion Graphics to Raise Awareness on Vaccines**

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**ABSTRACT:** *Vaccines have been around since 1796 when Edward Jenner who is considered the founder of vaccinology treated a boy with vaccinia virus aka cowpox and developed immunity to smallpox which is when the first vaccine was developed. Vaccines have continued to improve throughout the century and people have been discovering other vaccines for different pathogens. A vaccine is a type of medicine that contains weakened or dead bacteria or viruses enough to signal the antibodies to adapt to the foreign invader. Antibodies are also known as immunoglobulin is a protein that is used by the immune system to eliminate pathogens such as bacteria and viruses. As vaccines continue to improve, people have also developed doubt and hesitancy for vaccines. In the Philippines, some people are hesitant to have themselves vaccinated due to the Dengvaxia controversy which is still ongoing. The Dengvaxia controversy instilled fear in those planning to be vaccinated since the WHO (World Health Organization) released a statement that the vaccine may do more harm than good on seronegative individuals. The controversy made the people start forming conspiracy theories that vaccines in general will do more harm than good. According to a 2014 MIT study, visual communication such as motion graphics is effective on how the brain absorbs nearly instant information, especially when pairing the motion graphics with audio or narration that is focused on what the visuals tell, canceling or isolating out non-relevant information and solely focuses on the message itself.**This study aims to determine if motion graphics can raise the awareness of vaccines due to the rising cases of vaccine-preventable diseases and the increasing vaccine hesitancy in the Philippines. A qualitative approach was done and used the survey method with a sampling size of 33 parents aging from 18 and above. The researcher made use of motion graphics as the medium of delivery of the message to raise awareness of the effectiveness of vaccines and an unstructured self-administered questionnaire was used. 96.96% of the respondents responded that motion graphics was effective in raising awareness of vaccine and the majority of the respondents liked how the three theories worked hand in hand to successfully create the motion graphics, the participants found that the minimalistic elements, amount, and flow of information helped raise awareness and they are willing to apply what they have learned from the motion graphics.*

**KEYWORDS**: Vaccines, Storytelling, Awareness

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**INTRODUCTION**

In 1796, vaccines were developed by a man named, Edward Jenner, who is considered the founder of vaccinology, who treated a boy with cowpox (vaccinia virus) who later on developed immunity to smallpox. It was when the first vaccine was developed (Stefan Riedel, 2005). A vaccine is a type of medicine that contains weakened or dead bacteria or viruses that will not affect the body to cause illness, but enough to signal the immune system to adapt to the foreign invader (Vaccines: The Basics, 2012).

Ever since the rise of vaccines, it has prevented numerous diseases and lessened the cases of each such as Polio, one of the most feared diseases in the 1950s. Polio outbreaks were more than 15,000 cases of paralysis per annum. A vaccine was made in 1955 and 1963 which drastically dropped the cases to less than 10 in the 1970s (Polio Elimination in the United States, 2019). In 1912, measles became well-known in the United States having an average of 6,000 deaths related to measles whereas it is estimated that around 4 million people were infected every year in the United States. A vaccine was developed for measles in 1963. By the year 2000, measles was declared gone (History of Measles, 2018).

While vaccines are constantly improving to fight off evolving pathogens, people have also developed doubt and hesitancy for vaccines. In the Philippines, some people are hesitant to have themselves vaccinated due to the Dengvaxia controversy which is still ongoing (Fatima & Syed, 2018). The Dengvaxia controversy instilled fear in those planning to be vaccinated since the WHO (World Health Organization) released a statement that the vaccine may do more harm than good on seronegative individuals. WHO advises Dengvaxia be used only in people previously infected with dengue. The WHO however recommends that to lessen the illness for the seronegative vaccinated patients, they should increase measures that would reduce exposure to dengue infection (WHO to member states: Limit Dengvaxia use, 2017).

According to (Icamina, 2019) that Philippine disease outbreaks are linked to vaccine fear, and also according to DOH they identify vaccine hesitancy as one of the reasons for the measles outbreak. The Measles Outbreak that occurred after the Dengvaxia issue, vaccine coverage of measles dropped from above 80% during 2008 to below 70% in 2017 (Ochani, Yasmin, Tariq, & Shaikh, 2019). A study by (Ridad, 2019) showed that the reason why some parents weren’t able to complete their child’s vaccination is because of a lack of knowledge and awareness on the benefits of immunizations and the number of vaccines that their children need to receive. Due to the increased hesitancy, the Philippines had 42,000 cases of measles in 2019, nearly thrice for the same time in 2018.

Vaccine awareness campaigns have been used to fight the rising cases due to the increased vaccine hesitancy, especially with the COVID-19 cases today, DOH has implemented different motion graphics to fight vaccine hesitancy and inform the people of the importance of vaccines where all the videos are published on Facebook. A video from the DOH titled ‘PANOORIN: Ano ang iba’t ibang uri ng bakuna kontra COVID-19?’, is a motion graphics video showing different types of vaccines against COVID-19 and how each type responds to the body. A motion graphics video series from the DOH with lengths of thirty-six seconds each separated into snippets were uploaded on Facebook with the following video titles: ‘Alamin kung paano nilalabanan ng bakuna ang sakit’, ‘Alamin ang pagkakaiba ng mga bakuna’, and ‘Mga side effects pagkatapos mabakunahan’ (Department of Health, 2021). All of which are showing the effects of vaccines.

(Memon, n.d.) states that animation or motion graphics can be able to simplify complex information when related to visual storytelling which makes delivering the message clearly and simply. (Shir & Asadolla, 2014) shows the success of motion graphics as a medium for visual communication, showing that in comparison to other media, motion graphics show more success in impacting viewers. In addition, it is being used in explainer videos, advertisements, and social videos, which makes those videos easily absorbed by the audience and helps them remember the information delivered through this medium. According to a 2014 MIT study (Anne Trafton, 2014), visual communication such as motion graphics, is effective on how the brain absorbs information which is nearly instant as fast as 13 milliseconds, especially when pairing the motion graphics with audio or narration that is focused on what the visuals tell, canceling or isolating out non-relevant information and solely focuses on the message itself.

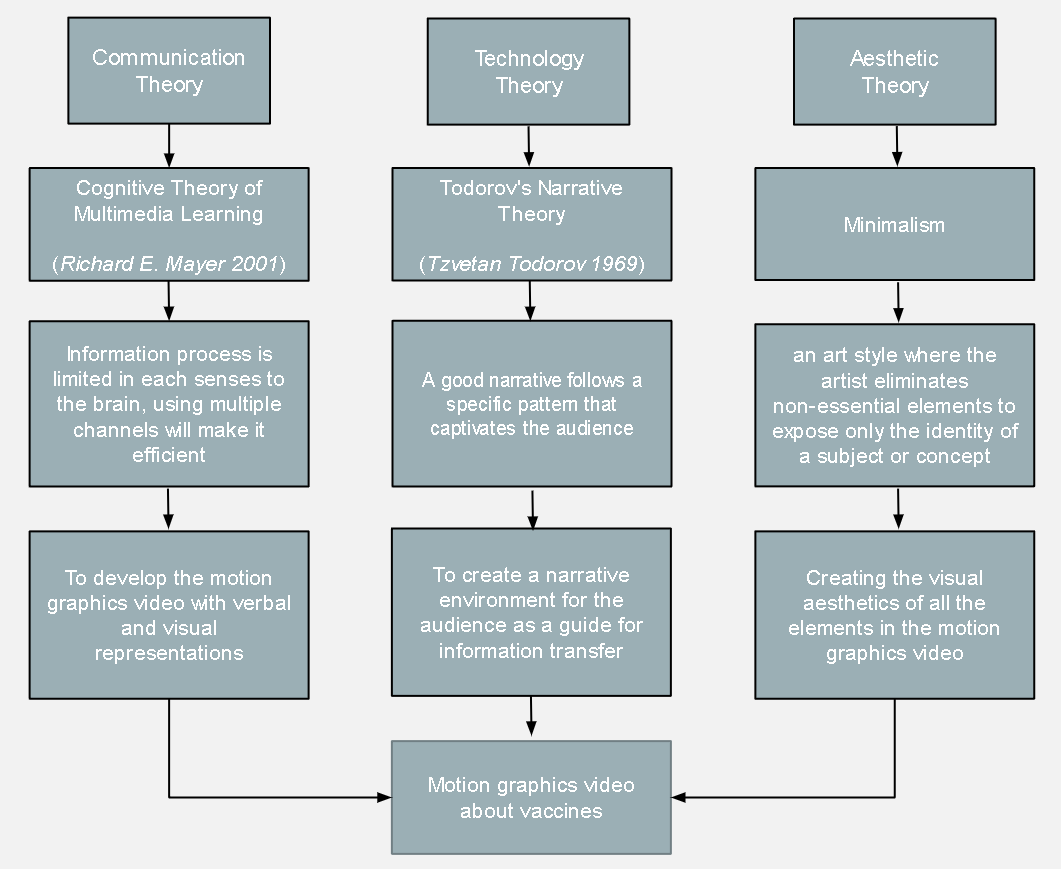
With the rising cases of vaccine-preventable diseases and also due to negative media information that causes parents to become vaccine-hesitant, the need to find different methods to raise awareness for vaccines is crucial to better educate the people and also save the children from having the disease.

The study will make use of motion graphics as the medium of delivery of the message to raise awareness of the effectiveness of vaccines online due to their light nature. The use of the internet to deliver the motion graphics message in the Philippines is due to a recent report from Digital 2020 (Lee, 2020), which says that Filipinos are the world’s most active people on the internet, ages averaging from 16 to 64 years old spend nearly 4 hours a day on social media websites and most of these are accessed through mobile devices.

The study aims to determine if motion graphics can raise the awareness of vaccines due to the rising cases of vaccine-preventable diseases and the increasing vaccine hesitancy in the Philippines. The objectives of this study are:

1. To produce a motion graphics video using theories that will make it effective for raising awareness.
2. To raise awareness and educate parents about vaccines.

The purpose of the study is to identify if motion graphics is an effective medium in raising awareness about vaccine effectiveness. The study focuses on parents who will watch the video along with an online questionnaire to fill out after watching the motion graphics video. The questionnaire will be asking the viewer if the video has educated them, has lessened the hesitancy on vaccines, and if it has successfully made them more aware of vaccines. The video will be given out on YouTube and Facebook along with the questionnaire in the description. It is not the intention of the study to identify what vaccines the parents do not want to give their kids. It is also not the intention of the study to identify what vaccines cause side effects.

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***Figure 1.*** *Theoretical Framework*

The researcher used Richard Mayer’s Cognitive Theory of Multimedia Learning as its Communication Theory. Cognitive Theory of Multimedia Learning states that people can learn deeper from pictures and words combined than words alone (Mayer, 2009). It also states that humans can only absorb a limited amount of information in the senses at a time. Mayer’s theory shows the concept that the human brain does not project texts, audio, and pictures in a multimedia presentation, instead organizes them in a way that the brain produces logical mental constructs (Cognitive Theory of Multimedia Learning (Mayer), 2014). This theory enables the motion graphics video to guide the viewer through the information in both its verbal and visual aspects by the use of a narration that correlates with the visuals on the video.

The Technology Theory used is Tzevtan Todorov’s Narrative Theory. The theory suggests that narratives go through five stages in order: Equilibrium, Disequilibrium, Acknowledgement, Solving, and back to Equilibrium. The first stage is the beginning of a story where all things are going well, the second stage disrupts the first stage by an event. The third stage is where a recognition of the event happens. The fourth stage is how the event that disturbed the equilibrium. The final stage is where all things go back to normal as soon as the event has been solved that disturbed the equilibrium in the first place (Todorov, 1969). This theory will aid in guiding the viewer through the information by the use of having a narrative in the video creating a linear path for the viewer to follow.

The concept of Minimalism is the Aesthetic Theory for the research. The art style characterizes simplicity at its finest and is taken literally. Minimalism first arose from the 1913 artwork painted by Kasimir Malevich of a black square on white background (Minimalism, 1998). The simplicity of Minimalism eliminates non-essential elements in the motion graphics video that are not related to the information being passed on to the viewer such as removing excessive animation elements or having content that has too many colors which would distract the viewer.

**METHODOLOGY**

**Design and Development**

Post-Production

Compiling narration and the motion graphics

Rendering

Collecting feedback from participants

Production

Graphic Assets

Motion Graphics

Recording narration

Pre-Production

Creating the story

Storyboard

Creating a narrator script

***Figure 2.*** *Design and Development Framework*

The pre-production stage is the first stage of any design and development. In this stage, the researcher created a story that guides the viewer through the motion graphics video. The story is about what vaccines are, what they do, and the cause and effect of vaccine hesitancy. The storyboard for the video was developed in Adobe Illustrator due to the ease of creating and altering shapes and layers once the story had been made. A script for a narrator was written for the production phase, which was used later on for the production phase. The elements are minimized to mainly the use of circles, lines, and other two-dimensional objects to follow the aesthetic used for the video; minimalism. Lastly, the majority of the information used in the creation of the motion graphic is mainly from the World Health Organization (WHO), Center for Disease Control and Prevention (CDC), and the Department of Health (DOH).

The production stage starts after all the pre-production requirements have been met where the graphic assets to be animated were designed, the researcher used Adobe Illustrator to make these assets. Once completing all the graphic assets, such as the environment and the characters, it was converted to motion graphics by using Adobe After Effects. Circles would be the representation of many throughout the video, such as a person or people, sense of security, as pathogens, broadcast, or as a transition. Lines are used to represent time and connection. Other elements are shown to be more obvious such as an illustration of the syringe, the ear, mosquitoes, and the lightbulb since these are hard to be represented in a circle and wouldn’t saturate the definitions of the circles used in the video. Color has been limited to a washed-out cream background, occasionally transitioning to black on specific scenes, black circles are default colors, representing a non-hostile object as opposed to it being red which represents hostility or foreign. Cyan was only used for the teardrop icon that represented a runny nose or a sneeze. White is used for transitions and objects that are used in a black background to provide contrast. The animation process used a variety of animation techniques such as motion blur and the animation graph within Adobe After Effects to smoothen the rough motion of objects. The motion blur that was used throughout the video adds more sense of speed and movement in all the objects and transitions. The decision to use solid colors instead of applying gradients is to keep everything easy on the eyes of the viewer, similarly, the colors were slightly muted to avoid eye strain and to provide a sense of easiness to the viewer. The narration for the video was recorded and polished through a program that is focused on audio editing called Audacity. The audio recording of the narrator was polished by removing background noise and removing impurities from the raw audio due to the quality of the microphone used. The bass and the mid-tones were increased and the treble decreased to provide a fuller voice.

In the post-production, once all requirements are met, the motion graphics and the narration were compiled together inside Adobe After Effects, and the narration was synchronized with the scenes of the motion graphics and was then rendered to output an mp4 file. The participants watched the video and the researcher collected feedback for data collection by the use of a questionnaire which was published as a link to Google Forms along with the video.

**Research Design**

The study is a qualitative approach and uses a self-administered unstructured questionnaire. The essence of this method is asking participants on a topic and receiving their feedback. It is used to receive feedback on concepts, and determine the level of satisfaction of the participant (Jackson S.,2011).

**Research Instruments**

The researcher used an unstructured self-administered questionnaire for the study’s data collection. The questionnaire was divided into 2 sections. The first section contains the pre-test questionnaire acquired from a study by (P. R. Thirumalai Kumar, 2018) which includes 9 closed-ended questions where the participants answer with a “yes” and “no”; that determines the level of understanding the participant has on vaccines. The second section contains the 11 open-ended questions that asked about their experience while watching the video as well as how the video helped in raising awareness in vaccines.

**Population and Sampling**

The convenience sampling method was used for the research with a population size of 33 participants. After gathering the participants, the researcher provided the Google Forms questionnaire to the participants. Upon reaching 33 responses, the Google Forms questionnaire was closed to avoid further acceptance of data. For the convenience sampling method to be as unbiased as possible, the participants were selected randomly from different communities and subgroups, each participant, as much as possible, were from a unique subgroup or community, as this would lessen the bias compared to gathering participants in just one community or subgroup

**Research Participants**

The participants for the convenience sampling were limited to parents that are young adults between 18 to 39 years old and middle-aged adults between 40 to 50 years old, who are living in the Philippines, and have internet access for them to view the video and the questionnaire. The participants were gathered through a series of referrals by preceding participants who would ask their friends or family members who are parents as well if they would like to participate in the study.

**Data Collection Plan**

The researcher passed the link of the Google Forms questionnaire to the chosen participants. A waiver form will be provided at the beginning of the Google Forms, stating that their personal information and privacy will be held at utmost security and will not be used other than using the data for the study only, before proceeding to the pre-test which determines the level of understanding the participant has on vaccines. To determine a participant’s understanding a point system was used where those that answer a minimum of 70% correctly (a score of 6 out of 9), are considered knowledgeable (P. R. Thirumalai Kumar, 2018). The pre-test was used only to determine the current knowledge standing of the parents and to check if the current vaccine awareness campaign were successful in teaching parents on the importance of vaccines, if the pre-test data showed that the majority of the respondents were none-knowledgeable, this could serve as a basis that better programs need to be implemented to further improve the knowledge of parents among vaccines. Completing the pre-test leads the participants to the next part of the Google Forms questionnaire, the motion graphics video. Upon watching the video, the participants proceed in answering the questions for the data collection. After gathering the necessary amount of data, the researcher analyzed the data by using thematic analysis. The researcher examined the data collected closely for common patterns or ideas that will come up in repetition and then were generated into codes. The codes generated were grouped into themes that are much broader than the codes and determined if the motion graphics video and theories applied raised awareness about vaccines among parents.

# **RESULTS AND DISCUSSION**

Motion graphics is one of the best media used to convey information and awareness messages to the public for it can easily attract the attention of viewers. A study by (Nur Azila Azahari, Wan Ali, Yaakob, & Manaf, 2020) showed that motion graphics are suitable in raising awareness; colors, duration, and the story are all important to successfully create a motion graphic.

**Table 1:** *Pre-Questionnaire of Knowledge assessment of Parents*

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| --- | --- | --- |
| QUESTIONS | **Yes** | **No** |
| Q1: Routine vaccination prevents children from some infectious diseases and their complications. | **33**  **(100%)** | **0** |
| Q2: First dose in vaccination given at birth. | **19**  **(57.57%)** | **14**  **(42.42%)** |
| Q3: Most diseases against which children are vaccinated occur during the first years of life. | **29 (87.87%)** | **4**  **(12.12 %)** |
| Q4: Multi-doses of the same vaccine given at intervals are important for child immunity. | **24 (72.72%)** | **9**  **(27.27%)** |
| Q5: More than one vaccine at the same time has no negative impacts on child immunity. | **18 (54.54%)** | **15**  **(45.45%)** |
| Q6: Is it important to vaccinate children during immunization campaigns? | **32 (96.96%)** | **1**  **(3.03%)** |
| Q7: It is recommended to vaccinate children against seasonal influenza. | **29 (87.87%)** | **4**  **(12.12%)** |
| Q8: Immunization can cause autism. | **0** | **33**  **(100%)** |
| Q9: Common colds, ear infections, and diarrhea are not contraindications for vaccination. | **21 (63.63%)** | **12**  **(36.36%)** |



***Figure 3****: Knowledgeable vs. Non-Knowledgeable Parents*

A total of thirty-three (33) respondents were used in this study and as seen in Figure 1. 69.7% of parents were knowledgeable while 30.3% were non-knowledgeable. Table 1 shows the different questions asked to the respondents and it is seen that 100% of the respondents answered questions 1 and 8 correctly. According to (WHO, 2019), Routine immunization has protected children from several infectious diseases that used to cause millions of deaths in the previous years. Several studies have proven that vaccines do not cause autism, a 2013 study from CDC compared the antigens given in the first two years of life and showed the number of antigens received by a child with autism and a child that does not have autism is the same. Another study by the National Academy of Medicine reviewed the safety of eight vaccines in adults and children during 2012 and showed that vaccines are very safe and do not cause autism (Centers for Disease Control and Prevention, 2013). It is also seen that the respondents were divided in which is the correct answer for question 9 and 36.36% of the respondents answered incorrectly; this outcome is similar to the study of (P. R. Thirumalai Kumar, 2018) which stated that the majority of parents have a misconception about the contraindications for vaccination. According to the (Centers for Disease Control and Prevention, 2021), low-grade fever, cold, runny nose or cough, ear infection (otitis media), and diarrhea are not contraindications for vaccination, and children who experience said symptoms can still get vaccinated. Although 30.3% of the participants were non-knowledgeable, they were able to acquire new information about vaccines after watching the video.

**Table 2:***Summary of Qualitative Themes on questions asked relating to the 3 theories used in the motion graphic*

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| **Theories** | **Theme** | **Codes** | **Significant Statement Examples** |
| *Minimalism Theory* | *Positive Feedback on Design Elements* | *Keeps the viewer in a relaxed state-of-mind* | *“The video was very stimulating and relaxing which makes it easier for the viewers to understand the message it contains.”* |
| *Simplicity taken as positive feedback* | *“The visuals were simple, yet effective. I believe, in videos such as these, where the goal is to spread awareness, the visuals are better off kept simple as the information being portrayed is far more significant.* |
| *Negative Feedback on Design Elements* | *Boring* | *“The visuals weren't that exciting or had an impact on me. it could probably use more graphs, colors, and a bit of image (like the syringe shown).”* |
| *Tzevtan Todorov’s Narrative Theory* | *Narration guided the viewer properly* | *Informative* | *“The message was conveyed appropriately, words were spoken clearly, and the choice of words and structure of sentences were simple thus making it easier for a broader audience to understand.”* |
| *Storytelling* | *“As I mentioned earlier, the flow of information, for me, was key and was what helped to further understand the video's message. Starting with a few facts on who invented the vaccine who was it first used on and its outcome. Then flowing onto the problem, which was when people started becoming hesitant in taking part in vaccinations as well as the outcomes. To then concluding and leaving us with a decision to make. The well thought introduction to the good supply of simple information makes it easier to stick around while watching as opposed to immediately going on to explaining vaccines in depth using hard to digest words and information.”* |
| *Suggested improvements to the narration* | *Linguistic barriers limit the message* | *“The author of the video should keep in mind the target audience. The majority of the audience that needs this type of information are the people who can understand only "layman's" term.”* |
| *Richard Mayer’s Cognitive Theory of Multimedia Learning* | *CTML as an effective learning tool* | *Newly acquired information* | *“I, personally do not know much about vaccines. So watching the short, yet sufficiently information-filled video, I was somewhat able to become aware of quite a few things. The recent Dengvaxia issue was something that I knew of lightly, as I only saw it quite a few times on the TV, but I did not know of the other facts stated in the video such as the decline in confidence to get vaccinated. Also, I was made aware of the Polio and measles outbreak that had occurred due to the decline of people getting vaccinated. Good information to be made aware of as it paints you a better picture on as to why vaccines may be of importance.”* |
| *Suggested actions for effective learning* | *Repetitive exposure to the information* | *“...reinforcement sessions are necessary for a successful vaccination drive. People have to be educated continuously in a correct and effective manner.”* |

Table 2 summarizes the themes and codes created for each theory used in the creation of the motion graphics. For the minimalism theory, two (2) themes were created which are “Positive feedback on design elements” and “Negative feedback on design elements”. Under the Positive feedback on design elements, the codes “Keeps viewer in a relaxed state-of-mind” and “Simplicity taken as positive feedback” were created. As we can see, Minimalism is known for its simplistic nature, others will find it pleasing and others might find it uninteresting. Participants were asked how was their experience after watching the video and what did they think about the audio and visuals used in motion graphics, participants described the aesthetic used as entertaining and some mentioned that it had helped them stay relaxed throughout the video:

*“The video was very stimulating and relaxing which makes it easier for the viewers to understand the message it contains.” (Participant 1)*

*“The visuals are great and satisfying to watch.” (Participant 4)*

*“The limited use of shapes down to circles was relaxing and made me focus through the video” (participant 7)*

*“The video and topic is very catching. Especially today that We are in the midst of pandemic…” (participant 27)*

Some participants also have mentioned that the simplicity of the motion graphic helped them stay focused and didn’t distract them to absorb the information given:

*“The limited use of shapes down to circles was really relaxing and made me focus through the video” (participant 7)*

*“The video overall is great. No over-the-top, excess animations and graphics.”* and *“The visuals were simple, yet effective. I believe, in videos such as these, where the goal is to spread awareness, the visuals are better off kept simple as the information being portrayed is far more significant.”* and *“It could just be me, but the simple visuals, I could say were perfectly fine. They were sufficient in a way that it did not cross over on to being distracting. Thus, while watching, I was looking through the visuals but kept closer attention to the audio.” (Participant 25)*

An article by Steven Bradley (2011) stated minimalism focuses on the necessary and essential elements; going with the “Less is more” approach and as seen from the participants' statements above, the use of minimalism in creating motion graphics and the majority of the participants agreed with Bradley’s statement. Similarly, an article by (Sretović, 2019), wrote that minimalism design at its core is meant to be practical and has achieved its form when no other elements can be removed or placed to define what it already is. With the most notable results shown above, we can see that most of the participants seem to find Minimalism to be an interesting aesthetic for the video. The limited use of different shapes minimized distraction on most of the participants which made them focus on the subject itself. Others have found the visuals to be amusing to watch as stated by *Participant 4* and *Participant 7.*

Reasons as to why minimalism is a good approach in creating motion graphics to raise vaccine awareness are that with the information that will be put in the video, simpler elements will not overpower the information and can lessen the load that is being perceived by the participants as seen by a study by VanEenoo (2011), that stated that Minimalism tends to give a sign of comfort to viewers because nowadays with the exaggerated quantity of information, people tend to look for something simpler and true and the use of minimalism in media has become widely used as a communication tool. This idea is also consistent with an article by Babich (2020), the author stated that minimalism is efficient at delivering information, which can be done by delivering a high ratio of relevant to irrelevant information. If the application of minimalism is used under the right conditions, it will create a focused environment for the viewer without them getting lost in the experience, this can be seen in the participants that have said that the video kept them on track or focused throughout the video. This was also seen in the 2017 stop-motion film “My Life as a Zucchini”. According to Claude Barras, during his interview, he stated that “Simplifying is not weakening, but going to what is essential” he was able to use minimalism in animating a film that focused on a serious topic, he stated that with a minimalist approach he was able to focus on one aspect which is the facial features and with this, he was able to create a compelling story. Applying this to our study, the use of minimalism helped the viewers focus on only the essentials; the use of simple elements helped the viewers focus on the information about the vaccines.

However, not all participants were pleased with the use of minimalism as the aesthetics. A theme entitled “Negative Design Elements” was created with a code of “Boring”, here we can see that some participants find the elements used to be lacking:

*“I think the visuals use more work since the goal is to spread awareness. It should be more intricate.” (Participant 2)*

*“The visuals weren't that exciting or had an impact on me. it could probably use more graphs, colors and a bit of image (like the syringe shown).” (Participant 5)*

*“It needs additional motion on the history part and some visual details over the last part of the video also the figure is also dark in the black background so I can’t clearly see what's happening” (participant 14)*

Even though minimalism is one of the tools used in visual communication today, it is often mistaken as simplicity and most people tend to lack comprehension of the meaning and application of Minimalism (VanEenoo, 2011) which some of our participants agrees, the use of simpler elements may help viewers absorb the information better however the simpler elements itself can be the reason as to why viewers might lose interest in watching videos with this kind of aesthetics and would prefer elements that are very lively and eye-catching to capture their attention.

The technology theory for this study was Tzevtan Todorov’s Narrative Theory, the participants were asked what they like about the video, what they think of the visuals and audio of the video, does the narrative of the story helped them understand what the video is about, and why did they think the narrative of the story helped them in understanding the video. As seen from table 3 below, 100% of the participants answered that the narration helped them understand what the motion graphic was about.

***Table 3.*** *Does the narrative of the story help you understand what the video is about?*

|  |  |
| --- | --- |
| **Does the narrative of the story help you understand what the video is about?** | |
| Yes | 100% |
| No | 0% |

Two themes were created under Todorov's narrative theory, namely “Narration guided the viewer properly” and “Suggested improvements to the narration”. Under the first theme, the Codes “Informative” and “Storytelling” were used. The participants found the narrative to be very informative as seen from their statements below:

*“Concise, informative, and not too dragging. The video was quick to talk about the topic at hand.” (Participant 8)*

*“Gusto ko iyong pagkakapaliwanag na dati pa lang ay napatunayan nang epektibo ang pagbabakuna para makaiwas sa iba't ibang uri ng sakit.”* and *“Dahil katotohanan ang sinasalaysay ng tagapagsalita sa video kaya mas naintindihan ko ang aking pinapanood. (Participant 22)*

*“The video used actual facts and that in itself is rare in this day and age.” (Participant 24)*

*“The message was conveyed appropriately, words were spoken clearly, and the choice of words and structure of sentences were simple thus making it easier for a broader audience to understand.” (Participant 25)*

Apart from being informative, some participants had mentioned that the flow of the narration helped them understand what the motion graphics were about as seen from their statements below:

*“It was trance-like, made me watch until the end” (participant 7)*

*“Nakakakalma din pakinggan ang audio.” (Participant 22)*

*“The flow of information and the desired message to portray is essential in scenarios such as these where clearly the video is basically trying to inform us, the viewers, of certain facts that we may be unaware of as well as helping us in concluding whether or not vaccines are important. I like that the video is structured well, concise and compact with information. No unnecessary additions. The animations were simple yet goes along well with the narration as the video progresses.”* and *“As I mentioned earlier, the flow of information, for me, was key and was what helped to further understand the video's message. Starting with a few facts on who invented the vaccine onto who was it first used on and its outcome. Then flowing onto the problem, which was when people started becoming hesitant in taking part in vaccinations as well as the outcomes. To then concluding and leaving us with a decision to make. The well thought of introduction to the good supply of simple information makes it easier to stick around while watching as opposed to immediately going on to explaining vaccines in depth using hard to digest words and information.” (Participant 25)*

As seen from the participant’s responses, the facts used and the flow of information was the key highlight for them to understand the purpose of the motion graphics created. According to a study by Matei & Hunter (2021), good narrative challenges and changes listeners wherein it drives the audience to think, analyze, and in some instances, it can lead to changing the mind of the audience. So, the use of narration in motion graphics can greatly benefit especially in giving out facts and this, in turn, can help raise vaccine awareness, because rather than just reading texts all about vaccines, the narration can challenge viewers to process the information given to them. Similarly, an article by (Dahlstrom, 2014) stated that audiences find narrative more engaging and easier to comprehend compared to the traditional logical-scientific communication. Audiences acquire their knowledge from science mostly from sources with a narrative format of communication, similarly most content from mass media. When communicating science with people since most of it isn’t received from direct experience, though there are sources like formal schooling, the mass media is relevant in this aspect and serves as the main source of knowledge in terms of health and science.

Aside from the information to be used by the narrator, the flow on how to tell the information gathered is also important. According to a study by (Shir & Asadolla, 2014), Audio in motion graphics is an important aspect as visual effects and graphic environments will not be as effective without them. About 70% of the influence of motion graphics work is usually shown in formats made by sounds and appropriate audios can help liven up motion graphics work. Similarly, a study by (Song, 2020) stated that the selection of music is an important step in the production of motion graphics as it can affect the temperament of the motion graphic. The speed and beat of the chosen audio can transform the production of the motion graphic hence coordination is key as audiovisuals should synergize with each other very well. Audiovisual is a key component in making motion graphics. These two (2) elements can influence the audience’s perspective or response to the motion graphics shown to them.

Even though 100% of the participants said that the narration had helped them understand what the video was about there was one that left feedback which created the theme “Suggested improvements to the narration” and code “Linguistic barriers limit the message”. Here a participant stated that:

“*The author of the video should keep in mind the target audience. The majority of the audience that needs this type of information are the people who can understand only "layman's" term.” (Participant 30)*

From the answer above, the code “Linguistic barriers limit the message” was generated due to the answer from the respondent suggesting to use more simple terms in this field to be able to get the message across efficiently knowing that it is an awareness video it should be able to reach as many people as it can. The theme “Suggested improvements to the narration” was created from the code due to its suggestive nature to further improve the narrative aspect of the video. Based on the results gathered it clearly shows that a proper narrative such as that of Todorov’s Narrative Theory, when applied correctly, will keep the audience engaged throughout the video, with a proper introduction and conclusion to the subject; vaccines.

Lastly, the communication theory used was Richard Mayer’s Cognitive Theory of Multimedia Learning which suggests that a person can learn deeper if the information transfer uses different forms of communication to different senses at once compared to using only words alone since humans are only limited to an extent with absorbing information in a medium. The participants were asked the following questions: what was the message being shown in the video, what did they learn from the video, and what are their thoughts about vaccines after watching the video. Two (2) themes were created, “CTML as an effective learning tool” and “Suggested actions for effective learning”. The code “Newly acquired information” was created for the first theme. CTML was seen to be effective in gathering new information as seen by the participants’ statement below:

*“Vaccination is important and we should focus more on facts and legit statistics rather than hear say or fake truth from wanna be doctors.” (Participant 4)*

*“I learned that one small misinformation can cause a lot of worry towards the parents and the rest of the population. I also learned how effective vaccines really are, especially to the future generations.” (Participant 5)*

*“As someone who is inclined towards choosing vaccines always, this video just strengthened my view towards it.” (Participant 7)*

*“The importance of being properly educated about vaccines and how vaccines are important to fight existing and upcoming diseases” (participant 9)*

*“Pinapakita dito na kailangan natin ng bakuna lalo na at habang bata pa upang makaiwas sa sakit lalo sa panahon ngayon.” (Participant 22)*

*“Basically, the message being presented are quite a few facts on vaccinations, to help us further understand a thing or more about vaccines. In a sense, it spreads out information to people who may not be as knowledgeable in topics such as this, such as myself. Then proceeds to state certain facts on what had occurred once people became hesitant regarding vaccines due to the "Dengvaxia" controversies as well as lack of information of others. All in all the video was constructed in a way to portray the message about vaccines and somewhat helps you decide on whether or not vaccines are necessary.” and “I, personally do not know much about vaccines. So watching the short, yet sufficiently information-filled video, I was somewhat able to become aware of quite a few things. The recent Dengvaxia issue was something that I knew of lightly, as I only saw it quite a few times on the TV, but I did not know of the other facts stated in the video such as the decline in confidence to get vaccinated. Also, I was made aware of the Polio and measles outbreak that had occurred due to the decline of people getting vaccinated. Good information to be made aware of as it paints you a better picture on why vaccines may be of importance.” (Participant 25)*

*“You need to educate yourself as well regarding the vaccine you’re getting. You need to state your medical conditions properly for you to get the immunization.” (Participant 26)*

*“How wrong information can influence the decision making of people towards getting vaccinated or not” (Participant 30)*

As seen from the responses of the participants, 100% of them are pro-vaccine and none has mentioned that vaccines do not work. The majority of them mentioned how this strengthened their views and belief on how important vaccines are and this clearly shows how CTML is a very effective tool. According to (Mayer & Moreno, 2002), the theory is based on three assumptions:

1. Dual-channel assumption - The human body has 2 separate channels used to process auditory and visual stimuli

(2) Limited capacity assumption - Limited information can only be processed at any single point in time per channel

(3) Active processing - One is successful in learning when the audience engages in cognitive processes such as integration of the newly acquired knowledge with existing knowledge or organizing the newly acquired knowledge into coherent representation.

The 3 assumptions are seen in this study. The audiovisuals had helped the participants keep track of the dual-channel assumption, for the limited capacity assumption, we can see some focused on the effect of misconception, while some focused on the importance of vaccines. Lastly, for the active processing, we can see that the majority of the participants were able to apply the newly acquired knowledge with some saying that it strengthens their beliefs about vaccines, some stating how they will continue to vaccinate their children and one should be honest with their medical history when getting vaccines. Seeing how all 3 assumptions worked hand in hand and with the responses of the participants, the CTML was a successful theory to be used in creating motion graphics for raising awareness on vaccines.

However even though the majority of the participants showed that CTML worked as an effective learning tool, one response created the theme “Suggested actions for effective learning” and code “Repetitive exposure to the information” as stated below:

*“...reinforcement sessions are necessary for a successful vaccination drive. People has to be educated continuously in a correct and effective manner.” (Participant 30)*

The code was created due to the suggestive nature of the participant’s response that not just by watching a video once will retain the information or message of the video. The participant suggests that for even more effective learning that will retain the information, repetitive or continuous exposure to the message or information being broadcasted is better than showing it just once to a person.

To answer the second statement of the problem, the researcher first asked if the motion graphic provided was effective in raising awareness, and to those that said yes, they were asked why they think the video was successful in raising awareness and the results are stated below.

***Table 4.*** *Do you think this video can help in raising awareness about the importance of vaccines?*

|  |  |
| --- | --- |
| **Do you think this video can help in raising awareness about the importance of vaccines?** | |
| Yes | 96.96% |
| No | 3.03% |

***Table 5.*** *Summary of Qualitative themes on why did the video can help raise awareness on the importance of vaccine*

|  |  |  |
| --- | --- | --- |
| **Themes** | **Codes** | **Significant Statement Example** |
| *Elements that aid raising awareness in the motion graphics video* | *The minimalistic approach to the audiovisual design was enjoyable*  *Easy to understand narrative*  *A short video packed with simplified information* | *“Simple and well established information is shown, easy to understand.”*  *“...The information you need is there. Graphics is quite nice and enjoyable to watch.”*  *“It's simple, I really like the way the animator gave more meaning to circles, it's new to me for an informative video.”*  *“The video was not only fun to watch, but the narrative was also easy to understand and very convincing. As they say, less is more. And I love how concise the details are.”*  *“In my opinion, it had the necessities of a good video with the goal of spreading awareness. Being short, yet concise and sufficiently filled with relevant information with regards to the given topic, makes the watching experience great. If the video were to be long and the information provided were of deeper, hard to understand, irrelevant terms, that may bore the participant/viewer. Everything was displayed well and simple.”* |
|
|
|
|
| *Platform used plays a role* | *“It was posted on youtube”* |

As seen from Table 4, the majority have agreed that the video can help in raising awareness; they were then asked a follow-up open-ended question as to why it can help. The notable answers from the participants can be seen in Table 5 which formed four (4) codes and one (1) theme. The researcher has formed the code “*The minimalistic approach to the audiovisual design was enjoyable”* because most of the participants found that the simplicity of the video was enjoyable. This pertains to both the visuals and the audio that was used in the video. A clear example of minimalistic audio is the background music that was used, simple notes were used instead of complex music structures which gives an ambient vibe. For the visuals, a notable answer was from *Participant 23,* who said that he/she liked that the video gave more meaning to circles which he/she sees as something new to an informative video. Another code was formed, “Easy to understand narrative” since most of the participants’ answers were that the video was simple to understand and follow through. The code “*A short video packed with simplified information”* was formed, due to answers that say that the video was packed with information at a short amount of time with the notable answer from *Participant 25*’s opinion from Table 5. Lastly, the code “*Platform used plays a role”* was created due to a participant’s answer. The researcher created this code seeing that the platform used can play a role in determining the video’s potential to reach as many people as possible. According to the data presented by (Statista Research Department, 2021), YouTube ranks second as the most popular social network worldwide ranked by the number of active users, having 2.29 billion active users. This shows how widely accessible YouTube is to the mass, so will the message of the video.

# **CONCLUSION AND RECOMMENDATIONS**

**Conclusion**

The data showed that application of the theories namely Richard Mayer’s Cognitive Theory of Multimedia Learning, Tzevtan Todorov’s Narrative Theory, and the use of Minimalism can help motion graphics be successful in raising awareness of vaccines. The respondents were able to absorb the information given to them with the help of both the narration and the visuals. The majority of the participants responded that the minimalism approach kept them focused and relaxed especially with the information load given to them from watching the motion graphics. They have also responded that the narration was a success because of the flow of information given to them and it helped them analyze the importance of vaccines through the motion graphic. Lastly, with the application of the three assumptions of the cognitive theory, it was seen that the participants were able to gather new information and apply what they have learned from the motion graphics where some of them mentioned that it had strengthened their stance about vaccines, they would continue to vaccinate their kids, and some applied what they learned by being honest with their medical history while getting vaccines. With the three theories working hand-in-hand in the motion graphics created it was evident that it was successful in creating a motion graphic that can help raise vaccine awareness and fight vaccine hesitancy. Lastly, to answer the second statement of the problem, as seen in Table 5 we are to determine what makes the video aid in raising awareness and can be answered by the participants’ responses. As mentioned by the participants, an informative short video with a narrative that can properly guide them along with a simple audiovisual design or so-called minimalism can help create a motion graphic in raising vaccine awareness.

**Recommendations**

For future studies, the researcher recommends further investigation on further reasons as to what the participants liked about the motion graphics. With this, future researchers can further analyze why the theories used were successful in creating a motion graphic in raising vaccine awareness. It is also recommended to try to have one on one interviews with the respondents either via zoom or face-to-face if possible so that future researchers can further probe the respondents compared to if they just answer a questionnaire online. In addition, the researcher suggests adding subtitles and a Tagalog version of the narrator to further increase the participants that can be included in future research and this can be used to compare if the language used has an effect on which motion graphic can be more successful in raising vaccine awareness. Additional recommendations for further studies are to explore other aesthetics in creating animations to compare if different aesthetics can affect the result of motion graphics as well as coordinating with a hospital that can help in gaining more respondents as this has been one of the issues of the researcher wherein the needed sample size was not met due to the restrictions of the COVID 19 pandemic.

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