

Ashesi University College

**Animation as a Tool for Development Communication: An HCI
Perspective**

By

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Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

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Date:.....

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by Ashesi University College.

Supervisor's Signature:.....

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Date:.....

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Abstract

Information sharing through animation is a major step in influencing today's society to improve their lifestyles for better future. Organizations and government affiliates globally utilize animation in public awareness campaigns to share vital information relevant to societal problems. Interpretation of character movements, gestures and other visual aids vary in cultures but relays pertinent information just the same. This research addressed design issues that affect viewer's comprehension of content and their ability to retain valuable information. A study that sought after the elements of animation design that improves viewer's retention of material found that visual aids are more effective in communicating complex information. To gather data for the observational study I conducted, there were questionnaire and a few interviews to prove which attributes of animation are preferred. The results showed that a mixture of audio and visual aids in the form of cueing create an intriguing animation that everyone can appreciate. As stated from literatures, these findings clearly emphasize the usefulness of HCI design principles to creating animation that communicates development. Furthermore, character designs should also have these principles included for a remarkable user interface.

Chapter 1:

Introduction

Growing up as a child you become very fascinated with toys and cartoon characters that you feel are cool and fun. Even as an adult we seem to still have this fascination with animation, whether it's a movie or a 15 second commercial ad, it draws our attention. Just like any story, animation follows a structure that ties in all the elements to captivate and communicate with the audience. I remember waking up early every Saturday morning just to watch my favorite cartoons for hours. It is very hard to say what show was my favorite at that age but the most memorable ones I can remember growing up with were, "*School House Rock*", "*Arthur*", "*The Magic School Bus*", and the classic "*Captain Planet*". These shows all had a way to teach valuable life lessons in a way that was very exciting to young people like me. It was not until later on when I began Junior High School that I then began to understand the power that such animations have on people.

When I noticed a few commercials used animation as a way to market their products and/or service, I understood that animation can be used not only for edutainment purposes but also to help people understand the world around them and promote certain ideas. Today animation is used in health for visual representation of how the human body functions. In the transportation industry, animation can be used to simulate perhaps the movement of certain parts of a vehicle, or maybe to have visual representation of a new road that could help the traffic flow of major areas in

the city. Whatever the case may be, animation has been used to inform and explain many ideas visually and continues to be the tool for communicating important information. With this research, I would like to find the link between animation and development communication to understand its relevance to Ghanaian society and the health sector and if these animations are true representations of what happens in everyday life.

So far there have been several ads sponsored by the National AIDS Commission and other affiliates to spread awareness of HIV/AIDS, Malaria Prevention, and many more. I chose to focus on the health awareness aspect of development communication because it is a major concern for Ghana in tackling the epidemics and I strongly believe animation can add to the campaign for a healthier Ghana. For research of this topic, I would have conducted interviews with experts in Animation. Also I would have performed an observational test with questions for 10 to find out how they perceive the samples of animation on health awareness. I hope to find out if there are any gaps in the understanding of animation in relation to the topics or if the problem of understanding stems from the visually representation of animated characters.

1.0 Background

In developing a theme for an animated social awareness campaigns, it is important to capture the overall message you would like the audience to understand. Certain dynamics of realism must be depicted to bring some type of connection between the viewer and the story behind the animation.

Sometimes these depictions are not the true representation of events and can give audiences wrong notions. The first few seconds can determine how long a person is willing to pay attention to animation, especially if it is for educational purpose. Animators can decide which dimension they would like to use to demonstrate the simplicity of the topic they are communicating with the audience. From stick figures to life-like characters, the design of animated personalities can still be recognized and understood based on the movements and the flow of the storyline. Whichever technique the creator chooses to use, there must be some interest in the appearance to keep the attention of viewers.

These types of cartoons are animated infomercials in which the main objective behind them is to share information or in other words communicate issues in society ranging from health to political subjects that directly affect their livelihood. Through this form of media, it can be very appealing to many types of audiences and used to communicate important messages that help curb unawareness throughout many communities today. From my research on this topic, I would have explored the various elements that make animation captivating and how it can improve public awareness through development communication. I would like to clarify the effectiveness of animation and its useful purpose for edutainment.

We know that the sophistication of animation has reached an all-time high since the advancement of technology. Behind creating these digital environments using social-semiotics brings the connection between two

entities which are representations of people and events (social issues). Essentially social-semiotics can act as a grand node, linking each to the other, reframing them within a wide network of related traditions. At the same time it can serve the salutary effect of bringing these vigorous traditions into the field of semiotics, energizing semiotics and making its insights more widely available and appreciated. (Hodges)

Communicating an idea indirectly that relates to a group of people is a study in itself. This can be done by conducting observational research to further understand behaviors, settings, sounds, design, etc., and find a way to show a connection between these attributes and real life experience. (Machin, Cobley, & Threadgold, 2010) Drawing from actual events and occurrences in society allows the audience to recognize and understand information presented in the animation to familiar instances. Social semiotics investigates human signifying practices in specific social and cultural circumstances, and tries to explain meaning-making as social practice. (Beer, 2009) By following the patterns of social context can help keep the animators accustomed to the fluctuations that are bound to occur in everyday life so that they also develop proper representation of their characters. Most animated advertisements will draw upon already constructed signs and social myths, allowing the viewer the pleasure of the media recognizing them. (Wilkinson)

In developing the movements for these characters, kinesics principles should be applied and accurately portrayed so that the meaning of gestures adds value to the interpretation of a concept. These motions can range from

small to large depending on how complex the message is that the creator wishes to depict. Movements can represent all sorts of emotions, attitudes, and social position of a character just by the body languages they use. If these characters portray certain behaviors that people can relate to, then the idea behind the story can be interpreted correctly giving them a better understanding of subject. It is important for viewers to follow the storyline of animation or else their interest can be lost and the information presented will be seen as misrepresentation of actual real-life occurrences.

1.1 Methodology

In looking at this topic I think the best way to approach it is to observe and question individuals on how they relate to informative animation. I would also like to conduct a few interviews with people that work in this particular field. The materials that I would use to research this topic would be scholarly journals, books, and articles.

Chapter 2:

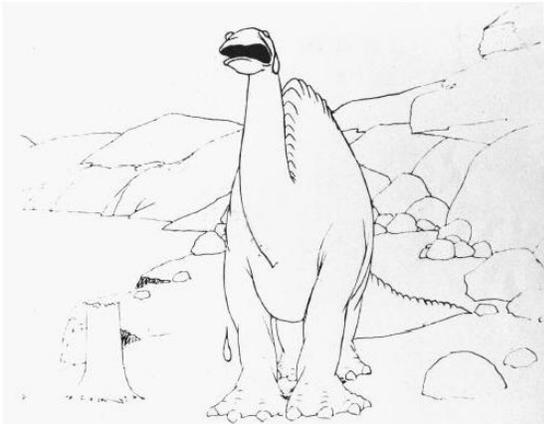
Review of Literature

2.0 Introduction

In today's society, the quality and the usefulness of multimedia, especially cartoon animation has gone beyond just entertainment. Animation can be seen in television commercials, ads, software/video games, infomercials and cinemas worldwide. This technological advancement to society has provided an alternative to sharing information to society in a more appealing way than traditional methods of human interaction. The focus of this research is to identify the techniques of 2D interactive and non-interactive animation and how it appeals to viewers based on the visual graphics, presentation of content, and the entertaining elements. The type of animation described in this research depicts various societal issues, predominantly focusing on health and environmental protection, advising the public on risk factors and safety precautions. Taking into consideration the amount of illiterate people existing globally, animation can make it easier for viewers of all ages and cultural background to understand material in a creative way. Along with the advantages of using animation, it does have some disadvantages such as misrepresentation of topic based on the character behavior, interactions and visual representation of cultural background. I will be analyzing the works of scholar's who have identified these problems and related the effects of animation to development communication.

2.1 History of Animation

Before the animation phenomenon grew to its current state, there were comic books and strips in newspapers. Originally, this was how people could read a story with images depicting the characters and the actions taking place with the purpose of entertaining themselves. The structure of comics transformed into moving pictures or animation during the comic book era to bring characters to life. Comics and storyboards are similar in terms of how the drawings are arranged to show the different scenes that connect events in the story. Windsor McCay's argument would be that fellow animators have made it (animation) into a trade, not an art. Noted as the father of the animated cartoon, Windsor McCay pioneered the art of animation during the 1911-1921 with a landmark film of 1914 entitled, "Gertie the Dinosaur. " (Crandol, 1999)



**Figure ...: Gertie the Dinosaur (1914) creating using cel animation
created by Windsor McCay**

He realized that creativity should not be compromised regardless of the subject of the story. In developing animation, he focused on graphical expressions to give the character some "personality". He understood the power of animation to the film industry and continued to perfect the art of storytelling in the form of animation.

Initially animations were developed using numerous hand drawn images arranged in sequential frames, also referred to as cel animation. Digital animation was not introduced until the 1970s, by then animators started to use motion capture of human movements to add authenticity to the characters movements and gestures they want to depict.

2.2 Creating Animation

At the beginning stage of developing any animation, developers use storyboarding, this is basically a blueprint in which the story should follow. Storyboards are drawings that convey the basic flow of a story in sequential order. They establish the composition, mood, and pacing of the animation by representing a simple action or an entire scene to portray events that will occur. (Kelly & Rosson, 2007) Storyboards tell the story through various depicted actions that include the beginning and end, allowing the animator to see the story more directly and efficiently. (Choong, Docker, & Hyde, 2001) The difference is that comics have written scripts for characters so that the readers can imagine the conversational aspect of the animation apart from the pictorial representation of the character's scene. Storyboards can be used

as a way to brainstorm the sequence in which an animation would follow to tell the story. Animators can use the *closure* technique in storyboarding to suggest certain actions that are to follow. Appendix A shows an example of how a storyboard can be structured.

In Scott McCloud's book entitled, *Understanding Comics: Invisible Art*, he describes how *closure* is deliberate inventions of storytellers to produce suspense or to challenge audiences. (McCloud, 1994) He argues that this concept of *closure* makes audiences cognizant; it happens automatically in real life situations where we are able to understand what event most likely will follow just by a simple suggestion. In 2D animation storyboarding, the intercommunication among characters is usually vital to transfer the drama and emotion of the story and characters. Meanwhile, some psychological researchers have concluded that more than 65 percent of the information exchanged during a face-to-face interaction is expressed through nonverbal means. (Mao, Qin, & Wright) Since storyboards are the outlines in which the animation while occur then can we simply say that the problem with misrepresentation exist within this segment of developing the important ideas of the story.

2.3 Principles

There are certain principles animators should consider such as gestures and facial expressions of characters to add emphasis to the story. In McCloud's book he identifies the importance of these elements and how they are used to maintain the relevance of the information throughout the

story. Certain gestures and facial are interpreted differently depending on the cultural background of the audience and other are universally recognized expressions that many understand. In identifying these principles, the most important strategy to capturing the audience is to gain the attention of the audience.

2.3.1 Drawing Attention

Gaining the attention of audience and maintain it by far the most difficult thing for animators. The way in which information is retained by people has a lot to do with their attention span. External cognition in HCI which refers to how people interact with or create information through using a variety of external representations such as multimedia, web pages, books, etc. .Before viewers can learn any new information, their attention must be drawn to what they are seeing. From the stand point of an article about attention cueing, the authors' suggest that the nature of information is transient. New information requires learners to process current information and remember previous information simultaneously as new ideas are being shown in different transitions.(Gonzalez, 1996)Therefore, they suggest that the formation of ideas be in cueing form so that cognitive load of viewer is reduced and the information is remembered easily. (BJO" RN B. de KONING, 2007) Cueing in animation is used as a guide for the cognitive process of viewers. Narration, subtitles, and other visual aid in animation are some of the objects used in animation to help viewers' remember information.

Two educational psychologists, Patricia D. Mautone and Richard E. Mayer, conducted the only test of cueing and its effect to cognition of

animation for learning concepts. The study revealed that visual cues included in animation did make a difference in how information is retained by the viewers. The study was a 4-min narrated animation explaining how airplanes achieve lift, which contained many extraneous facts and somewhat confusing graphics. Thus, the learner might engage in lots of incidental processing—by focusing on nonessential facts or nonessential aspects of the graphics. A signaled version guided the learner’s cognitive processes of (a) selecting words by stressing key words in speech, (b) selecting images by adding red and blue arrows to the animation, (c) organizing words by adding an outline and headings, and (d) organizing images by adding a map showing which of three parts of the lesson was being presented. The results showed that students understood a multimedia presentation better when it contained signals concerning how to process the material as compared to unsignaled animation. (Richard E. Mayer, 2003)

2.3.2 Exaggeration

In researching the methods used currently for character animation I discovered the role that exaggeration plays in developing the personality and appeal of the character. Through observation of many cartoons for both entertainment and information purposes, the context of the characters actions and the replicated human gestures added to the character can sometimes be too dramatic. This means that the actions given to character should not be over exaggerated.



Figure... HALF-PINT PYGMY (1948) Directed by Tex Avery

This can be misunderstood if there isn't the proper amount of exaggeration in the character's design and expressions. Cartoons are a deliberately simplified representation of reality, stripped of the incredibly complex intricacies we are accustomed to in the real world. From the perspective of Toby Gard, a co-founder and lead graphic designer of Tomb Raider, earlier cartoons from 1930s struggled to bring the same depth of role play to their cartoon characters that actors were achieving in live-action films.

Gard mentions that exaggeration in cartoons should have the ability elicit very powerful emotional responses from an audience, because cartoon acting is a concentrated version of live acting. (Gard, 2000) A journal written by Simon Roswell mentions that "it appears exaggerations primary role in character animation is to provoke powerful emotional responses from the

audience.” (Roswell, 2010) You must balance reality with your exaggeration, so that the audience can understand and relate to the characters and the actions being portrayed. If you just start randomly exaggerating everything in sight, the scene will be convoluted, confusing, and impossible to watch. You have to give the audience a foothold in reality, or they will have no way to connect to your work. (Kelly, 2008)

I agree with Gard’s position on the importance of exaggeration in animation because it can make or break the quality of the story. Even in regular interactions with others, using exaggeration correctly can bring a level of excitement, humor and attentiveness if used in the right dosage. Otherwise you lose the interest of audience causing them to be very subjective to your work. Exaggeration can lead to anticipation of the next sequence of events in an animation.

2.3.3 Anticipation

Once the audience is captivated by the characters and an understanding of the story is discernible, anticipation of the characters next move or position should be easy to predict. Leslie Bishko, an associate professor from Emily Carr University of Art & Design, describes anticipation as the “preparation of a phrase, where the mover’s intent initiates and organizes the motor pattern that follows.” (Bishko, 2007) For acting purposes, it is used to accent certain places where the dialogue is also being emphasized. (Jones, Kelly, Rosson, & Wolfe, 2007) In references to the closure technique mentioned by McCloud, the transitions that occur between the individual

frames can differ depending on how far the animator would like the viewer to anticipate the next moves.

There are four types of transition including:

- *moment-to-moment*
- *action-to-action*
- *subject-to-subject*
- *Scene-to-scene.*

With *moment-to-moment* transition the actions occur in each movement such as a blink of an eye, there is the picture of it open and the next frame shows the eye closed. *Action-to-action* gives a few more moments in between the frame to make an action. For instance a frame that has a fast moving car and the next frame shows the car crashing into a tree. *Subject-to-subject* transition stays within a scene or idea but it also assumes that the viewer has a degree of involvement necessary to render these transitions meaningful. Lastly, the *scene-to-scene* transition is used to transport us across significant distances of time and space by deductive reasoning. An example from McCloud's book explains just how transitions and anticipation work collectively. A frame starts off with an angry man on the phone that says "he can't out run me forever!", immediately following this frame the animation shows a house with subtitle "Ten years later..." From this the audience can deduce the fact that whoever the angry man was looking for has managed to stay hidden away for ten years, or it took the angry man a long time to find where the person is.



Figure... types of closure from Scott McCloud : Understanding Comics

The notions behind these transitions are to have the audience's imaginations anticipate actions based on the nature of the event. You can find the same component of transition in regular movies; especially when there are a lot of scenes being combined it gives the viewer an impression of a change in time or location.

2.3.4 Sense of Timing

The well-known saying that goes, "timing is everything" can be applied to many events, in terms of animation; it can give the proper amount of pauses between each action. Without timing there would not be starting and stopping points on which to base timing of an action. Timing gives the viewers the ability to process everything that is going on within a story if they occur simultaneously, this can add to the realistic effect of the story. We

know that for some actions the timing is vital to understanding the animated environment and the interactions taking place between the characters. Below is a chart representing the process of developing a 2D animation.

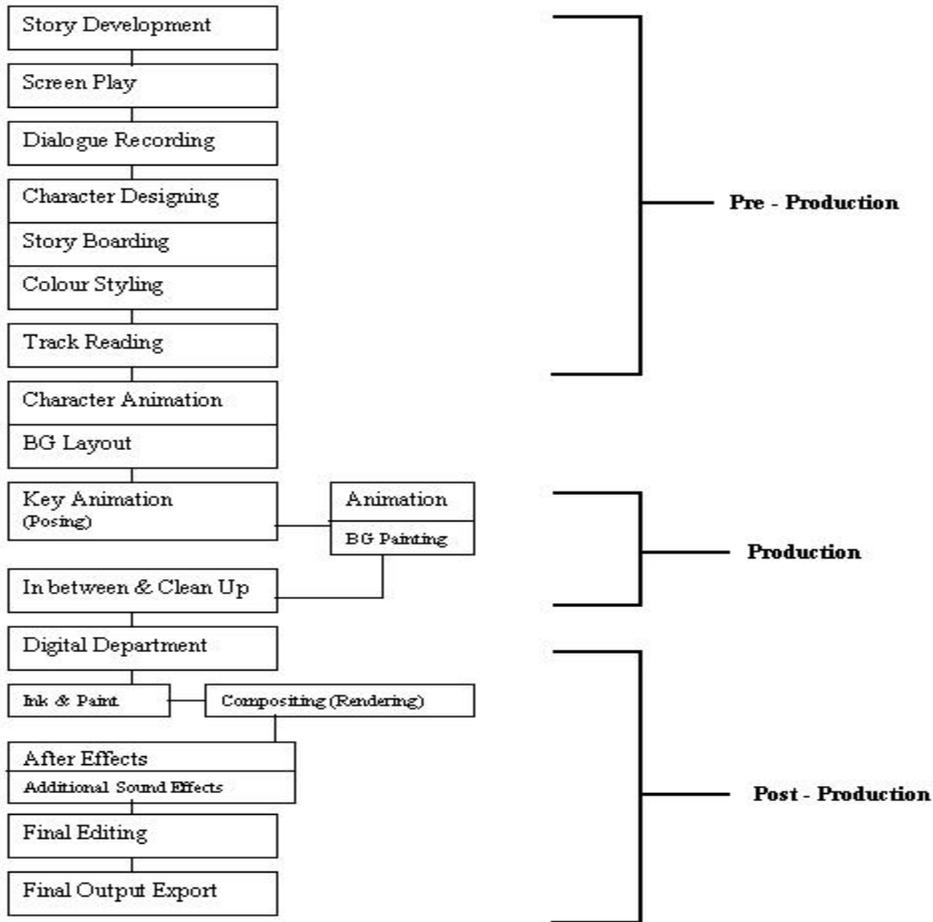


Figure ... Animation Process

The chart representing the development and production process of animation represents the steps needed to perfecting animation. Under the pre-production pr Figure 1: Animation Process be applied to aid developers' thinking for designing for the user experience. For the Production section, all the concepts from the storyboard, character design, and the layouts are

combined to create the animation. Following this stage in development, editing of content and visual effects to production concludes the process of creating an animation.

2.4 Design Principles

In HCI, there are design principles that assist developers for interactive software which also apply to designing interactive animation. By following these principles, I believe developers can create user-centered designs for interactive animation. User-centered designs address the user's preferences by focusing on what task they are likely to be performing and how they general navigate a system. The design principles such as *visibility*, *feedback*, *learnability*, etc. are integrated into the system for better user experience.

Visibility signifies how the user interacts with a system, in this case animation, by the use of visible functions for controlling the interactive environment. They should be able to see all buttons and icons that allow them to interact and perform the task. Feedback in an interactive system is used to indicate to user certain actions performed to verify if that is the task the users wants to perform. For instance, if a user decides it wants to save what they are doing and mistakenly pressed delete, the system should alert the user "Are you sure you want to delete? YES or NO". This permits the user to go back in make any corrections before it executes the action. Learnability merely refers to how easy a system is to learn by users, novice or otherwise.

The design should have simple functions that users can follow without feeling the system is too complex to navigate.

2.5 Styles of Animation

From traditional methods to the modern method of drawing, animation has various styles that have been formulated to give uniqueness to one's creation. The oldest method being cel animation in which each movement in the frames are hand drawn. Although this process is very much time consuming it is easier to manage timing of sequences. Another style of animation includes clay animation which also is time consuming, it is the process of making a character or an object out of clay and move it so it is slightly different in every frame and take a picture, a lot like regular animation. Stop-motion animation, or motion capture, unlike any other types of animation, is simply a way to animate replica objects. Essentially, replicas are used and a photograph is taken each time their position changes slightly to give a fluid-like motion. In a way, it defines how animation can give life to non-living objects and make them realistic. (Choong, Docker, & Hyde, 2001)

Computer animation is the newest form of animation and has significantly reduced the amount of time it takes in creating a single production. It not only saves cost of building simulated environments but it also allows more creativity when designing special effects or dangerous stunts to film. It has become an important tool in society and is appealing to all the ranges of viewers. With the introduction of 3D, viewing images was

raised to a new level, giving different perspectives of a picture that seems close and reachable. Virtual reality has surpassed the 3D stage of computer animation giving users a sense that they are within the environment generated by the computer. For 3D and virtual reality environments, special spectacles are used to aid in viewing this type imagery.

2.6 Animation and Development Communication

Development communication is the integration of strategic communication in development projects. Strategic communication is a powerful tool that can improve the chances of success of development projects. It strives for behavior change not just information broadcasting, education, or awareness-raising. While these are necessary ingredients of communication, they are not sufficient for getting people to change long-established practices or behaviors. (World Bank Group) For animation to be used as a tool for development communication it is vital to improving the aim of the development projects usually organized by government initiatives, public sector organization, community leaders, etc. The inclusion of animation can provide an alternative solution to information sharing and generally is visually appealing to audiences.

It was in the 1870's that the cartoons were being used in newspapers to offer stinging assessment of public officials and affairs. The general framework for these cartoons was "observation of a problem, fear of the spread of disease or injury (health awareness cartoons), attempt to secure official action (political cartoons), appeal to right-minded citizens for

immediate action and for reform of government (political cartoons).” (Grady, 2007) The government of the United States used animated movies to forward the public health agenda between the 1920’s and the 1960’s. (Grady, 2007) From the U.S. National Library of Science, there are several animated films in a series entitled *Commandments of Health: Private McGullicuddy Cartoons*. The topics of these cartoons were black marketeering, wartime censorship, the need for military discipline, and so on, but also malaria and venereal disease prevention and the physiological stress of combat. (U.S National Library of Medicine, 2011)



Figure... Screenshot of animated cartoons of personal cleanliness for U.S. soldiers (1945)

In McCrickard’s thesis, his stance on the issue of animation used for information sharing is that animation is constant and cyclic change of

information. When used, it can show large amount of information in the smallest space. (McCrickard, 2000) He argues that using animated peripheral displays such as ads on websites can helps user's maintain awareness. As long as the distraction is minimal, subconsciously the viewer will remember what they saw. In his pilot study, he created a tkscore ticker and analyzed their understanding, likes and dislikes of the content. Although he could not identify if they learned anything, the user's satisfaction with awareness levels is one important factor. In relation to animated television ads, does repetitive air play necessarily add to viewer's understanding of the content? I would argue that as long as it the visual content is appealing and can hold their attention long enough then perhaps it does add to the understanding of subjects. Based on my research, visual aid does make a difference in how the audience relates to the information being expressed in animation. This relates to the section on cueing and how people tend appreciate cueing in animation so that viewers understand and remember what they saw.

Studies on viewer's cognition load to learning new information have shown that animation can be useful in certain decision-making situations. In a similar study on interactive animation and its usefulness to learning, participants completed a home selection problem and a physics problem and were evaluated based on completion time, accuracy, ease of use, and enjoyment. Participants performed better with realistic interactive animations compared to abstract representations and abrupt changes. Animation can be visual representations of physical objects or commonly-associated representations, the results could not determine how effective it would be in

an abstract problem domain such as information sharing. (McCrickard, 2000) Although animation helps to boost the learning aspect, this does not mean that the awareness aspect is being addressed. The difference between the two is that awareness gives users and ability to recognize a change in information instead of learning how to use what they were taught in their everyday habits and activities. Based on the results of this study, it is clear to me that user pay attention to detail and do not function well when the interactive environment has unfamiliar objects that does not seem to fit in with the task they wish to perform.

2.6.1 Impact of Animation to Development Communication

The type of public awareness campaigns that I used in conducting my test was health related. I chose to this particular field because I believe this a major issue for Ghana and African as a whole. When presenting any information regarding health, one must be very vigilant in the way they present the information. This means that in order to change the habits of the people, the communication must not sound radical. The point of communicating development is to persuade the people as to why they need to change or improve their habits to avoid health problems. It should not stray away from the seriousness of the issue but address the importance of how their decisions can have consequences if precautions are not followed. Presentation matters a lot when trying to make an impact on society.

2.6.2 Animation in User Interface

Although it appears that animation is predominantly for enjoyment and entertainment, experts have been trying to understand theoretically what part of animation influences people's decisions. Despite the wide range of appeal that animation has, the interactive components of animation such as interactions between characters contributes to the positive and negative reaction of it's' viewers. It is safe to say that people feel more at ease when they can see themselves in the story whether it is from the interactions taking place or personality traits of characters. According to a journal written by Cleotilde Gonzalez, the inconsistency in animation may as a result of inadequate selection of tasks to be animated. (Gonzalez, 1996)

2.7 Misrepresentation in Animation

Based on the circumstances of society during the 1870's era, cartoons were often sexist, stigmatism, or laden with stereotypical racial caricatures. This can be categorized as misrepresentation of a group of people or individuals depending on how the animators chose to represent society and its beliefs. In educating the American public on disease or virus outbreaks, most depictions of other nationalities the animations were very biased in relation to the context. Since the government was producing the public health agenda animated movies to society, they made sure the overall message was understood by audiences.

In comparison to such animated movies of the 19th century, great improvement became the way forward for the 21st century use of images.

Alongside the improvement, audience age range has widened as the level of information, especially health illiteracy is wide. Now the aim in public health animated films are to be culturally diversified just as much as the real world. (Grady, 2007)

2.7.1 Level of Awareness in Animation

To clearly communicate important ideas and have the audience maintain what they learned can be difficult but is not impossible. From previous research on this topic, scholars agree that viewer's *attention* needs to be established before any comprehension of information can be retained. Also contributing to the level of awareness for users is the visual appeal of characters and the interactions that take place in the story. Once viewers feel like they can relate to the characters "personality traits" displayed through expressions and movements, it makes it easier to grasp the information being relayed to them.

2.7.2 Characters in a Sociocultural Context

In creating awareness ads that are intended for the international audience on issues such as HIV/AIDS prevention and drug abuse, certain aspects may be taken out of context depending on the cultural background of the audience. Such misinterpretation can range from the smallest detail such as a gesture or body language that translates into something totally different from what the animator had in mind. Is it possible to have an animation that crosses cultural barriers and deliver the information without being bias to one cultural group? From what I have gathered in my research,

adding more humorous elements to the character can avoid this issue greatly.

2.8 Research Purpose

In this chapter, I mentioned some background information on animation and how it all began. Research showed that the transformation of hand drawn images to animation included several important concepts that are used to design effective animation. These various concepts each play a role in creating a user-friendly environment for both interactive and non-interactive animation. Also in the chapter, I further discussed the impact animation has in development communication and the way in which viewers can interpret information being shared. The use of animation as a tool for communication has been proven in many ways to be vital and effective if designed with users in mind. Ideally this research identifies ways to prevent misrepresentation in the animation through presentation of content, character expression and other visual aids that may be included. On the contrary, some of the scholarly journals used in this research expressed their views on how to design user-centered animation. This type of design is preferred for such media since it considers an array of viewers it is intended to appeal to. From the layout to the gesticulations made by character, these animations should grab the attention of many and also communicate serious issues in a way they can relate and keep in mind to improve their own habits and behavior.

The main objectives of this thesis are to identify the design principles that contribute to a memorable animation. Based on the principles, I would have created a set of guidelines in which future production can be made to improve the quality of animation meant for development communication. The guidelines are set using an HCI perspective in designing animation that communicates information to the general public.

Chapter 3:

Methodology

In gathering information on how users respond to animation, with the sole purpose of information communication, I tested the level of awareness gained from animation. The reason for conducting the study was to correlate the techniques of animation and apply it in the form of media that can be used in development communication. By identifying the key elements that draws the viewers' attention to the animated work, a sense of understanding of the material should be learned after viewing. This means that by the end of the film, the viewer should be able to remember the important facts displayed to them for years to come. With all the feedback collected by the target audiences I should have a link between the best techniques of animation for development communication. The findings from this study will be used to create guidelines and public awareness animation on health.

3.0 Empirical Study

Using the observational method to study participants would give me a direct view of how the viewer's respond to the animations shown. From this point I can ascertain the types of reactions each animation receives and compare the results of the various audiences. This method allows for an uncontrolled response to the study being conducted, minimizing preconceptions that could possibly transpire.

3.1 Data Gathering Tools

For collecting data from the interviews, I used my mobile device to record conversations and made notes of some of the answers from respondents. In the observational test, I used a single laptop to display animation and had forms to fill in participants' response to questions before and after the animation was shown. Emails, phone calls and letters of introductions were sent to other sources for further information relating to the topic.

3.2 Data Collection

For showing the animations for the observational test, I chose to use a laptop simply because it is portable and I can control the settings of how they should be played. Sometimes, I a question from the participant may need me to replay a certain portion to get a better understanding. If this is the case, this tells me that too much was going on in that particular scene for the viewer to remember and they will pay attention to an idea that missed previously. I administered this test by filling in the information given by participants so that they would be more at ease at focus on expressing their thoughts without feeling burdened by filling it themselves. Before starting the test, I gave a brief overview of the topic and what role they will play as a participant.

3.3 Approach

Earlier I mentioned in Chapter 2 a study conducted by Patricia D. Mautone and Richard E. Mayer on cueing and its effect to attention. (Richard

E. Mayer, 2003) My approach is very similar in a sense that two different types of animations were shown; one had text visuals in between some of frames to emphasis the importance of the message. The other animation required more attention to details because there were no visual aids to direct the audience's cognitive load. This allowed me to compare the reactions of both animations and understand how each participant interpreted the information. The questions I asked before and after the test gauged their overall perspective of animation and the impact it has on them. Towards to the end of the study I allowed for additional comments from participants to be included in case there were any elements they think can improve the impact of awareness animations shown in Ghana.

My approach for interviewing the faculty from NAFTI was very straightforward. I used my phone to record the interview to avoid missing important issues raised instead of trying to write everything down. Recording the conversation definitely saved time and allowed the communication to naturally flow. The questions generally were about the institution and the role they play to the animation industry in Ghana. Since they have more background knowledge in developing animation, the interview gave a different perspective to how animation is used in spreading awareness in the Ghanaian context.

Chapter 4:

Findings and Analysis

4.0 Introduction

The results from the observational study and interviews are described in this chapter in detailed based on the response of willing participants. As mentioned in Chapter 3, the purpose of the conducting this study is to understand the impact and effectiveness of animation in communicating important information. The focus is primarily on the user interface and the various styles of designing to appeal and maintain attention throughout the animation. Several key components have been identified that contribute to the presentation of these animations to inform the public on important societal issues. I presented two separate styles of animation with different subject matters (Sexually Transmitted Infection Awareness, Importance of Hand Washing throughout Daily Life both animation were 1 minute long) to test the theory of animation and its impact to development communication. Each participant was tested individually so as not to impose suggestive thoughts or opinions of others.

4.1 Findings

Below is a chart representing a random sample of participants for the observational study.

Age Range (19-24) Gender	Background	Interest in Animation (1-10)
8 Males Participants	60% of the male participants watch	The average interest in animation from male

<p>2 Females Participants</p> <p>Total Participants =</p> <p>10</p>	<p>animations at least once a week and like different styles in the form of movies and series.</p>	<p>participants on a scale of 1-10 is 9.</p>
	<p>100% of the female participants watch animation every once in a while and prefer non-animated films and series.</p>	<p>The average interest in animation from female participants on a scale of 1-10 is 4.</p>

Figure 4: chart showing demographics of participants

For gathering data on user's perspective of animation and how it relevant the topics of these animations are I had 10 participants between the ages of 19-24 answer some generic questions on animation. I used these generic questions to get an idea of my participants' interest in animation and a little background information on the types of animations they prefer. Afterwards, I played two different animated ads; one on the importance of hand washing designed and animated by Alex Robinson for Water Aid, each frame was hand drawn. The other was on STI awareness created by John Hopkins University students during a seminar called "Animating Behavior Change". The duration of each animation was approximately 1 minute. I learned a lot from observing the viewer's reaction to the videos and their overall understanding of the material being presented. A lot of them felt that background music and sound effects add more intrigue but should not overtake the actions and emotions being expressed. Audio provided a balance of the film and keep the viewers interested in seeing what will happen next.

4.1.1 Interviews

I also interviewed 2 professionals from NAFTI (National Film and Television Institute), Dean of Studies, Mrs. Vicentia Akweley and a Mrs. Ramatu Dadzie from animation department to gain more insight in animation as a course study and its role in television for the Ghanaian public.

Interview 1: I had the privilege of meeting with the Dean of Studies from the National Film and Television Institute, Mrs. Vicentia Akwetey. In our interview, I asked questions about the Animation department, student's interest in the course, the impact animation has on television in Ghana and the future of animation. She informed me on the low patronage of animation in Ghana and small class size they currently have studying. There are 5 students total, with 3 professors of animation with their own individual styles and techniques for creating animation. When I asked about the animated awareness animations that have been aired on television, she said that the sponsors of these campaigns are responsible for the concept and the broadcast not the developers. She also mentioned that the cost of producing an animation is more expensive and time consuming than regular commercial using people this is one of the reasons why it is not used as much in advertising. She realizes the importance of using animation as a form of communication but most people fail to see the value of it in Ghana. In her opinion, she says people expect to see animation that looks similar to Disney films in order for it to appeal to the public.

Interview 2: After meeting with Mrs. Akweley, she introduced me to one the lecturers from the animation department... I could tell from the way she expressed her ideas on animation that she truly enjoyed her profession and had genuine concerns of what is currently aired on television as animation. She mentioned that the styles of animation used in awareness campaigns currently are very amateur and does not properly represent the broad spectrum of animation styles. By this statement she was referring to animated ads created by Zangaro Productions Company, the style and arrangement of characters movements and expressions. She went on to explain the difference between animation and cartoon, pointing out that animation should present a story in a manner that conveys a clear idea. Certain attributes of animation such as organization, anticipation, and etc. play a major role in how the audience understands what they are seeing.

I learned a lot about how viewer's understand the material relayed in animation and what styles are preferred depending on the context of the information. For instance the STI awareness campaign used simple crayon-like drawings to represent their characters. With the aid of text instead of audio, I believe this element was used as a bridge between each event the animator wanted to express. Perhaps, from the developers stand point, they wanted the audience to read some text so that it allows viewers to take in the factual information, emphasizing how important these facts are and should be retained.

In reviewing the participants' reaction to the hand washing animation, they were interested to see where this animation was going. From the beginning, it looks like a split screen of the same activities until end of the animation where one family uses soap to wash their hands after carrying out domestic activities and the other doesn't. When I first watched this animation, I felt that although it addressed the importance of hand washing in our daily activities, how else this could be simplified in a way that did not misconstrue the message. Does this truly represent the issue at hand? Is it suggesting that only poor people do not have access to soap and others do? What would I change about this animation so that such questions do not form in other viewers minds? I realize the importance of presentation, timing, exaggeration, and a bit of humor to make the animation memorable.

Regardless of the subject of the animation, it is natural for viewers to have a certain level of expectation. Especially if they are familiar with various styles of animation and have a preference of the ones they find appealing. Below are screenshots of the two animations used in the observational study.



Figure 2. Split screen ad for hand washing



Figure 3. STI awareness campaign

4.1.2 Observational Study

Participant 1: Genuinely enjoys cartoons and animation no matter the genre. He expressed his concerns with the technique used in the animation on STI Awareness. The underline message was understood but he expected more creativity to be added to the animation. In comparing the two ads shown, this participant felt that for sensitive subjects that exaggeration should not be added so that the message is not taken out of context. The ad on importance of hand washing made him curious to find out what the animation was suggesting based on the different actions displayed to show the harm in not washing your hands after various domestic tasks. At the end of this particular animation is when he understood what the overall ad was about. To me, this hinted that transitions between the different events were not that effective in transmitting ideas properly. He told me that he was a bit confused when the animation began because he was not sure what details to

pay attention to. In conclusion of this participants viewing of these animations, he pointed out that the appeal such animation should be created in a way that is not explicit or bias. When asked about previous awareness animations he saw previous to this test, he recalled an animation about drug abuse and AIDS.

Participant 2: This participant does not really watch animation but when he does enjoy them when he see it. In viewing the two animations his initial perception of the hand washing animation was that germs give diseases so people should was their hand with soap. His view of the STI awareness animation was that you can't be too sure of your partners and it is important to use a condom. Generally this participant liked how engaging and linked to real life situations these animations were. He could not remember any previous awareness campaigns that were memorable.

Participant 3: In reviewing this participant, I could tell that he had a lot of interest in animation and watch them often. The gathered this from his response to the generic questions asked, he was excited to describe the types of shows he likes to watch. Apart from animated film, he has a lot of experience in interactive animation so his expectations were quite high in how the quality of the animation should be to keep his attention. He understood the general idea of using soap to wash hands in the hand washing animation and importance of using a condom. He concluded that both animations were very descriptive in terms of the presentation of events and ideas with proper representation of real life situations. When asked of

any memorable animated animations he recollected one about drug abuse. He explained that the characters were using a mix of local dialect and slang which he found to be an ideal element for capturing attention to a wider range of audience. Blending humor and familiar dialogue made this animation memorable to this participant.

Participant 4: The first female participant of this test does not really find animation appealing but when she was younger thought they were entertaining. In viewing the animations she could easily identify the underline message and establish that the hand washing animations depicted two separate families that did the same routines but the difference was that one used soap when washing their hands and the other did not. The STI awareness campaign in her view depicted how STI spreads and generates a web so people should use protection and/or abstain. Overall she could not remember any animated awareness animation prior to this test.

Participant 5: My next participant does not watch animation too much but enjoys them when he does see them. He mentioned that the animation on hand washing was primarily on cleanliness and importance of washing hands after working and before meals. Also the STI animations, in his view, were about use of condoms and importance of abstinence. He could not recall any previous awareness animations apart from the ones from this test.

Participant 6: In this review the participant's reactions during the test were obvious from the beginning that he was very intrigued with the thesis topic overall. He enjoys all forms of animation, and expressed his thoughts very

vividly on the sample animation shown. From the first animation on hand washing, he identified the message being centered on the issue of hygiene and how the film expressed the importance of the dangers of not using it with two separate families. The second animation, he identified the subject of the animation to be on the importance of abstinence from sex. In general, He felt that the two animations were thought provoking and provide realistic representation on real life occurrences. The last animated awareness he remembered viewing was on the topic of environmental protection. He described the animation to be simplistic yet it spoke volumes about the impact pollution has on the environment. In identifying the elements of the animation that made it memorable, he pointed out that exaggeration of characters actions added emphasizes to the ideas expressed. He felt that exaggeration adds a humor to the material but also keeps the cartoon attribute of the character's design.

Participant 7: This participant enjoys animation in all forms and watches when available to her. After viewing the animation, she identified the first animation on hand washing addressed the benefits of using soap and the STI awareness campaign addressed the importance of using condoms. When asked about previous awareness campaigns that he found to be memorable, she mentioned a campaign on drug trafficking. She found this particular animation to be profound because of the quality of character design and the presentation of the message.

Participant 8: Interviewing this participant, I can conclude that animation is by far his favorite to watch. He mentioned his favorite shows growing up and his favorite characters such as Johnny Bravo and characters from “*The Boondocks*” TV series. Watching the animation on hand washing, he identified the scenario of this animation as hygiene at two different angles; a family money versus a poor family. For the second animation on STI awareness, he identified the message to be about college life and facts on STI’s. He thoroughly enjoyed each animation and felt that it had a bit of humor, very engaging, educational, and represented real life situation.

Participant 9: For this participant, he enjoys anime as his source of entertainment and watches frequently. After watching the hand washing animation, he felt the animation addressed the importance of hygiene. He also expressed his concern with the way the content was presented and felt it was biased towards people’s economic status. Suggesting to viewers that a particular group of people, based on their financial background, are privileged to have access to soap and poor families are not. His idea of the second STI animation was that it was a fun way of showing the importance of using a condom. Basically referring to the simple animation technique used to express an important issue such as STI in college student populations.

Participant 10: The last participant watches animated films and cartoons often so I assumed his perspective would be very keen based on how he answered the generic questions prior to the display of animations. I had to play the hand washing animation twice because he felt he missed some

details because of the split screen presentation of the animation. After the second play of the animation he concluded that the animation expressed the importance of cleanliness, personal hygiene of two separate families; one uses soap and the other does not. Also he felt it expressed the idea that one family was a victim of diseases due to lack of soap usage and the other is healthy because of their decision to use soap. The STI animation, in his opinion, was simply about sex education. His preference between the two animations was the animation on hand washing because of the style and the overall presentation of the message. For the STI animation, he thought that it needed to have some audio added and reduce the amount of text to be more appealing. Prior to this test, I asked if there were any memorable awareness animations he could remember and he mentioned one on AIDS awareness. It was memorable not because he found it appealing but the concept in which they used to relay the message.

4.2 Analysis

From the results of the observational study, I was able to gather a lot of mixed reaction and understand that everyone has the own interpretation of what they see. The sample animations used were chosen because I felt these were some relevant issues to the society they live in. It is proven in many theories that familiarity, in one form or another, be it language, gesture or action, allows the audience to feel more at ease. When there is a general understanding of the subject matter after being presented with essential information via animation then the aim of the animation has been achieved.

4.2.1 Interactive Animation: E-Learning

It is known that animation is a wonder way to visualize phenomena that involve change over time. In a short time span, graphic design technologies has enhanced the quality of user interface design of animation to another dimension. Researchers of interactive animation have identified certain aspects of the UI (user interface) that is vital to keeping their users satisfied. When users are given the opportunity to control the interaction between themselves and the animation, they find it more enjoyable and easier to understand. According to an article on animation and interactivity principles, use of animation in interaction design must be leveraged on as a needed basis. Just like symbols and signs, too many of these visual sign can cause cognitive load issues for the e-learners. (Betrancourt, 2005)

Based on the results from my observational study, too many visual signs can confuse the viewer and reduce understanding of material. This is not an effective trait in teaching e-learners regardless of the complexity within the content. A researcher such as Ben Schneiderman, whose specialty is HCI, believes that user interface should be designed in a way that novice users can easily interact without too much instruction. So far, a lot of studies have shown that interactive animation has a lot of potential is only more developers used the user-centered approach. This approach considers the needs of end users and so far very effective in communicating ideas. Knowledge of how the application works can be gained through manipulation

of objects and simulations provided. For those users who need more help understanding the features of the animation, avatars can be used as a guide to point the users in the right direction. Avatars simply replicate a character that the user controls in the virtual environment of the animation. This concept of avatars in animation is used also in animated games it really gives players the feeling of existing virtually in the virtual world they are interacting with.

4.2.2.2 Pedagogical Agent

This type of character is created with artificial intelligence backend, which reacts based on user interaction. These agents are designed to have the following requirements as stated in an article written by David Slater, a graduate of Stanford University School of Education:

- **Adapt** - A pedagogical agent evaluates the learner's understanding throughout the interaction. Pedagogical agents will not move on to more sophisticated concepts until it is clear that the learner has a good understanding of the basics. If learners continue to have difficulty, the agent can provide additional instruction.
- **Motivate** - Pedagogical agents can prompt users to interact by asking questions, offering encouragement and giving feedback. They present relevant information, offer memorable examples, interpret user's responses, and even tell a clever joke or two.
- **Engage** - Pedagogical agents have colorful personalities, interesting life histories, and specific areas of expertise. They can be designed to be the coolest teachers in school.
- **Evolve** - Pedagogical agents can be revised and updated as frequently as necessary to keep learners current in a rapidly accelerating culture. They can search out the best or most current content available on the web to enrich the lessons that some

These agents truly add another dimension to interactive animation and makes user experiences stress free. These particular characters apply Norman's design principles for a user-centered interactive interface. (Slater, 2000)

4.2.2 Interactive Animation: Video Games

Video games are another form of interactive animation in which users can control characters throughout the game. The nature of video games, depending on the developer's concept, can be beneficial to raising awareness and promoting healthy behaviors and habits. A researcher named Deborah A. Lieberman wrote about interactive video games for health promotion describes how knowledge can be gained through gaming experience. Typically, if the game is challenging and entertaining, young players will feel motivated to the game to get the best outcome and simultaneously learn good health habits. (Lieberman, 1997) Most of the participants from the observational study I conducted are advanced gamers and are accustomed to high quality graphic effects in the gaming environment. If presented with a video game that promotes health, it would be important to have different levels of difficulty to keep their interest in playing.

In designing the game, developers should keep in mind that the levels within the game should present a new or continuation of an idea. The player should also to review their progress to see where they fall in reaching the goal. If a player loses a level of the game then they should be able to repeat

that level until they reach an optimal range for getting to the next level.

Other components that make the animation enjoyable include:

- Characters
- Actions
- Relationships
- Humor
- Settings
- Artwork
- Music

All of these components should appeal to the target audience to maintain attentiveness of players. As mentioned by some of the participants from the observational study, these components all have their purpose in enhancing the interaction between them (viewers) and the animation. The repetitive nature of video games also contributes to how players can memorize information by applying what they learned to achieve the target goal and complete the game.

4.2.3 Interactive Animation: Web Application and Animated Components

Depending on the website and the type of content being presented to users, animated graphics and effects can add more aesthetics to the website. Usually animated graphics can be used to advertise products or new information they want the viewer to notice. These graphics are strategically placed in the website to avoid overexposure of content to user. Overexposure refers to how much content is displayed at once and the amount of attention the various sections require. Animated web graphics are created to be

repetitively shown as users' scroll the page. Animated effects and graphics, although appealing, should not take away from the information the user is looking for.

With web applications are commonly used for communicating some information, the home page layouts the structure of the entire site. Since this mostly likely the first page displayed, the design musts capture some interest before the user is curious to see the content. Arrangement of content must be consistent within the pages of the website, with extras such as animated graphics, being positioned towards the top or right side of the page.

Chapter 5:

Conclusion

5.0 Summary

The purpose of this thesis was to address design issues with animation and how to create memorable animation viewers can learn from and implement what they learned to improve healthy habits and behaviors. This is known as development communication, which informs the public on related social issues with the aim of changing bad decisions and behavior. In researching this thesis topic, I was able to understand from which perspectives users are viewing animation and the design principles that can improve animation's appeal to communicating important information. Looking at the very beginning of animation and how it has been integrated in entertainment and education, it is already proven that it can have a positive impact on society.

From an HCI perspective, user-centered designs are the way to develop various applications and media. Some design principles that fall under user-centered design include visibility, usability, and feedback to name a few. Research conducted by professionals with an HCI background showed that these principles are the key to developing interactive s that achieve their aim. Because of the multidisciplinary influences in HCI, there are many angles from which user experience with animation can be assessed.

I used scholarly journals mostly to gather information on previous studies related to users and their interaction with animation. Furthermore I

tested some of theories mentioned in these articles to perform my own study and how it relates to animation in Ghana that seeks to educate people on health related phenomena. Primary resources were used in the observational study to understand how various viewers understand content being presented to them through animation. I used a questionnaire to get background information of the audience I was testing. I chose to use already developed animation to test the theory of cognition in educational animation which was developed by Richard E. Mayer and Patricia D. Mautone. I recognized reasons why animations in Ghana are not memorable and do not always leave a positive impact to viewers. The problems mentioned by participants were pointing out flaws in design, presentation and delivery of content. This feedback unveiled the issues in user-centered design and how it impacts decision and understanding of material.

5.1 Overview of Findings

The information found relating to this topic revealed techniques in animation techniques that I did not know about before such as cueing and other elements that make an animation notable. In searching out possible issues from a user-centered stance, I was able to identify which areas of design need to have more consideration when designing interactive animation interactive animations for a range of audiences. An area such as character design must have social semiotics as the premise of developing a believable personality trait. Social semiotics was identified in this research as a contributing factor to developing animation because it brings real-life

representation to the animation. The more viewers can relate to the characters in relation to their design then more interest will be drawn to the content.

In understanding the power of animation in development communication, I researched particular NGO and other public organizations that utilize animation for influencing behavior change. Organizations such as UNAIDS, The Red Cross, and Water Aid use animation in their public awareness campaigns to reach audiences globally on health related issues. Although the use of animation for communication has existed for decades, a new approach to creating animation to communicate complex content is gaining more attention. Since the focus of this research is from an HCI perspective, design principles were also researched with regard to developing animation for development communication. These principles set a specific structure in which creators can use for designing animation with users interaction in mind.

Throughout this research, I learned that viewer's pay attention to the smallest detail in animation. By recreating real-life situations with features such as exaggeration and gesticulation of characters affect the way viewer understand content. Such features determine how viewers understand the content being displayed by way of actions and movements. Misrepresentation however, can change one's view of the entire animation if they feel it is too unrealistic compared to what happens in the real world. The idea of animation in development communication is to present relevant information in an entertaining and brain stimulating fashion without being complex.

Based on my findings from the literature and study I developed a set of guidelines as well as an animation based on these guidelines.

5.2 Guidelines for Developing User-Centered Animation

User-centered design requires input from both end-users and developers in creating a user-friendly interface. For animation, this particular design concept provides a format in which animators can meet user requirements. Norman's Design Principles capture the most commonly used principles for user-center design. Animation also has its own set of principles for designing characters that appeal to viewers. Below are some guidelines for combining Norman's principles and user-centered design principles which can be applied to interactive and non-interactive design.

1. Provide visual aids.

When creating animation that shares information, the use of cueing can guide the viewer in the content being presented. Some information may be complex in nature, by using text and visual icons within animation; comprehension of material is easier to follow. Keep in mind that your audience is varied so any text and icons should be simple and easy to identify.

2. Provide aesthetics in the design.

Creativity should be the basis of any animation, as it expresses emotion and does not limit your imagination. Viewers appreciate unique designs in

characters and their environments. The mapping principle of interface design should be implemented to allow proper representation of real life actions and environments. This means that creativity should not overshadow how objects appear in the real world.

Aesthetics can affect viewer's perception of the entire animation, so it is advised that animators incorporate some objects to reflect similar objects that exist in real world.

3. Provide users with auditory elements.

The use of sound effects and background music sets the mood of animation and adds extra emphasizes to particular actions. Sounds effects do not have to be included in every action the character makes. There should be a balance in the amount of auditory elements added to animation as it should not over power the content being presented.

4. Add a bit of humor.

You cannot go wrong with humor, as long as it is appropriate and fits in the context of the animation, the audience can appreciate the effort and making them laugh. Humor can bring viewers at ease and comfortable with the information being shared. Attention of viewers can be maintained much better if they are able to laugh and enjoy what they see.

Norman's Principles Applied to Developing Animation:

- Visibility –In every scene, it should be clear to viewer which characters are the main characters and those that are designed as background characters.
- Feedback- For interactive animation, feedback always helps the user to understand their interactions they have made. This aids in navigating the interactive environment for various task. It also gives users control over the interactive environment in case they would like to make some changes.
- Consistency – For both interactive and non-interactive animation, each scene should have consistency in the layout unless a new scene is being shown. Consistency provides a flow in events that the viewer can easily understand and follow.
- Constraints – There may be particular section of an interactive animation that the user is restricted from. Sometimes these limitations set which area needs to be executed first before moving on to the next phase of the interaction.
- Affordance – For interactive animation, affordance is a major attribute that effects the interaction of the user to the interface. If symbols and icons are used to represent a particular function, then it must be recognizable by user to perform those functions.
- Mapping- In relation to affordance, mapping in interactive animation refers to how controlled objects are handled in real world environment and represented in the interactive environment.

Steps to creating animation for development communication

Step 1: Brainstorm and map out the topic you wish to address to the public. Make sure the topic is relevant to the intended audience and easy to understand.

Step 2: Incorporate familiar traits in the character design. It could be in the form of gestures, language, or actions that are commonly used in society. Also design simple backgrounds for the animation so that more focus can be on the characters and the interactions taking place.

Step 3: Include auditory elements to set the ambience of the animation. It should not distract viewers from the content being shared but rather enhance the presentation of content.

Step 4: After combining the previous steps into a physical design, have **others** view and give feedback on how they feel about the arrangement and delivery of the information being displayed through the characters. This allows unbiased opinion and corrective criticism to improve the delivery and layout of the animation. Animators can appreciate feedback as it assists them in perfecting their skills and designing better animation with user preferences included.

Step 5: Edit animation if necessary and display final edit to organizations and television companies that may have interest in broadcasting to the general public.

5.2 Future Research

I would suggest to the animation industry in Ghana to revamp production of animation by creating a mini TV series with characters. Using TV as platform to display these informative animations, viewers can grasp concepts because there will be shown cyclically. After viewing these series, the information will subconsciously resonate in the viewer's mind. I believe this is a great strategy to engage audiences in important information that they can benefit from in the end. Animation provides a catalyst to communicate change in a less invasive manner and is appreciated by most viewers.

In Ghana's society, animation can influence younger audience if it is integrated in educational system with students in JHS and SHS level of education. The best approach to communicate development through the younger generation since it impacts them directly in the near future. For students, interactive animation would offer them a fun learning experience especially with complex information. The design of the interactive animation should provide animated characters and pedagogical agents for easy navigation applying the design principle of visibility. As mentioned in previous chapters, cueing in animation contributes significantly to how much information is retained so other visual aids can offer some feedback as they navigate the user interface. Since this approach to development communication is directed towards a younger audience, simple animation styles can be used. The character's design should have some resemblance to the users as it adds a bit of confidence and comfort with their interaction.

The use of animation in public information sharing is not new to society but its technique has transformed the way important information is communicated. This platform is an ideal method for reaching audiences of all ages and promoting better habits. Based on results gathered through research and primary resources, I can conclude that HCI design principles can provide the best user-centered designs for creating animation. Although it is hard to measure the level of impact in a wider scale, animation will only grow as a tool to communicate development in today's and tomorrow's generation. It is imperative that everyone is abreast of issues that affect their livelihood and that of the rest of the world because of bad habits. Animation presents pertinent information in a way that everyone can enjoy and understand. Therefore the user interface of animation should incorporate HCI design principles to provide a well-organized influential animation.

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Appendix A: QUESTIONNAIRE FOR OBSERVATIONAL STUDY

Name : _____ Age: _____

Gender: _____ Participant No. _____

1. Why do you watch animated shows/cartoons?

- Entertainment
- Relaxation
- Enjoyment
- To learn something
- Others. Please specify: _____

2. How often do you watch animated shows/cartoons?

- Once a week
- Twice a week
- Thrice a week
- More than thrice a week

4. At what time of the day do you usually watch animated shows/cartoons?

- Early morning (3am-6am)
- Morning (6am - 11am)
- Midday (11am - 1pm)
- Afternoon (1pm - 6pm)
- Evening (6pm - 9pm)

- Late Evening (9pm - 12am)

5. What do you think the overall messages of the animation being communicated to you(viewer)?_____

6. What do you like about animated ads commercial? Please check three (3).

- Humor
- Engaging
- Educational
- Values
- Link to real life situations
- Others. Please specify: _____

7. What is the last animated ad campaign that you have seen?

8. From that campaign(s) what stood the most to you?

9. From that campaign(s) did you apply what you learned to your daily routine?

10. Do you think you can relate to some of the issues raised depicted in such animations?

Additional
Comments:
