

Animation Techniques and Styles

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Abstract: The animation field is one of the very large and highly demanded fields, as it enters into several fields such as films, all types of animation and games. Animation is a method in which figures are manipulated to appear as moving images. The animation is the process of making the illusion of motion and change by means of the rapid display of a sequence of static images that minimally differ from each other. Also, animation can be used in advertising, information, games, websites and education. This article deals with the definition of animation, a historical snapshot of it, the importance of animation. Also, it shows many types and styles of animation such as traditional animation, stop motion and computer animation.

Key words: Animation • History of Animation • Types • Traditional Animation • Stop Motion Animation, Computer Animation

INTRODUCTION

Animation is the art of making an illusion of motion through the use of rapid progression of sequential images [1]. Animation is the process of creating the illusion of motion and shape change by means of the rapid display of a sequence of static images that minimally differ from each other. Animated films (cartoons) are popular throughout the world [2]. The animation is all around us, be it your favorite music, tv commercials, movies or even videos you can detect the stop motion animation type. Techniques of movement creation merge both the conventional traditional animation and stop motion animation techniques of two and three-dimensional shapes, for instance, patterns, paper sets, puppets and clay figures. Keeping Stop motion as the base of all animation, different styles of animation techniques can be used to create the animated sequences.

The animation is a word used to describe a broad range of practices in which the illusion of movement is created through the incremental movement of forms, displayed sequentially as a motion picture [3]. From the perspective of the psychologists, animated films play a great role in children's socialization process [1]. How children internalize the message presented by these animated films helps them in their socialization and interaction processes. For the Arabic community, the animated films have been used to teach various moral and religious lessons to the believers and the general society [4].

It can be said that animators are artists who specialize in creating and making animation and animation recording using motion picture film, analogue media, a flipbook, videotape and digital media which including formats with animated GIF, digital video and flash animation.

Wells [5] argues that animation is "the most important creative form of the twenty-first century. Also, it is the omnipresent pictorial form of the modern era. It is considered an entertainment industry is one of the highest income earners in the 21st century. The animation is not the art of making drawings move only, but rather it is the art of drawing motion based on the constancy of vision and animation is represented as the rest of all films, what distinguishes it is an illusion of the flow of motion while in fact, it is a series of static graphics moving at great speed, up to twenty-four frames in a second it gives the appearance of movement.

The world of animation is usually known through cartoons emanating from Japan, the United States, the UK and France [6]. In 2015, approximately, 244 billion dollars was the volume of the global animation industry. This includes Japan, United States, France, Canada and others. The total rate of the development of the animation industry in the World is five percent yearly according to the Federation of Indian Chamber of Commerce (FICCI) report (2017).

The first animated films in the Arab World originated from Egypt and continued thriving in the country during the 1960s, Donmez-Colin [7]. It is believed that

Egypt, initiated the establishment of Arabic animation [8]. The story of Arabic animation can be traced to the times when Egypt began picture story-telling through hand-drawn images that delivered certain moral lessons to the viewer's [8]. Alharbi and Baines [9] showed that the animation film industry in Saudi Arabia is still in its embryo stage. Also, evidence illustrates that there are some limitations that Saudi animation faces due to the limited experience, poor production, the absence of infrastructure and regulatory policy and low availability of skilled labor. Also, the author reported that the animation industry in Saudi Arabia needs attention because of its poor performance that has been evidenced by low revenues. Addressing such a problem leads to the creation of jobs, diffusion of technology, improvement of the entertainment industry and enhancing creativity.

The Current Work Reviews Animation Types and Techniques: Ranzato [1] defined animation is the art of making an illusion of motion through the use of rapid progression of sequential images. Animated films are those films in which paintings, individual drawings, or illustrations are photographed or drawn into a frame by frame, which is an art also known as stop-frame cinematography. Animated films have some great significance in the modern society.

The Importance of Animation Is:

- Used to deliver lessons that directly involve the communities in one way or the other. Most of the animation films' lessons are common social issues such as developing stories in politics, economic issues and other affairs [1]. It is also believed that animated films help the community to grasp what behaviors are considered socially acceptable and socially unacceptable [1]. It also helps to teach certain traditional values as well as teaching children how the world functions.
- The second important role that animated films have is entertainment. Animated films involve aspects that enthrall the viewers and this aspect of entertainment is often seen on the youngsters. Socialists and psychologists have considered animation as an important art and science in the development of children as it enhances the growth and development of children by triggering the growth of cognitive skills, intelligence and other aspects that are essential in their development [1, 10, 11].

- Animation today is used in many fields such as TV programs and series, multimedia, game design, web design, films and TV advertisements. Though, despite its prominence in the world's popular entertainment industry, there is a substantial absence of established Arabic animation and filmmaking for the domestic market. This is evident from the tendency of importing foreign animated productions for the Arab audience [11].

A Brief History of Animation: The history of animation started long before the development of cinematography. Animation is a word used to describe a board range of practices in which the illusion of movement created through the incremental movement of forms, displayed sequentially as a motion picture [3]. The story of animation started with a consecutive drawing of animals on cave walls thousands of years ago. Also, others said that the story began about 1900 with early attempts to fuse the moving-picture camera and single drawings to create the illusion of movement [12]. Humans may have attempted to depict movement in a time as far back as the Paleolithic period. Much later, the play of shadow and the magic lantern (since about 1659) gave famous performances with images projected onto the screen, moving as a result of manipulation of the hand and / or small mechanics. In 1833, the stroboscopic disc (known as the phenakistiscope) introduced the stroboscopic principles of modern animation, which decades later would also provide a basis for cinematography.

Between 1895 and 1920, during the rise of the cinematic industry, several different animation techniques were developed, including stop-motion with objects, puppets, clay or cutouts and drawn or painted animation. Hand-drawn animation, mostly animation painted on cels, was the dominant technique throughout most of the 20th century and became known as traditional animation [13].

The early 20th century, is considered to be the beginning of theatrical showings of cartoons, especially in France and the United States. While Bray served to launch the careers of the artists (cartoonists) that created Mighty Mouse, Betty Boop and Woody Woodpecker [14].

Different Types of Animation and Animation Style

Traditional Animation: Traditional animation was the process used in most animated films of the twentieth century. Single frames for traditional animated film are

images of drawings that are first drawn on paper. To make the illusion of movement, each drawing is slightly different from the one before it. Animation drawings are traced or copied onto transparent acetate sheets called sailings filled with paints of custom colors or tones on the opposite side of the line drawings. The completed characters were shot one by one on a movie theater on a background drawn by the platform's camera [15, 16].

Cel Animation: Before computer-driven animation, this method was commonly used for 2D animation. Pictures that are slightly different from each other are traced onto transparent sheets and then animated; but this technology is costly and time consuming.

Stop-Motion Animation: Stop motion animation is a technique that involves creating the illusion of 'motion' through the physical manipulation of objects, both inanimate and living. Incrementally moving an object and photographing individual frames which are then pieced together, creates the illusion of movement. Below is a general list of the different types of stop motion animation according to Andrew Selby [17].

There are many different stop-motion animation styles, which are usually named after the type of media used to make the animation.

Sand and Oil-Paint Animation: Sand and oil-paint animation involves placing a substance such as sand or oil onto a non-porous surface. The oil or sand is manipulated by the animator and photographed using a camera that is secured above by a rig [18]. Even though this method creates beautiful results that can be further manipulated with light, there is the downside of the original artwork being lost in creation [19].

Simple Paper Cut-Outs: Using paper cut-outs is a rather self-explanatory and simple form of stop motion which involves taking pieces of paper, card or cloth, cutting, tearing or folding them into desired shapes and then, as with any stop motion technique, manipulating them incrementally between photographs [20]. Selby [20] places this type of animation under the same two-dimensional category as sand and paint animation; however I omitted this distinction due to my own experience with the medium. While it is common to work on a flat surface and employ a rig for paper cut-outs, when I used the technique in 2011, I opted to keep everything upright and gave the animation some dimension by keeping distance between the different elements.

Armatures: Armatures are structural frameworks that act as a base for stop motion models. The complexity of the armature depends on the necessities of the animation. A simple wire armature will suffice for simple movements and a shorter production, however a ball-and-socket armature made of steel or wood will provide a durable and reusable base [21].

Puppets: Puppets have a long-standing history in our culture, particularly in Eastern Europe and Asia where they have been employed to explain and pass on myths and legends [18]. Puppet stop motion animation simply refers to any animation that employs puppets. This puppet can be complex and have a built-in armature, or it can be a simple hand puppet.

Claymation (Clay Animation): Pioneered by Helena Smith Dayton around 1917, claymation is a form of animation that involves the construction and manipulation of characters, sets and props with plasticine. Plasticine is a common medium in stop motion due to its pliability and sturdiness. It can be used for simple animations and more complex productions with the addition of armatures [18].

Model and Object Animation: Though the name is rather broad, model and object animation refer to stop motion which is used in conjunction with live-action, such as the work of Ray Harryhausen, who will be discussed further in the history of stop motion [18].

Graphic Animation: Graphic animation uses flat, unpainted visual graphic materials (photographs, newspaper clippings, magazines, etc.), which are sometimes manipulated frame by frame to create movement. Other times, the graphics remain static, while the stop motion camera is panned to create movement on the screen [22].

Pixilation is a stop motion technique; live actors are used as a frame-by-frame subject in an animated film, by repeatedly posing while one or more frame is taken and changing pose slightly before the next frame or frames. The actor becomes a sort of living stop motion puppet. This technique is usually used as a way to blend live actors with animated ones in a movie. The examples of pixilation include *The Secret Adventures of Tom Thumb* and *Angry Kid* shorts [22].

Paint on Glass Animation: The oil paints are created on glass panels and dry slowly to create a feeling of movement. It is a rare but popular technology.

Seven award winning films produced by Russian artist Aleksander Pterov. It can be a drain on time and energy to learn these techniques [23].

Computer Animation: Computer animation is the process used to create animation digitally. The more general term is "computer-generated images [24]. 2D animation techniques depended on processing images, while 3D techniques usually build virtual worlds in which characters and objects move and interact. 3D animation can create images that look real to the viewer. Mayer and Moreno [25] state that animation is a form of pictorial presentation-a definition which also refers to computer-generated motion pictures showing associations between drawn figures. Things which correspond to this idea are motion, picture and simulation.

2D Animation: 2D animation shapes were created or edited on the computer using 2D raster graphics and 2D vector graphics [26]. This type of animation includes automated computerized versions of traditional animation techniques, interpolated morphing, onion skinning and interpolated rotoscoping [27, 28]. 2D animation has many applications, including flash animation, analog computers animation and Power Point animation. Cinemagraphs are still photographs in the form of an animated GIF file of which part is animated [16].

3D Animation: 3D animation is always computer generated, objects can be moved, changed and appear in a 3D space. Also, 3D animation is digitally designed and manipulated by an animator maker. The animator usually starts by creating a 3D polygon mesh to manipulate it. The network usually includes many heads connected by edges and faces, which give the appearance of model to a 3D object or 3D environment. Sometimes, the network is given an internal digital overhead structure called a motor that can control the network by weighting the heads. This process is called rigging and can be used in conjunction with keyframes to make a motion [29].

Mechanical Animation: Instead of robotics, machines can be moved using the mechanical animation technology. Instead of creating the original machine, creating these mechanical animations, allows the illustrator to understand how the machine works. These machines' functions are straightforward to explain by this type of animation technique [23, 30].

Multimedia: It is a widespread term that refers to using and integrating several different media such as (text, sound, graphics, animation, video and interactive

applications) to present content interactively to achieve one or more specific goals. Or it could be said that the term of multimedia refers to visual and audio materials into one common presentation that can be played in a computer, including CD ROM or digital video, internet, web technology, audio or video streaming and data projection system etc.

CONCLUSION

The animation film industry is considered one of the important, useful and promising industries in the Arab world and it must be taken care of, starting with education. This industry must be encouraged and supported by emerging talents. So the Arabic animation film industry needs much work and support from the governments to grow and reach the world stage.

REFERENCES

1. Ranzato, I., 2011. Manipulating the classics: Film dubbing as an extreme form of rewriting: Challenges for the 21st century: Dilemmas, ambiguities, directions. Roma: Adelphi Edizioni Publishers.
2. Yoon, H. and E.J. Malecki, 2009. Cartoon planet: Worlds of production and global production networks in the animation industry. *Industrial and Corporate Change*, 19: 239-271.
3. Thames, Hudson, 2016. A new history of animation. New York. Offest Printing Co. Ltd.
4. Hassan, M.M.G., 2013. Production of animation films in Arab-Islamic media. *Jordanian Journal of Arts*, 6: 219- 240.
5. Wells, P., 2002. Animation: Genre and authorship. London: Wallflower Press.
6. Lent, J.A. and X. Ying, 2013. Chinese animation: An historical and contemporary analysis. *J. Asian Pacific Communication*, 23(1): 19-40.
7. Donmez-Colin, G., 2006. Cinemas of the other: A personal journey with film-makers from the Middle East and Central Asia. Bristol: Intellect Books.
8. Bassiouney, R., 2014. Language and identity in modern Egypt. Edinburgh: Edinburgh University Press.
9. Alharbi, O. and E. Baines, 2015. Challenging barriers to the evolution of the Saudi animation industry life-cycle. *World Academy of Science, Engineering and Technology*.
10. Alrimawi, T., 2014. Issues of representation in Arab animation cinema: Practice, history and theory (Doctoral dissertation). Retrieved from Google Scholar. Loughborough University, UK.

11. Hoffer, T.W., 1981. *Animation, a Reference Guide*. Greenwood: Publishing Group.
12. Thomas, F. and O. Johnston, 1981. *Disney Animation-The Illusion of Life*, Abbeville Press, New York, USA.
13. Zeke, 2008. *A Quick History of Animation*. New York Film Academy. Retrieved from <https://www.nyfa.edu/student-resources/quick-history-animation>.
14. Beckman, Howard, 2003. *Animation: The Whole Story*. Allorth Press.
15. White, Tony, 2006. *Animation from Penciles to Pixels: Classical Techniues for the Digital Animator*. Milton Park: Taylor & Francis.
16. Andrew, Selby, 2013. *Animation*. Laurence King Publishing Ltd 361-373 City Road, London EC1V 1LR.
17. Selby, A., 2013. *Animation*. London: Laurence King.
18. Purves, B., 2008. *Stop Motion: Passion, Process and Performance*. Amsterdam: Else-vier/Focal.
19. Selby, A., 2009. *Animation in process*. United Kindom: Laurence King.
20. Shaw, Susannah, 2008. *Stop Motion: Craft Skills for Model Animation*. Second ed. Burlington, MA: Focal.
21. Laybourne, K., 1998. *The Animation Book: A Complete Guide to Animated Filmmaking-from Flip-books to Sound Cartoons to 3-D Animation*. New York: Three Rivers Press.
22. Pilling, J., 1997. *Society of animation studies (ed.). A Reader in Animation Studies*. Indiana University Press.
23. Serenko, Alexander, 2007. *Computers in Human Behavior" (PDF). The Development of an Instrument to Measure the Degree of Animation Predisposition of Agent Users.*, 23(1): 478-95.
24. Mayer, R.E. and R. Moreno, 2002. *Animation as an aid to multimedia learning*. *Educational Psychology Review*, 14(1): 87-99.
25. Masson, Terrence, 2007. *CG 101: A computer Graphics Industry Reference*. Unique and personal histories of early computer animation production, plus a comprehensive foundation of the industry for all reading levels. Williamstown, MA: Digital Fauxtography.
26. Sito, T., 2013. *Moving Innovation: A History of Computer Animation*. Massachusetts: MIT Press.
27. Priebe, K.A., 2006. *The Art of Stop Motion Animation*. Thompson Course Technology.
28. Lasseter, J., 1987. *Principles of Traditional Animation Applied to 3D Computer Animation*, SIGGRAPH '87 Proceedings of the 14th annual conference on Computer Graphics and Interactive Techniques, pp: 35-44, New York, NY, USA.
29. O'Keefe, M., 2014. *6 Major Innovations that Sprung from the Heads of Disney Imagineers*. Theme Park Tourist. Retrieved 9 March 2016.
30. Priebe, Ken, A., 2011. *The Advanced Art of Stop Motion Animation*. Boston, MA 02210, USA.