Utilization of Cinematographic Elements for Production of Educational Films

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ABSTRACT

Educational films are productions aiming to inform target audience about designated issues. Educational films are distributed via television, cinema, computers (CD, DVD) and Internet environment with technological developments. Films are produced by means of digital technologies. Despite the means for film presentation and distribution go through a change, the cinematography concept systemizing artistic and technical principles of film production has been continuing to exist as a valid assessment criterion for all films. Cinematographic agreements, which encompass precise organization of images and sounds for films, ensure conveying the message of productions. In this study, conventions that could be affective on preparation of educational films at the utilization environments of cinematographic principles and on sustaining interest on the productions have been scrutinized, and the usage purposes of these conventions in educational films have been discussed.

Keywords: cinema, cinematography, educational film, education, documentary

INTRODUCTION

Assessments have been made on possible utilizations of film technology in education field since cinematographic techniques started to be developed by using this technology that enables semantics generation. Films have been used for research and formal and informal education purposes. Today, distance learning methods are used via Internet environment. Cinematography exhibits the techniques for film production and message generation and continues its development and significance in informatics age as well.

Films and film production techniques are continuing to be preferred for educational processes owing to the visual quality they contribute to education field and educational opportunities without depending on class setting directly and mobile education means they provide today. Despite utilization of digital technologies in education field renders analog recording technologies and magnetic tapes unnecessary as a recording environment, the cinematography concept, consisting of all artistic and technical information for film production, still continues its existence.

1. The Cinematography Concept

Film production process is not composed of only recording the desired images by a camera and addition of them one after another by montage tools. Various images within film progress are added one after another within a certain order by means of montage and these can convey different meanings (Küçükerdoğan, 2014). Thus, educational films can reach their purposes systematically in their subject context. It is possible to present the elements to be taught in a planned manner only by montage, ordering and length determination of recordings.

Major functions of montage in the context of educational films can be listed as making selections from recordings, placement of plans most appropriately, enabling passages between plans, catching the rhythm, placement and application of different sound tapes in their places and production of a single tape by mixing sound tapes (Küçükerdoğan, 2014). Despite screening and recording concepts determine the most fundamental aspects of film technique, the major activity areas to attain the primary targets by the production process are the message that is planned to be conveyed, coding of this message according to the target audience, creation of scenarios, determination of appropriate actors, places and accessories for the created scenario. The duty of the

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director and cinematography director during film production should be "considering thoughts, moves, sensual expressions, tone and all other unexpressed forms of communication types and turn them into visual terms" (Brown, 2011). This duty which is defined as cinematography ensures addition of semantics and sub texts to the film when needed. Otherwise, films cannot go any further than recording of words and movements in front of a camera. A film can be assessed as a visual-audial composition that exists by the arrangement of various sequences and scenes, or in other words, by the placement of objects/materials which make up the images on the surface of a frame and curtain (Mükerrem, 2012). All processes that are considered during film production are assessed along with the cinematography concept including passages between shootings and arrangement of any type of visual-audial material used during production by also addressing their artistic and aesthetic aspects.

One of the primary purposes of cinematography is the creation of the environment in other words the story universe where the film story will be conveyed. The created universe determines how the audience will attach a meaning to the story and characters. Costumes and sounds in the environment and uttered words are all handled based on this universe.

Cinema is a visual-audial art. It has a unique language in addition to its technical tools. This art branch has attempted to generate its own language and terms for many years and today it has its own concepts. The fundamental concepts of cinema are frame, light and color, objective, moves, texture, introduction and perspective (Brown, 2011, p. 4). Frame is one of the tools of a cinematography director to direct audience's attention. The variables that need to be considered during framing are the characters that will be included within the frame, the shooting scale to display these characters and the positions of these objects and characters in regard to one another. All of these components change the created semantics. For instance, close-ups are preferred to show moods and reactions of actors to audience.

Light and color elements in a film are the factors making up film's ambience. Psychological impacts of colors have a special meaning. These properties

are determined according to cultures immensely (Foss, 2016). Light and color are visual tools providing additional semantical layers to the film story (Brown, 2011). The images watched in a film and arousing various emotions for audience are made of light. Lights shape articles and objects that are carried to the curtain (screen) (Mükerrem, 2012). A cinematography director can create the targeted scene by adjusting the light level of the scene. Light level, in turn, determines the contrast and colors that are to be sensed on the screen. The color element is used to support the content in cinema. The plot line must be directly related to the characters (Büker, 2010). The light element is used as natural as possible to provide realistic information about objects in productions with educational and documentary contents for certain. Audience can sense the dominating mood and emotions based on colors in the film. One of the general purposes of a composition designed for shootings is to manipulate visual components in films including tone and color harmony and shadow/light plays in an affective and planned manner (Mükerrem, 2012). Illuminated settings and bright colors are preferred to organize neutral atmospheres or entertaining and fun environments. Dark settings and pale colors are preferred in cinema during narrating the moments where qualm and tension dominate. It is possible to see the applications of partial illumination technique in horror, thriller and crime productions and mystery movies.

Film texture is also related with colors however the only element is not the color. Modification of image contrast and color intensity, filters, fog and smoke effects and digital effects that are created by computer enable texture generation in films (Brown, 2011). These effects can be generated during camera shootings or montage and post-production phases.

Selected focal length of objectives affects perspectives and framing. Objects that need to be seen in the frame in addition to whether these objects will be shown in their natural states or with their different properties are among the significant problems. It is possible to wish to modify reality due to the ambience that needs to be created in the production. In such cases, wide-angle objectives or objectives with an angle narrower than normal may be preferred. Focal length must expose the

director's attitude about the narrated story. Films that expose the audience to various focal lengths purposely and unwillingly do not have a style and tone (Foss, 2016). Objectives with a long focal length compress the space and objectives with a short focal length (wide-angle) disperse and twist it (Brown, 2011). Field depth effects are needed to show the framed object as independent from other objects. In this case, narrow-angle objectives in other words objectives with a long focal length should be used.

The motion phenomenon is an aspect of movies making them unique among other arts. Camera moves and motions of actors within the frame are used to convey a message to audience. Camera moves are very powerful to create a sense of being in the incident and the mood (Foss, 2016). Pan shots and zooming motions made by a camera can be used to introduce an area and thus to narrate the incident scene for audience. In addition, the width of the geography portrayed in the film, building height or magnificence can be shown to audience by using this and similar shooting techniques.

Introduction is the exposing or concealing ability of a camera. Introduction is generated with the selection of a frame and objective before anything else (Brown, 2011). Rather than conveying information on the film by an off-voice or with the actors' own words, carrying out this process by images is called introduction in cinema. The visual informative impact of cameras can be achieved by lighting and using other production tools.

Cameras are the eyes of audience. Images direct anything wondered in production or lead audience within the story. Film directors have to use camera angles in production to enable visualization of objects seen by a camera under a light that is as unobtrusive as possible (Foss, 2016). A view point is to convey camera images through the eyes of actors and it enables audience to view the film through the eyes of actors. View point-plans aim to draw audience inside the story (Brown, 2011). These shoots are called subjective-shoots or view point shoots and make audience think like the characters and feel like they are within the story.

The cinematography concept consists of all of these elements basically. A cinema experience of over one hundred years has detailed these elements and

enabled cinema to narrate stories in visual and audial levels with its unique language. The created language also has ensured utilization of elements including a symbolic language unique to literature and various metaphors and figure of speech. Hence, movies have gained a new art branch identity that is able to show audience not only what is seen but also what they evoke. All productions made in this field use the language of cinema whether for an artistic purpose or not. Utilization of cinematographic tools in movies to convey their messages should enable them to benefit best from the opportunities of this setting.

2. Educational Films and Their Usage

Educational films are used as visual-audial educational tools by teachers and material designers. A class consists of determination of an information subject in a film (in a digital setting) as an assisting class tool in school teaching and outside school teaching (Özön, 2008). When films are used for educational purposes, they can present occurrence of an incident in motion by using appropriate shooting techniques (Cubb, 1966). The time scale of events can be modified based on the subject to be taught by using various shooting techniques. Hence, rapidly-developing events can be presented realistically by speeding extensive changes in a limited time or presented slower and by drawing attention to details. These films are produced according to pedagogical principles generally and the age and knowledge level of audience (Özön, 2008). Narration elements such as camera angles, framing and light are selected in educational films for a presentation as clear as possible (Foss, 2016). Detailed images of even small objects can be obtained with the aid of cameras and macro objectives. Shoots of creatures can be made remotely by using tele objectives without intervention to their natural lives.

Shooting productions, which utilize educational dramas, by using different cameras and shooting scales can pave the way for students to learn subjects by enactments from life in a more interesting way, therefore, their knowledge can last longer. In addition to these opportunities, one of the most significant opportunity for learning is the ability to watch the recordings personally or as a group and repeating this as independent from time and location (Cubb, 1966).

Materials can be distributed by copying these recordings or providing them to various persons via Internet environment. Films that are produced by using digital technologies can be featured not only on television but on computers and any type of mobile devices.

Topics that seem ordinary can be presented in an interesting manner by using cinematographic techniques that are applied in educational films and details of the topic can be developed even further and presented to audience. It is now possible to follow up a process that is important for the teaching area with the aid of film technology. Situations that are significant for certain events can be repeated when necessary. Shooting these events or situations is possible as to reveal their significance by using framing techniques. It is possible to make a selection from shootings that are made by using montage techniques. These selections can be made to find a quality shooting and at the same time to teach the topic better.

Using the sound element in films can convey detailed information about the real setting where the events take place in documentary shootings. It is desired to narrate all sounds that can be heard in the event platform by the real sound concept (Foss, 2016). In addition, sounds provide a knowledge-conveying channel for narrating the subject in educational films which use drama and animation elements.

Sound effects can strengthen the realistic effect of production and these are certain sounds that can be distinguished by audience (Foss, 2016). Conveying the necessary information by a narrator in films as an off-voice is a frequently used method. Music elements can be used to strengthen the ambience-impact in addition to this voice (Cubb, 1966). The method of information conveying and explanations to students by teachers can be resorted in class settings where films are featured and when information cannot be conveyed by an off-voice. Graphic design elements included in educational films also function as a detailed information source to convey the message.

2.1. Usage Purposes of Educational Films

Educational films are used to help students better understand the topics expressed by the teacher orally or by graphs in a class setting. Films used in this field enable students access the explanations about concepts that they do not know. Moreover, different geographies or monuments located in these places can be shown to students in detail by using educational films. Films are among the most valuable educational materials when the relevant places cannot be visited.

Preparation stages and production processes of educational films are costly and require rigor. These constraints in the preparation stage make the adequate preliminary preparations more vital in a pedagogic sense to use these materials in a class setting.

Film subject and title must be determined primarily to designate films to be used for educational purposes based on the lesson where the material will be used. It must be settled whether the film will be used as a class material or an assisting material. Written materials providing explanations on the subject must be in hand among class materials assisting teaching. Since films are visual-audial materials, their suitability for presentation of the opportunities in class, the type of file where film file is coded and file size must be assessed before use. The suitability of educational films for students must be considered during their selection. This in turn requires that film content as well as the used terms and narration style must be appropriate for the target audience.

3. Using Cinematography for Preparation of Educational Films

Educational films and documentaries aim conveying information about their subjects to audience. "Explanatory, participant and observatory documentaries" included in Bill Nichols's classification" (Saunders, 2014, p. 38) resemble educational films in terms of observation of phenomena, conveying information on these, experiencing of the described situation or event at times by the narrator and the narration style. On the other hand, the key purpose of educational films that are used directly in educational settings is to support students to learn subjects in a visual-audial manner as an educational material. Based on these definitions, it is possible to remark that the cinematographic semantics of educational and documentary films are formed in conjunction with scientific and observational facts. Christian Metz has purported that "Cinematographic semantics is

always guided and never arbitrary" (Metz, 2012, p. 107). Rigor and planning during their preparation make them reliable educational materials.

The cinematography concept enables organization of visual-audial components in educational film production to ensure accurate conveying of messages in other words achievement of learning. Creation of an integrated work in terms of cinematographic sense is possible by forming a firm unity by the sound and image elements as to support one another. The image and sound elements operate as a unity to convey their messages to audience (Charles Callaway, 2005). The functioning of the image and sound elements in collaboration mandates stating the significance of these elements in narration. The elements including camera angles, stages designated for the work and light must be adjusted precisely.

Cinema has proven to be competent as a language during its historical progress. This does not correspond to a language phenomenon used by people to communicate with each other and developed according to specific grammar rules. The cinema language has developed within the framework of certain conventions and they encompass camera moves, shooting scales and passages between the frameworks. The passage effects and montage rhythm are "punctuation" signs of cinematography in a sense. Scenes have a function to elucidate or teach a certain subject and should draw audience inside the event and should be identified with the event (Küçükerdoğan, 2014). During the production of educational films, cinematographic elements that are planned to be taught to audience must be organized without any regard to the theme. At this point, the fictionalized scenes must not be short as to hinder comprehension.

The educators and director who create the content should designate the topic content and the way this content is to be visualized during the preparation of documentaries and educational films. Oral narration should be used in documentaries to convey the required information when the image element falls short, and they should consist of personal comments and questions (Foss, 2016). The utilization ways of visual elements should be defined at the beginning during the production of documentaries and educational films. The

cinematographer in the film team or the director who is assigned for this duty should evaluate the matters including the selection of visuals according to the subject, designation of camera angles, selection of effects for passages between the images, and synchronization of images and sounds. These evaluations establish how the subject can be told better by means of cinematography.

The major difference between educational films and other films is that educational films focus on teaching a specific topic. Therefore, audial elements can be more crucial at times. The off-voice and narrator have an important role to manipulate the subject content and to tell about some details in the image and emphasize them nevertheless the impact of the image element on narration and its cogency must be considered in cinema, which is a visual-audial field.

It is crucial that the director and cinematography director should have knowledge about the subject and receive the support of educators who create the content during the production process. Hence, continuous information exchange assists the art team including the director and cinematographer director to make "punctuation" in the video in order to adjust oral comments and the film rhythm and for the film to achieve its communicational targets (Charles Callaway, 2005). Despite designation of the rhythm of educational films is problematic, it should be assessed in terms of educational sciences as well.

Although educational films are featured in a class setting under the supervision of a teacher by stopping it at times and with detailed explanations, the production pace must be pre-adjusted based on the difficulty level of the subject. Narrating very complicated subjects and less difficult subjects within the same time length and with the same pace may lead to difficulties in clear comprehension of concepts. It will be best for the teaching processes to adjust the film pace accordingly instead of stopping the film flow constantly in a class setting. Another important difference of educational films from other cinema works is that oral parts in other words audial elements direct the image flow.

Educational films may be designed to give information about a specific work or phenomenon, and information flow has to be more extensive in

such productions. Accurate summarization of the subject and organization of the information on the subject must be elaborated during information conveying in terms of film length and target audience. Precise organization of information can pave the way for effective utilization of cinematography. More efficient results can be attained by using images and sounds cinematically rather than narrating the subject with a didactic style. Therefore, basic point of view about the subject and the narration language of the film should be settled before the production phase in collaboration with the art team.

When educators are assigned for scenario writing prior to production, assistance of the director or cinematography director must be received to produce an efficient narration language in terms of cinematography. When a scenarist is assigned for scenario writing during the film production process, on the other hand, technical support of educators must be obtained.

Educational films resemble the documentary narration in terms of their type. They are based on some fundamental principles including being simple and comprehensible, not to confuse audience and conveying information only with images when necessary (Charles Callaway, 2005). Another technique used in documentary films is making shootings first and then writing the text according to these shootings. Text writing must be elaborated during educational film production where film subject is established in advance with stringent boundaries. It is not possible for the program to achieve its purpose when shootings are not made based on the educational content. Thus, the text must be written prior to shootings. Despite the film story is defined in the scenario, it is inevitable that it goes through changes in the montage room (Küçükerdoğan, 2014).

The text can be adjusted following shootings depending on the shooting details and clarification of the style defined for the film without disregarding the educational content.

During shootings, attention must be shown to taking pictures to ensure a semantic integrity after setup. Detailed shootings and connection of sequences with appropriate shootings should ensure building a semantic integrity. Close-ups and

detailed shootings in cinema are a time frame taken from the flow of life (Mükerrem, 2012).

Close plans are used to identify details of persons, objects or location or to designate emotions about the framed subject rather than to establish a causality relationship. In addition, shootings must be gathered to achieve continuity. As a matter of fact, a continuous event is shot by dividing it into several shootings by the cinema technique and they are pieced together to give an impression of integrity and wholeness in conclusion. An illusion of movement unity, location unity and time unity is achieved (Foss, 2016). The flow should not be interrupted visually during production.

Passages that are to be used during production must help the integrity sensation. Passages between the parts can be emphasized in integration. Fade effects can be used for this purpose during part and time passages, and they do not generate a meaning based on adjacency, on the contrary, they function as a stop (Büker, 2010). Cut passages are the other cinematography punctuation. The final frame of a shooting is connected with the first frame of another shooting. These are passages determining the rhythm and meaning of images. According to the renowned film editor and sound designer Walter Murch, an ideal cut must be suitable to the emotion at that moment and it must advance the story (Küçükerdoğan, 2014). Directors resort to cuts to achieve continuity (Büker, 2010). They are the most fundamental passages of cinematography that is sensed naturally when made precisely.

Dissolve passages, on the other hand, tell about slower passages during shootings. Dissolve passages not only establish a tangible relationship between two images but also they illustrate that time has passed because they provide a very soft and slow passage (Büker, 2010). The duration of passages between shootings can be manipulated according to film rhythm.

Camera moves and framing are among the most significant elements of cinematography. Framing is deciding what the audience will see and recording this by a camera. Framing only a certain part of space can be evaluated as an artistic act (Mükerrem, 2012). Directors draw the attention of audience to a location, person or place of their selection by means of framing. Images about the subject are featured to audience by educational

films and hence data required for the learning action are sent.

Each scene during the production process of a film must be evaluated together with camera moves and frame composition. Visual composition of shootings is directly related with the visual-fictional solution of sequences that are arranged according to the dramatic composition suggested in the scenario (Mükerrem, 2012). Film subject affects the composition of shootings that are to be set in educational productions. The shooting planning and camera moves should be made to support the purpose of information gathering. Plans that include camera-moves back and forth on the same line must not be generated during shootings. Camera panning is also crucial for narration, and it can be used to make a connection between different areas to establish a scene integrity. Before proceeding to pan move, the first frame and final frame must be defined carefully and it must be made sure that the mentioned principles are achieved by this move. Movements of objects within a certain setting can be monitored by this fundamental camera move. Audience enters the featured event tangibly and comprehends the event well since there is continuity in panning shots (Büker, 2010). They ensure the audience to discover articles, decoration parts, natural objects, etc. that would contribute to development of any action (Mükerrem, 2012). Pan is also crucial for educational films to present the size and details of the objects that are planned to be framed. Another important move for cinematography is optic zoom. It can be used to draw attention to details that are not visible in the frame and to show them to audience. Zoom moves are described as artificial in terms of cinematography and they can inform audience about the position of an important detail within the frame.

The shooting term talks about the most fundamental unit of images, and about the moment when a camera enters into another camera and quits recording. They must be received uninterruptedly and by a single camera. Cameras can be positioned and stabled on a tripod in educational films similar to cinema and the shot objects can be zoomed by using proper tools and monitored without vibrations.

During the shooting planning, the information that is intended to be given and the meaning that is aimed to be established must be defined. Camera-moves are crucial for conveying this message. Zooms made on X and Y axes can be used to exhibit the spatial relationship between the objects in the images and to focus audience's attention to a different point (Charles Callaway, 2005).

The important thing for cinematography is the harmony of shootings with each other. It is more appropriate to continue the same shooting instead of replacing a shooting with another one in texts where the same information continues to be conveyed. The usage of new shootings may occur to convey new information. This information may be on the details of the object in the image. In this case, detailed images can be used.

Cinematography is the entirety of agreements made throughout the cinema history. It is inevitable that these agreements are benefited by educational productions. The important thing for such type of productions is the proper utilization of agreements that will ensure the productions to reach their purpose and according to their elucidative nature.

CONCLUSION

Educational films use the cinema technique. The fundamental principles of cinematography to create visual-audial works are visible in films featured in cinema, television, Internet environment or computers directly. Shooting angles, camera moves and passages between images used in films and factors that are considered during text writing are exhibited by benefiting agreements brought by the cinematography concept.

Educational films aim to enlighten students about the subject that they discuss within a certain period. They are similar to documentary films basically. It is crucial for educational films to convey information to audience, to continue this in an interesting manner and to focus their attention. Hence, images and sounds must be organized. Images must be shot to ensure a semantic integrity during the montage phase. Connecting detailed shootings and sequences by appropriate shootings will ensure building a semantic integrity. Furthermore, shootings must be pieced together to

achieve continuity. Flow in productions must not be interrupted visually.

Based on all of these purposes, the content and restrictions of the subject must be designated first to produce educational films. This study will be conducted by considering the length of productions to clarify the way texts are written. All required shootings must be made in the content of the first written text. Images are the fundamental elements of films. Information conveyed by sounds in educational films direct the film flow. Therefore, the text written for a film must be prepared prior to the shooting phase however it is possible to make adjustments on the text after shootings in the context of obtained shootings.

Despite the settings where films are featured or distributed change due to technological conditions, cinematography and agreements are valid criteria for all films. When educational films and documentaries are produced based on cinematographic principles, their prospect to catch and focus audience's attention and to achieve their purposes will improve since they will fulfill a series of aesthetic criteria.

REFERENCES

Brown, B. (2011). *Cinematography theory and Practice*. (S. Taylaner, Trans.) Istanbul: Hil Publishing.

Büker, S. (2010). *Creating Meaning in Cinema*. Istanbul: Hayalperest Publishing.

Charles Callaway, E. N. (2005). Automatic Cinematography and Multilingual NLG for Generating Video Documentaries. *Artificial Intelligence*, 57-89.

Cubb, J. C. (1966). *Films as a Teaching Aid*. In P. D. Groves, Film in Higher Education and Research: Proceedings of a Conference Held at the College of Advanced Technology, Birmingham, in September 1964 (p. 95). London: Pergamon Press Ltd.

Foss, B. (2016). *Narration Techques and Dramaturgy in Cinema and Television*. (M. K. Gerçeker, Trans.) Istanbul: Hayalperest Publishing.

Küçükerdoğan, B. (2014). *Eisenstein and Editing in Cinema*. Istanbul: Hayalperest Publishing.

Metz, C. (2012). *Experiments on Meaning in Cinema*. (O. Adanır, Trans.) Istanbul: Hayalperest Publishing.

Mükerrem, Z. (2012). *Ideas on Cinematography*. Istanbul: Ayrıntı Publishing.

Özön, N. (2008). *Introduction to the Art of Cinema*. Istanbul: Agora Library.

Saunders, D. (2014). *Documentary*. (A. N. Kanıyaş, Trans.) Istanbul: Kolektif Books.