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Transposition of Workshop Negative unto the Ghanaian Television Screen using Virtual Sets

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Abstract

For many years now, there has been an increase in the use of virtual sets in theatre, film and television. This paper proposes an alternative way in redesigning stage sets for a theatrical performance that can be viewed on television. It employs the creation of computer-simulated scenery which is made possible with computer-aided design (CAD) application. Although, virtual sets is popular in the western world, it has received less attention in Ghana. The paper employs a qualitative approach which is descriptive and explanatory in nature. Data collected enable to analyse the virtual set created. It is noted that virtual sets add another form of creating illusionistic scenery, aesthetics with details and accuracy. It became known that such technology can be used by integrating theatre, film or television. Also, this technology can be executed either "live" or pre-recorded performances. The paper concludes that virtual sets have become an alternative for scenographers in creating scenery for performance, apart from the conventional methods. It suggests that the use of computer-aided design (CAD) softwares by scenographers would expose them to various uses of several computer design applications to be able to survive in the technological epoch.

Keywords: virtual set, television, theatre, computer-aided design (CAD), scenography

Introduction

The term *Virtual* is used in computer technology for many decades. According to the *American Heritage Dictionary of English Language* (2000), the word in this sense applies to things simulated or replicated by the computer. In other words, it also refers to things that portray the real correspondent. For this reason, the term virtual set employed as a technology employed in the field of theatre, film and television refers to the use of computer design software in generating a background or scenery that is superimposed against actors. It also allows you to place a character in a computer-generated environment either "live" performance or pre-recorded (Wojdala, 1998).

Virtual set has been experimented by some theatre precursors in performance since the early nineteenth century which is widely used in television production today. It is in the ideas of artists including Antoine Artaud, Edward Gordon Craig, Erwin Piscator, Adolphe Appia, Edward Gordon Craig (and to a limited degree Bertolt Brecht in their combined work on Epic Theatre), Josef Svoboda, and the Bauhaus and Futurists movements that we can see the strongest connections between today's use of digital media, broadcast technology and filmic projections. According to Appia (1958), theatre aesthetician relates virtual world of art to that of creating illusionistic environs. He further emphasizes on how virtual reality releases unending possibilities to the artist's creative work. Similarly, video, satellites, fax machines and other communications equipment were also used as methods in creating art and performance. Artists like John Cage and the group known as the *Fluxus* also contributed in what is considered as art and technology. Owen (1998), presents that these *Fluxus*, as a group of creative people who saw the powerful potential within art to confront social and practical norms to change the very practices of life. This was enabled by the use of technology and communication which has ended up in today's perception of virtual set design. To date, the influence of technology in the performance art is becoming more sophisticated due to the digital age and other innovations. Thus, the scenic designer, lighting designer, sound and costume designer's work are affected by computer technology entirely. For example, the advent of digital theatre which utilizes the motion picture projection as scenic element, digital video, animated sets and characters in "live" performances. In most cases, they combine many of these elements together in one transformative wire event. That is simply employing the mixed media approach in the productions. Typical example of performances that employed digital means are in the likes of *RUR*, *Midsummer Night Dream* and *The Magic flute.* Digital theatre now employs the use of virtual sets whereby various digital backgrounds are used instead

of real settings in theatrical performance. In the opinion of Dixon (2007), "digital performances use a wide range of new technologies – from experiments in virtual reality, to software packages employed for set design or dance performance, to live streaming webcast performances, to performance collaboration online" (p. 10). They derive from the fields of theatre, performance art, dance and gallery. In view, the integration of technology and traditional theatre performance, Auslander (1999), argues that as an audience, on film and television views a "live" performance it becomes unserviceable when the technical support of the performance is dismantled. Ausluander sees a form of mediatization in involving the performance space, actor and audience. For that reason, Vinary., Chatuverdi & Merhotra (2013) confirms that the introduction of technology into theatre have changed the experience of theatre viewing of an audience.

Zettl (2009) explains virtual sets as computer-generated that is replaced against a green or blue background behind an actor. Thus, the main idea behind digital or virtual set is all illusion and the art of creating alternative realistic backgrounds in the performance space. Therefore, the notion behind constructing physical environment makes way for illusionistic settings. In recent times the introduction of digital pictures, virtual spaces and other computer-generated images are used to create illusionistic environments. Parker and Wolf (2003), emphasizes that, theatrical design models as well set designs are now computer-generated. They refer to the use of several computer-aided design software applications in likes of ***COREL DRAW, AUTOCAD, VECTOR WORKS*** and ***ADOBE PHOTOSHOP*** to create sketches and other set models. Parker and Wolf (2003), further states that: "scanners and digital cameras allow the designer to transfer images directly unto the computer. Because these images can be manipulated in many ways to create a design, the computer makes it easy to explore a variety of ideas" (p. 76). Much commendations to Josef Svoboda, the Czech scenic designer, who in his outstanding work, titled *laterna magika,* blended the "live" theatre with projections and film techniques. Svoboda in this attempt used the mixed media approach to create illusion and realistic representation of life enabled by technology. The *laterna magika* became, in effect, a new, hybrid medium, the potential force and expressiveness. Thus, he personally believes that technology really plays a vital role in modern scenography. Burian (1977), expresses some of Svoboda's thoughts as the designer to desist from being a mere decorator but to able to create three-dimensional spaces that aids the performance and prevent unnecessary criticism.

Josef Svoboda further explains that, the scenography of every performance must form part of the whole set design execution. Howard (2009), explain scenography as the artistic creation of any space. He further posits scenography as the way of visually liberating the text and the story behind any play or drama, thus by creating a world in which the eyes see what the ears do not hear. That is scenography extends and enriches audience experience of performance through background images which operate in conjunction with, but in different ways from, other aspects of space. In that perspective, the scenography becomes incomplete until the actors to preform and interact with the audience. Svoboda, upon his greatest contribution to modern scenography, later pursued towards television and video. He joins in the many artists who explores with live versus mediated performance from a live art and video (plastic art). In reference to the situation in Ghana, Svoboda's opinion above is still a predicament among some set and stage designers. They design fantastic settings which does not tell the story, meanwhile audience are supposed to make meanings from the backgrounds the see in relation to the TV drama or stage plays performed.

Moreover, virtual set design in television broadcast and filmmaking is widely used as technology advances globally. This affects the set or scenic designer's contribution concerning the creation of environment which is becoming more challenging and innovating. In the Ghana, the set designer creates computer generated sets for news broadcast, commercials or drama shows. In addition, some of these television stations in Ghana employ the chroma key technique which is a conventional method used in the weather forecast presentation and other discussion shows. For instance, *Ghana Television* have been using the technique in her weather forecast presentation for many years now. Currently, *GH 1 TV, Atinka TV, Adom TV and VISAT I,* and other entertainment television network stations in Accra employs the similar approach in their progrmmes. Viewers can now enjoy further aesthetics, creative design, novelty and producers spend less money on production cost. Millerson (1997), also adds that "currently therefore as cost continues to rise, there is increasing interest in further approach, in which backgrounds are created partially or entirely using electronic effects" (p. 176). Thus, due to the recent recession globally, the television media has employed such electronic effects to reduce cost in productions. He further acknowledges how the technique produces a mind-blowing effect to the audience. This really offers the Designer and the Director important creative design opportunities with great practical advantages.

Besides, apart from the director's role, scenic designers play a responsibility in the use of electronic or computer-generated backgrounds for productions. According to the article, *Illusionistic Environment - Digital Spaces*, Vogiatzaki-KruKowski and Santorineos (2011) confirms that scenography in the digital era have switched from immovable backgrounds to imaginary worlds that can evolve in time and space. It presents unbelievable experiences to the audience that were not available in time past. It is noted that digital scenography has thrown more challenge to designers in defining the three dimensional space, either in theatre, television or film scenic design as well.

Hence, as many Ghanaian directors and playwrights aim to revive the viewing of theatre and television drama, scenographers are been confronted to experiment with several methods to create various fantastic environments. Therefore, the idea of capturing dramatic performance using virtual set technology to be aired on our Ghanaian television becomes an option. Obviously, the television screen is a two-dimensional space and therefore every performance transmitted must have three-dimensional scenic designs to create an illusion of reality. Virtual set will sustain the audience attention as they always look out for innovations. Also, the use of construction materials like plywood, fabric as background scenery is becoming a cliché and therefore digital or electronic scenery can be an alternative to create more realistic environment. Theatrical drama will now be shot and edited in a television studio for the Ghanaian audience to increase the productions of drama on our local screens.

This paper is based on the author's Master of Fine Arts thesis titled *Virtual Set Design: The use of Computer Aided Design in Redesigning Stage Sets for the Ghanaian Television* in 2012. It therefore explores an alternative way in designing theatre sets, using digital backgrounds for the television screen. As a result, it experimented with the use of computer-aided design software for creating inciting environments for television. Again, the significance of the project added up to knowledge to design professionals in employing the technique in both theatre and television locally. On the other hand, several theatre performances be it dance drama, musical, or choreography can be shot in the TV studio by using virtual set design other than physical environments for other aesthetic purposes.

2. Method and Procedures

The main aim of this research project was to create an alternative scenic background in a theatrical play, using a virtual set approach for Ghanaian television. The virtual nature of the project was to provide set or scenic designers in Ghana another form of redesigning background and foregrounds for a performance using computer-aided design applications.

Therefore, there was the need to adapt the play, *Workshop Negative* for the television medium. Due to the transposition of the play into the television medium, the approach followed the main television production processes; such as pre-production, production and post-production. The pre-production stage formed the selection of play, design concept, design process, working drawings, three-dimensional computer renderings and scenic design analysis. The other aspect such as production stage constituted the actual shooting procedure which employed the conventional "green screen" technique, making it possible to superimpose the computer modeled background on post-production. The final stage, that is the post-production, involved the video editing and compositing.

1.1 Research Approach

The research approach was largely qualitative, descriptive and explanatory in nature. Therefore, processes in achieving the technique and motivation behind the play's scenic design guided the data collected. It adapted two acts of the Zimbabwean play titled *Workshop Negative* and was staged in the TV studio and performed against a green background and foreground floor. Later on, the green background was replaced with a virtual setting designed with the aid of computer. The main reason is to illustrate that such technique can also be an alternative employed in creating spectacular sets for performances. Therefore, this required adapting the play *Workshop Negative* in the form of TV drama. The process involved the pre-production, production and post-production stages.

1.2 Pre-Production

Synopsis

According to Plastow (2004), as written in *Africa Theatre: Southern African* the synopsis is as follows:

> *Workshop Negative* looks at the situation of two workers, the black Zuluboy and the white Ray Graham, both of whom are employed in the workshop of an apparently socialist MP. Initially the men view each other as the enemy, since they fought on the opposite sides in the liberation struggle. But we rapidly come to see that it is the hypocritical MP, mouthing socialism while [practising] the most oppressive capitalism, who is the real enemy in independent Zimbabwe (p. 111).

Theme

Class, Racial Issues, Power and Corruption

Genre

Social Satirical Drama

Transposition

Concerning the text of the play, the Director suggested we adapt the play *faithfully* to the television medium. Linden (1977), expresses his view on Faithful Adaptation as:

> A director can change the plot of a novel, he can eliminate certain characters and scenes, and can include scenes not included in the novel without violating it. But he cannot seriously violate the theme novel, and one thing he must be able to translate into his new medium is its tone. If the tone [of the] work is lost, the work is lost; but the tone of the novel must be rendered in an aural / visual patterning instead of by the use descriptive dialogue or other narrative device. (p. 163)

Linden's notion behind this kind of adaptation made obvious that, the tone and genre of the play should not be missed, despite the change in camera shots and settings. Therefore, the songs in the play were recited as poems rather than singing the lyrics. The other modification was the elimination of the *illizwe* song at the beginning of act two. This was due to the staging of the play in another culture and environment which posed difficulty in learning of the song. In collaboration with the director, the script was converted into a television screenplay to suit the medium of expression.

Period/Time

Cont Mhalanga wrote the play during the 20th century after Zimbabwe attained independence. It is therefore considered to be one of Zimbabwean important post-independent plays. According to Plastow, in her paper, *Introduction in Cont Mhlanga's Workshop Negative* in Banham, the play was first staged in Bulawayo, Zimbabwe, in 1987. The play makes various references to time of day which is set during the day.

Place/Locale

Most of the action takes place in a metal workshop. A list of the scene descriptions for the two acts is as follows:

Act 1 –

The action takes place in a tool making workshop which could be in any part of the country five years after independence. In this workshop we find Ray, a thirty – year – old white Zimbabwean at work. The song *Tsotsoloza* is heard in the background (Plastow, 2004).

Act 2 – All the characters, Mkhize, Ray and Zuluboy, move out of character, Ray is singing the llizwe (Plastow, 2004).

In the design process movable and immovable props were used. The following list depicts the props list:

Physical Props

Working Bench, Mallet, Saw, Chisel, Metal Rod, Mug, Five Dollar Currency Note (Zimbabwean Dollar), Pieces of metal plates, Chair, Zim Beer Bottle, Beer Mug, Tray and Cutting Machine

1.3 Design Conceptualization

Although, the project demanded my role as a scenographer, to create a digital background for a two acts play, I approached the scene design by reading the script thoroughly. Due to the play's transposition to the television screen, I had to work with a Director who was quite familiar in directing for theatre and television or film. An initial meeting was organized with all members of the television production at the National Film and Television Institute (NAFTI), Accra. This involved the lighting designer, director of photography, lighting camera operators, sound designer, costume designer, make-up artist, video editor and the director. The meeting was very vital to generate several ideas to fulfill the project's aim. Fortunately, we came up with an interesting conceptual approach to the script considering the virtual nature of the project. The decision was to treat the scenic style in the form of suggestive realism as well as symbolic in nature. Owing to the play's satirical genre, earth colours such yellows, browns and ochres were employed as likened to most comedy shows that dealt with serious issues.

However, looking at the 20th century setting of the play, data collected include reference pictures such as building, stamps, postcards that depicted some of the Zimbabwean architectural style in that era. The visuals presented some ideas concerning the scenic design style. According to history, the Zimbabweans had the British as their colonizers, so most of the buildings in Zimbabwe had their characteristics and architectural styles. In this regard, twentieth Century buildings in Zimbabwe incorporated many arches, bricks, exits, entrances, domes and columns. Such styles were influences from their British colonizers. Therefore, bricks, cut-outs and some geometric shapes, columns were inculcated into the scenic design.

Moreover, another vital aspect of my design concept dwelt on the symbolic nature of the play. Upon critical look at the play, the playwright used the metal workshop to symbolize the country Zimbabwe. Thus, Mkhize represented the government ruling at that time and then Zuluboy signifying the Black Nationalist. Thus, in designing a character defined-set, the colours incorporated in the set symbolized the country and other racial issues in the play. This is quite obvious when one takes a critical look at the Zimbabwean flag as compared to the scene design. The national flag has seven equal horizontal bands of green, yellow, red, black and green. The yellow refers to the mineral wealth; white refers to the peace and honest, red refers to the bloodshed to achieve independence, black represents the native and green the agriculture of Zimbabwean. Below is a picture of the Zimbabwean national flag as shown in figure 1.

Fig. 1: National Flag of Zimbabwe (Source - Google Images)

Other Zimbabwean traditional building wall design formed the aspect of the decoration as shown below in figure 2-3.

Fig. 2: Zimbabwean Fabric (Source – Google Images)

Fig. 3: Traditional building design - Zimbabwe

Lastly, earth colours were used to represent the social and comical issues the play addressed. Therefore, the colour scheme which consisted of the browns, the dark tan and greys were used to give to set design a form and shape.

1.4 Design Process

After several production meetings with the Director of the theatrical play, Director of Photography and Lighting Designer, my next step was to create various renderings for the scene design which implemented the concept. I realized that creating a unit set with several doorways best suited the character's actions. The form of the set design had a three-sided wall design arrangement of *flats*. The *flats* mentioned over here refer to the physical walls that formed the set design. I proceeded with my thumbnail sketches until I finally settled on the design as shown in figure 4a-4b.

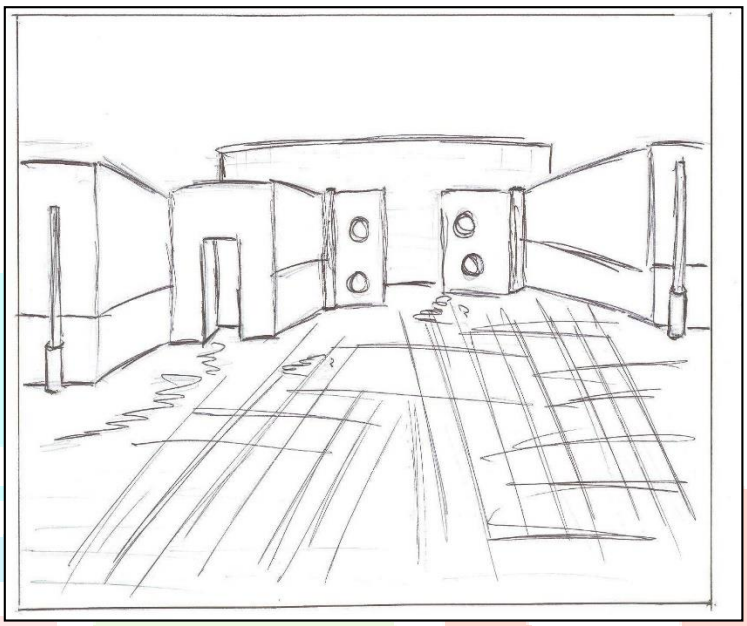

Fig. 4a: Thumbnail sketch of *Workshop Negative*

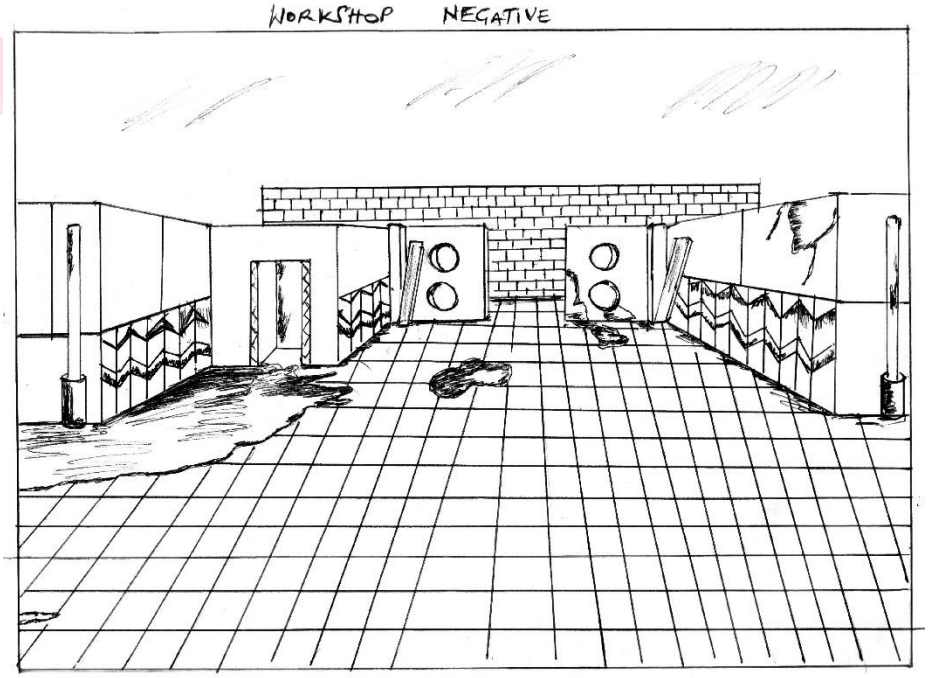

Fig. 4b: Sample sketch of *Workshop Negative*

The set consisted of several *jogs* which helped in creating perspective as well as a three-dimensional scenery. The *jogs* included the one foot and six inches flats as found in most stock scenery shops. Owing to perspective settings, the *double wall* effect formed the width of the walls making it solid and adding depth.

I worked on the floor plan and elevation which served as the basis for the final computer modeled work and rendering. The floor plan was used as a guide or floor plan marks in shooting against the green screen. The size of the studio was considered that is 47feet by 26 feet which enabled in drawing the blueprint for the set.

Upon refining the 1/4 inch: 1foot scale for the floor plan and elevation, the construction was done with specific measures according to my design. This is as shown in figure 8-9.

Floor Plan

The television floor plan sheet depicts gridlines which serves as a guide for creating the floor plan and enabling the lighting designer to set the lighting design and also the sound technician in hanging the microphones. This floor plan represents the size of the studio in the physical sense which is 47 feet by 26 feet in size. It also constitutes the entire scenery for *Workshop Negative* as seen in the birds-eye view which is drawn to scale. Other elements such the movable and immovable props are indicated on the television floor plan sheet.

Despite the virtual nature of the project, all these were done to facilitate good compositing when superimposing the virtual set during post-production. It also ensured for accuracy in the final design output. The elevation depicted below is the frontal view of the scenery to the same scale as the floor plan. It therefore shows the drawings of vertical planes such as entrances and exits**.**

Fig. 5: Reduced scan copy of 1/4": 1' - 0" scale elevation for *Workshop Negative*

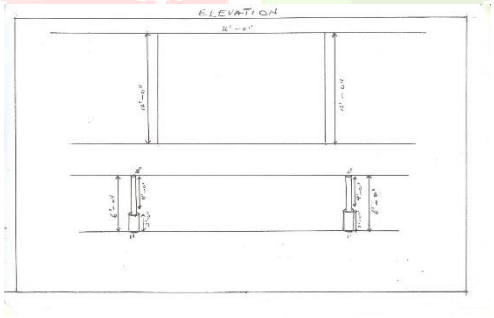

Fig. 11b: Reduced scan copy of 1/4"

: 1' - 0" scale elevation for *Worksho*

3.6 Developing the three-dimensional Model (3D-Modelling)

The whole development of the three-dimensional model for the project was employed with the CAD software ***CINEMA 4D R 10***. This three-dimensional software application software worked in a virtual space dimension which made two-dimensional drawn objects look automatically three-dimensional. Using previous manual rendering shown

in figure 8-10, as basis of inspiration, an approximation of the said designs was rendered virtually employing the various tools in the menu bar of the ***CINEMA 4D R 10*** software to create basic shapes.

Note: Sticking strictly to measurement as shown in the manual thumbnail sketches, plan and elevation can be problematic because exact measurements can be restrictive during the post-production stage of compositing. The following depicts the interface of the *CINEMA 4D R 10* software.

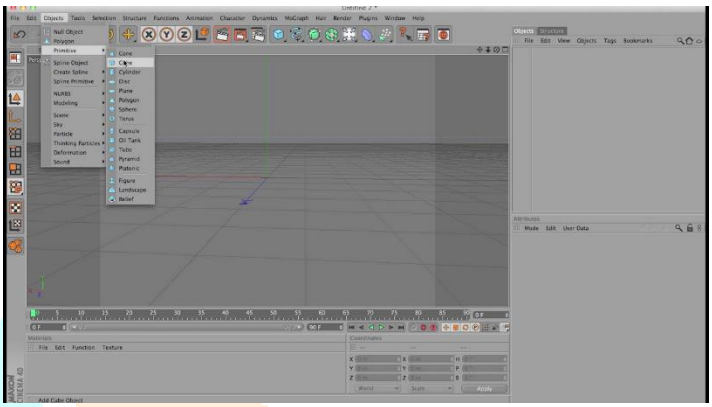

Fig. 6: *CINEMA 4D VERSION 10* Interface

In building of the sets virtually, the arrangement of basic shapes such as square, cubes, spheres, rectangles came in handy. Thus, in transferring what was on the floor plan or blue print, I used mostly cubes to create the simulated flats as shown below in figure 11-14:

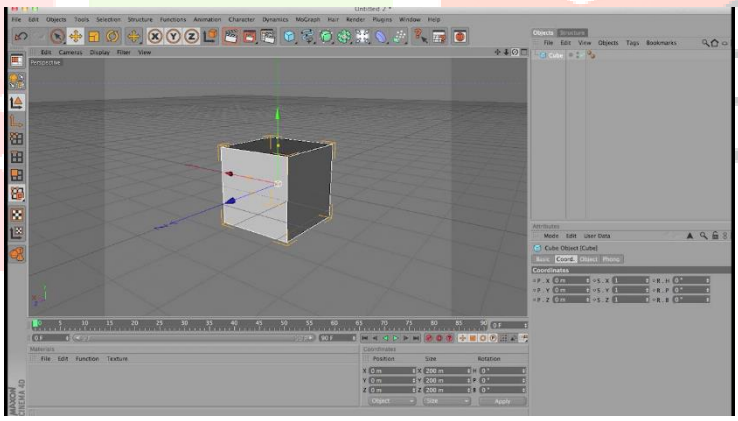

Fig. 7: Normal cube in three-dimensional view

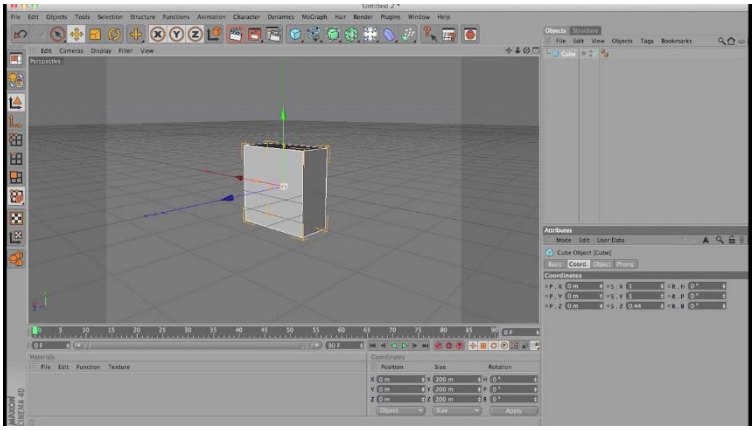

Fig. 8: Normal cube in a compressed form

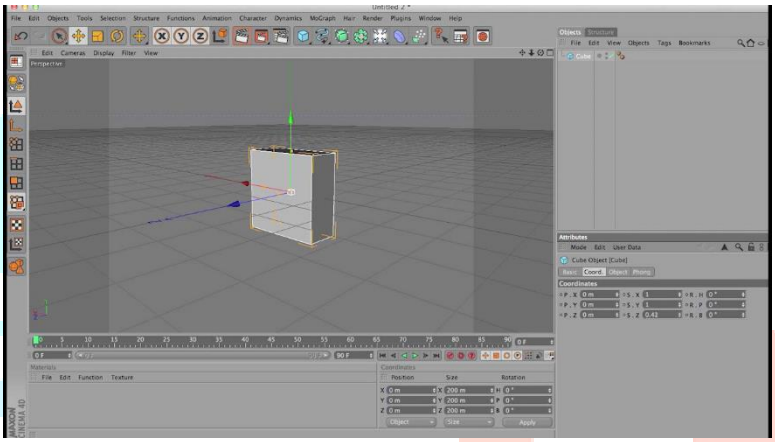

Fig. 9: Cube compressed into a simulated flat

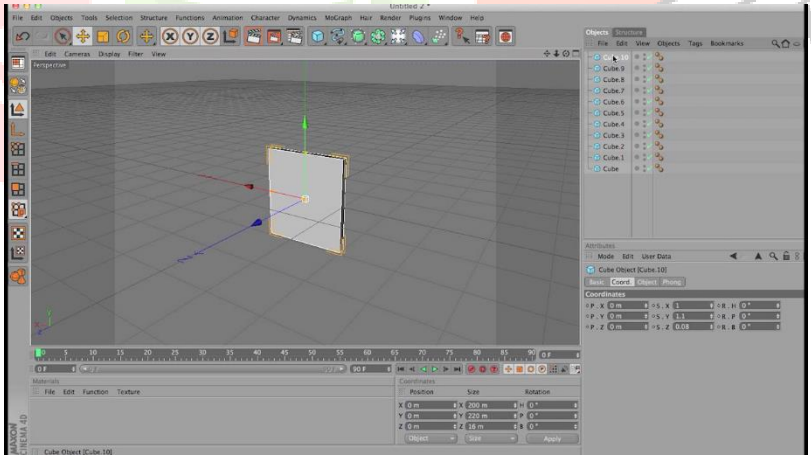

Fig. 10: Simulated flat

Therefore, changes were made to attributes of the cube in the attribute window. After getting the regular simulated flat, several duplicates were produced as shown in figure 11 were made to represent the various individual simulated flats.

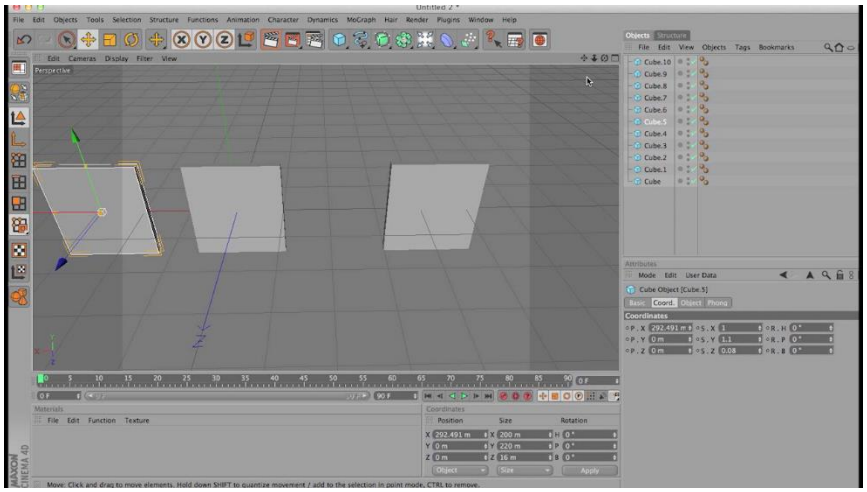

Fig. 11: Duplication of flats

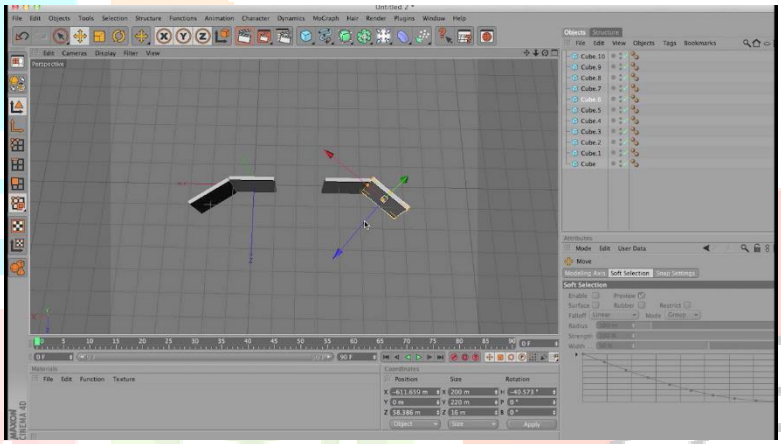

Fig. 12: Positioning flats at the wings

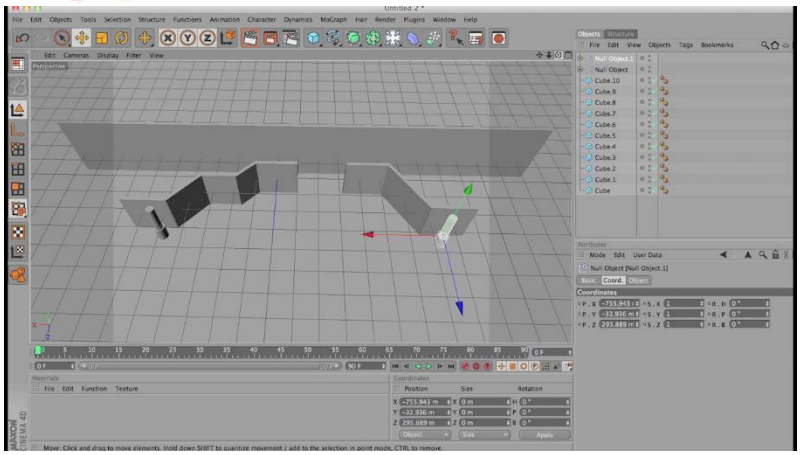

Fig. 13: Flats positioned virtually according to the floor plan

These steps enabled the creation of the three-wall set finally with cylindrical pillars at the both ends. Due to the entrance and exits for actor's, I included a brick wall that served as a backing.

However, all the objects were made editable by changing them from object to the polygon mode. This made the objects easily breakable with other additional properties using the polygon tool. It also enabled me to create my cut-outs which gave a perspective look and the entrance and exits using the knife tool. This is shown in figure 14:

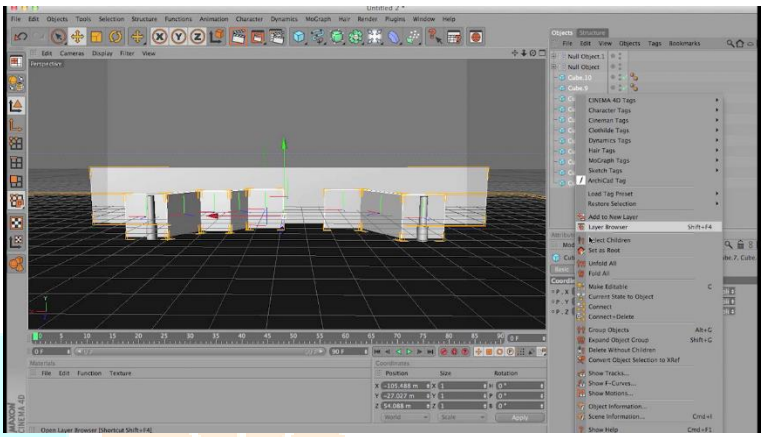

Fig. 14: Objects made editable

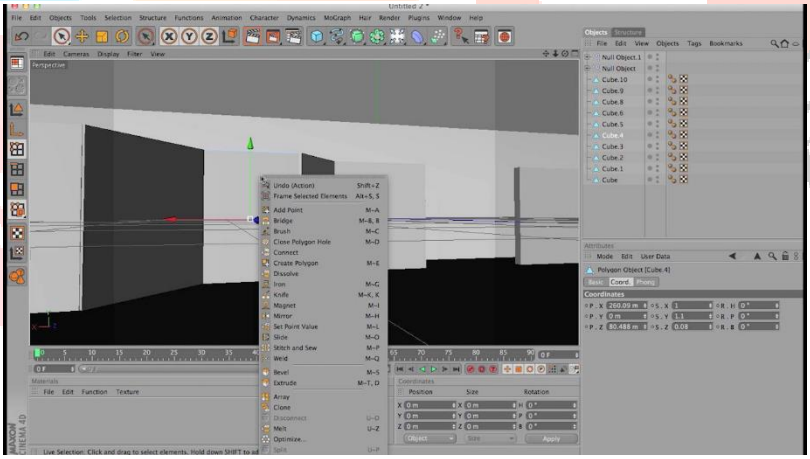

Fig. 15: Creating the doorway

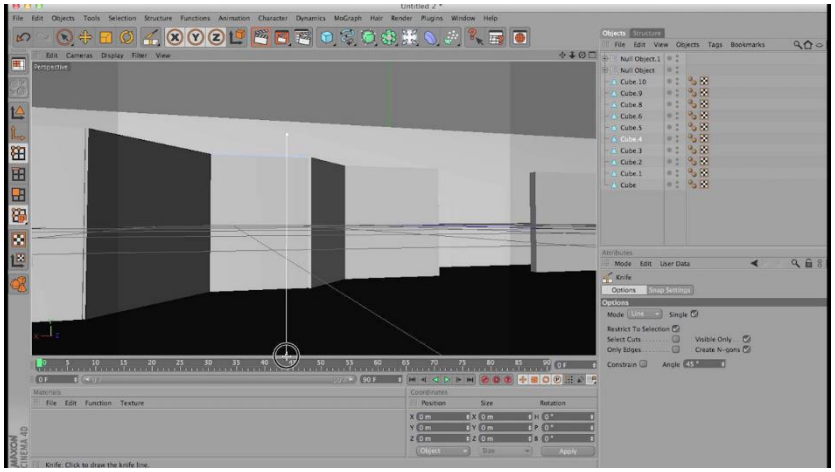

Fig. 16: Knife tool used in creating the doorway

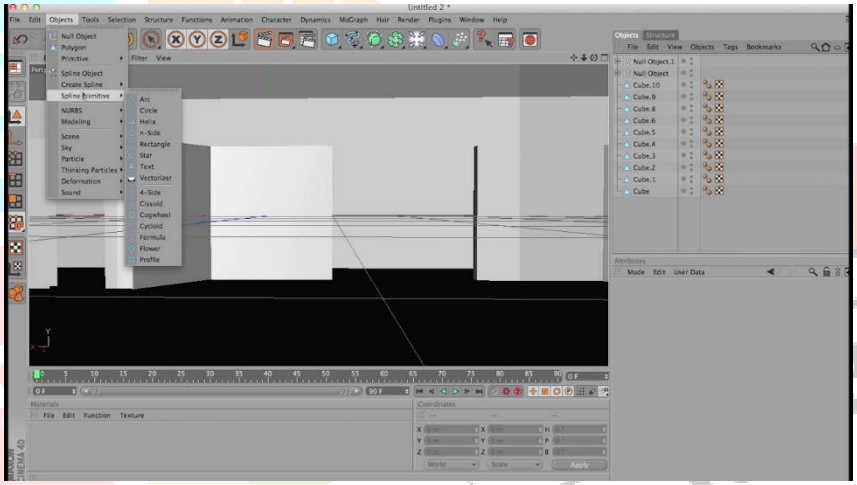

Fig. 17: Cutting out the entrance

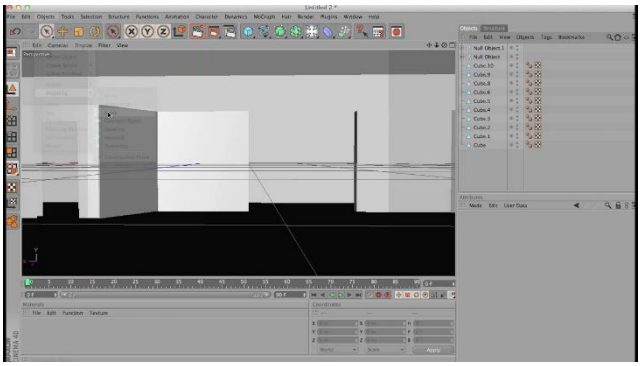

Fig. 18: Entrance created

After creating the entrance and exits, I advanced on with the design of the cut-outs on the walls. This was made possible with the Boole tool to subtract the shape from the solid form. The sphere shape helped this action by clicking on it and pointing at the desired place and dragging. (Fig. 19-21)

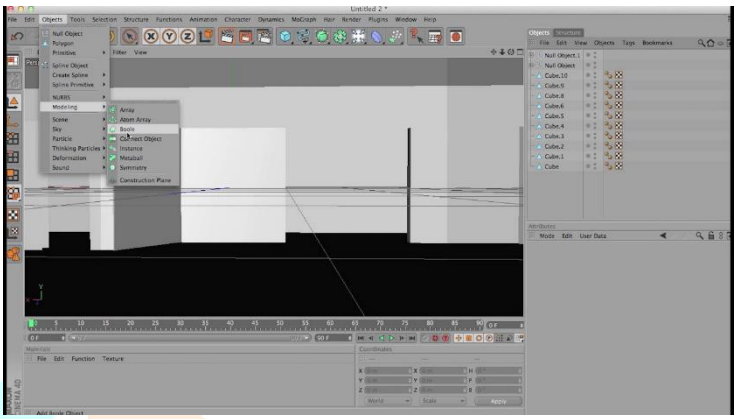

Fig. 19: Selecting the Boole tool

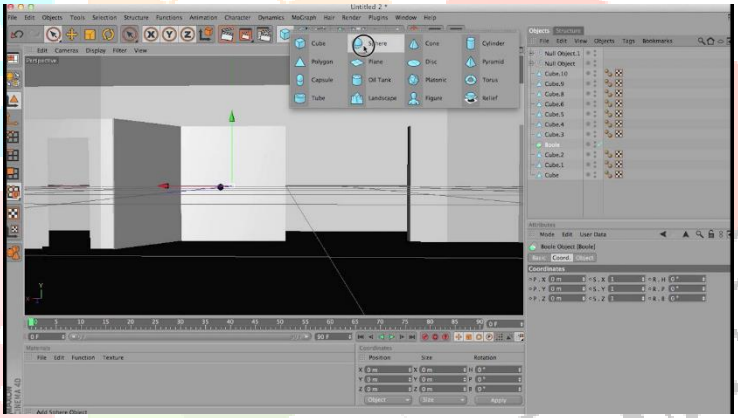

Fig. 20: Selecting the spherical shape

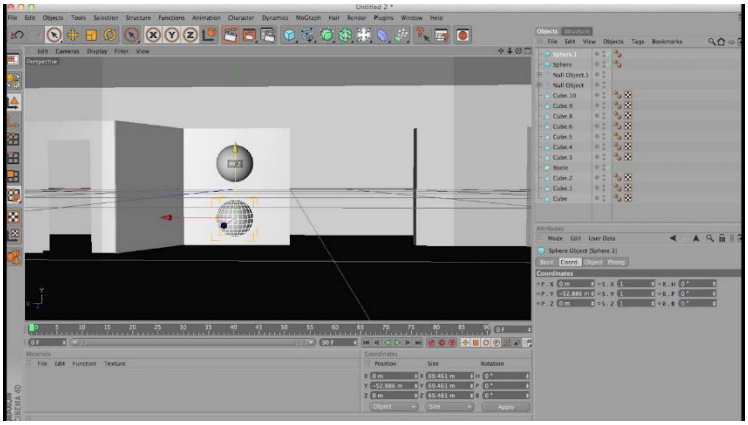

Fig. 21: Boole tool creating spherical shapes in the wall

The same process was repeated at the other side of the frontal walls to achieve a symmetrical design.

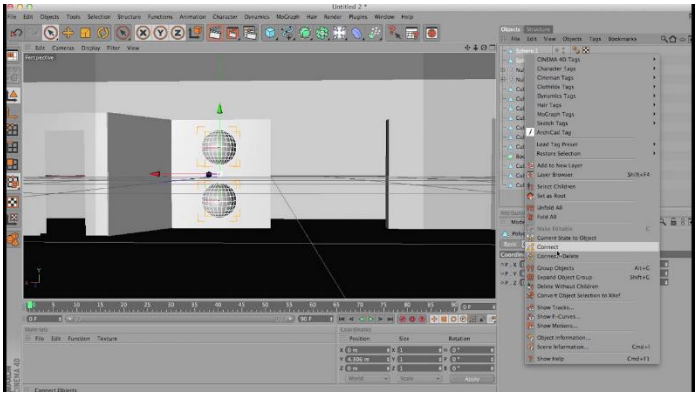

Fig. 22: creating the spherical shapes on the stage left

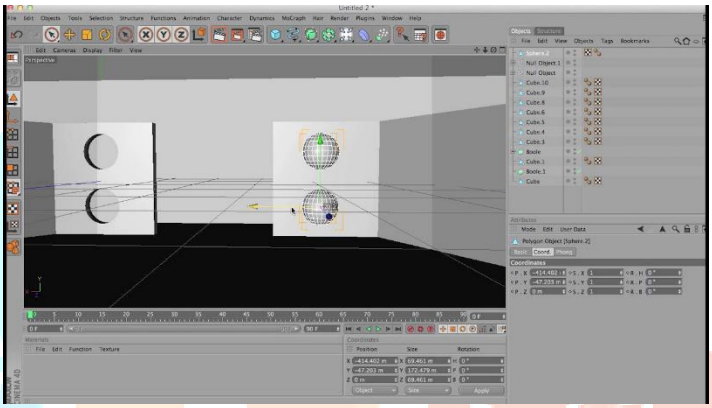

Fig. 23: Creating the spherical shapes on the stage right

Lighting the Set Virtually

Another vital part of the design was the lighting aspect, which illuminates the virtual set design. For this reason, I used eight spot lights and two area lights. As shown below, three spot lights were placed in a 45 degrees and another three with the same angle facing the middle part of the part. Other three lights were placed on the eye-level, thus 90 degrees' angle. The set manipulations of the source and angles of lights to create dramatic illusionistic effects and moods are shown in figure 24-30.

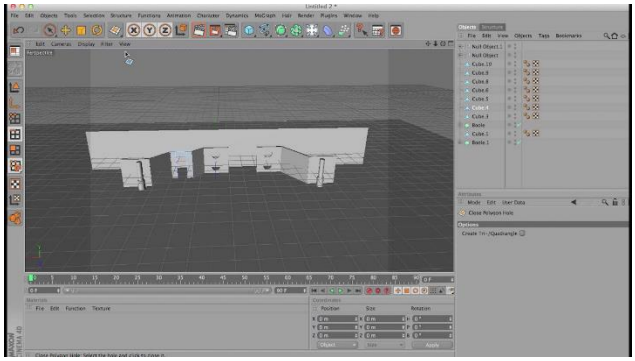

Fig. 24: Virtual Lighting 1

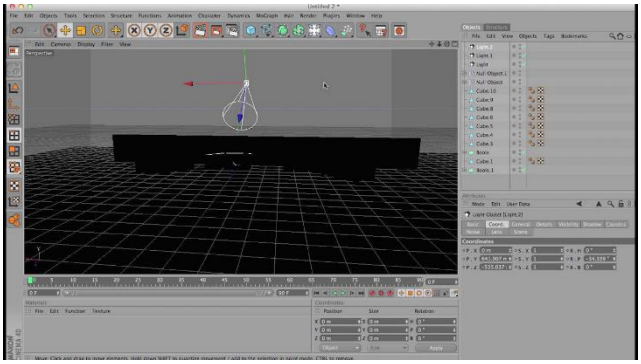

Fig. 25: Virtual Lighting 2

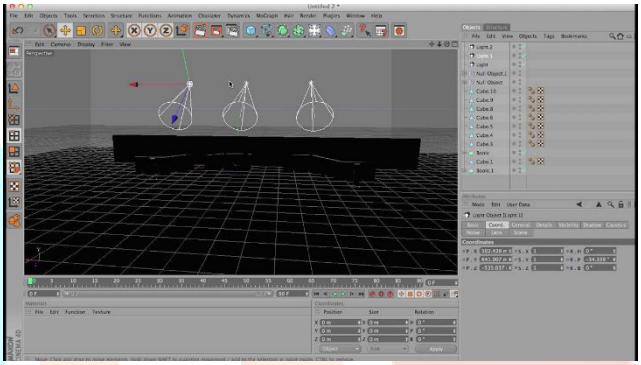

Fig. 26: Virtual Lighting 3

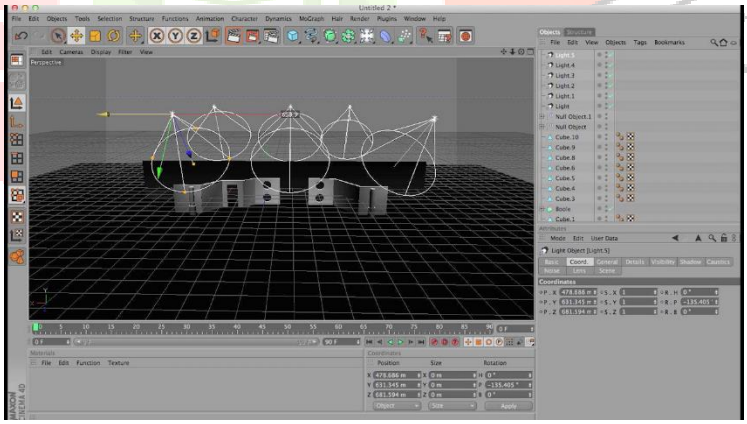

Fig. 27: Virtual Lighting 4

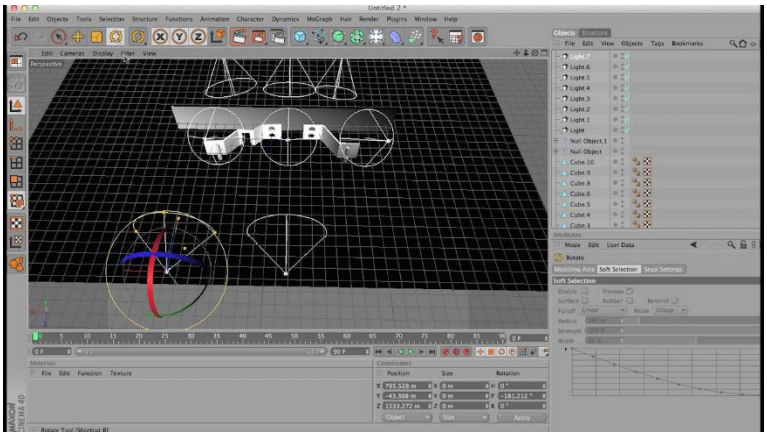

Fig. 28: Virtual Lighting 5

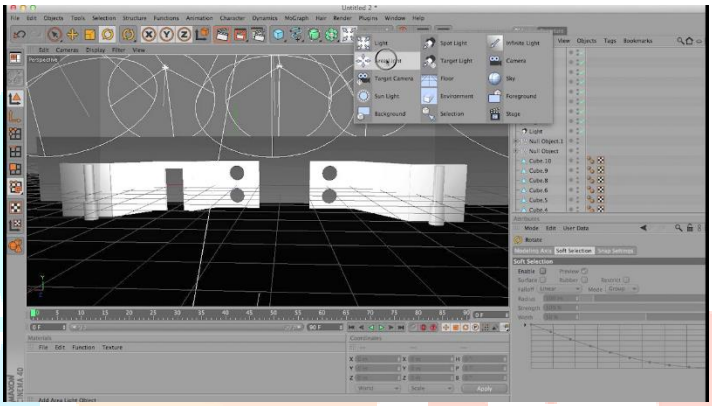

Fig. 29: Virtual Lighting 6

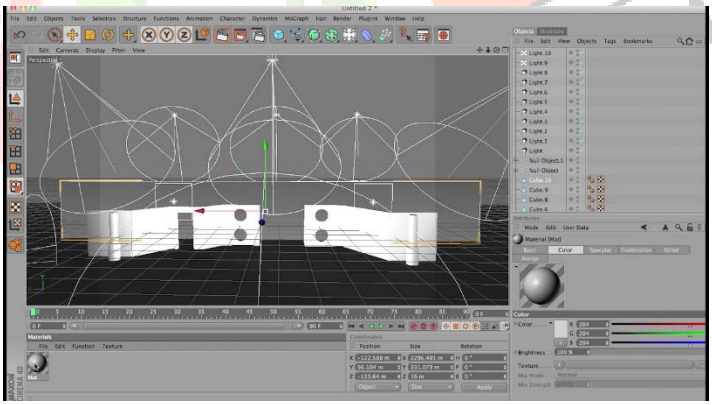

Fig. 30: Virtual Lighting 7

Texturing

Moreover, I had to do my texturing and colouring to give the virtual set a realistic look. Some colours, patterns and textures were chosen from the material window. Apart from the others which were found on the internet. With this process you always have to double-click to space which showed the round ball. This ball mostly appeared in a black and white form which enabled to wrap the texture around the object. Various textures are in this particular window

which can be used to manipulate and create any effect of the resultant image. It can always lift and drop the defined textures on the objects as shown in the images below.

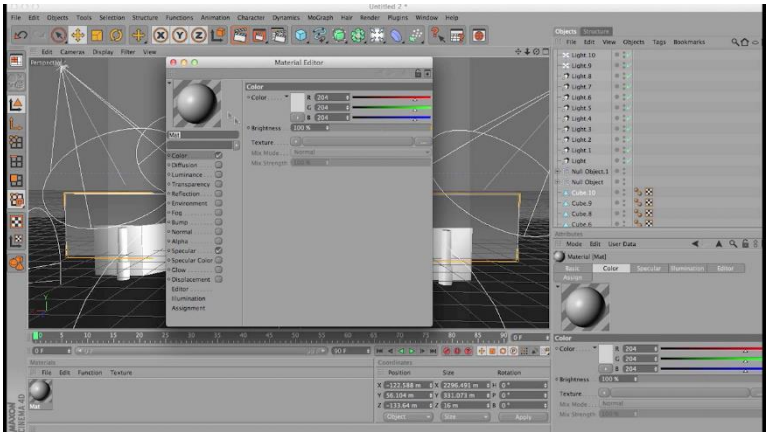

Fig. 31: Texturing Process 1

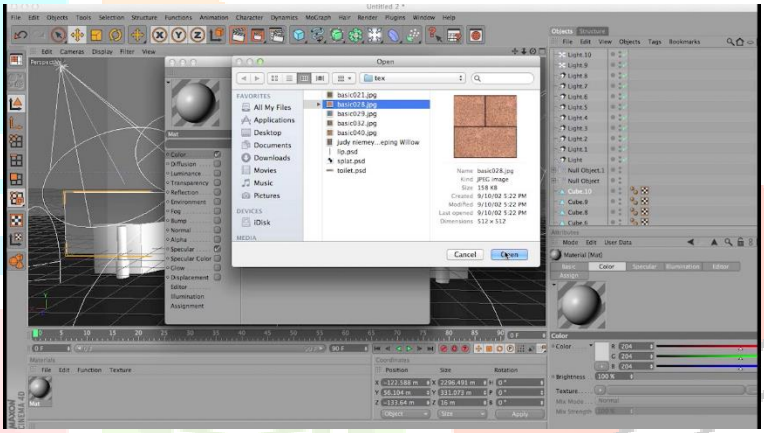

Fig. 32a: Texturing Process 2

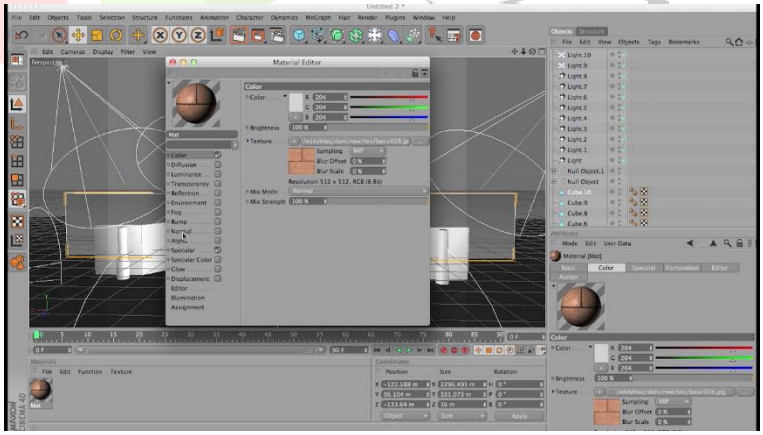

Fig. 32b: Texturing Process 3

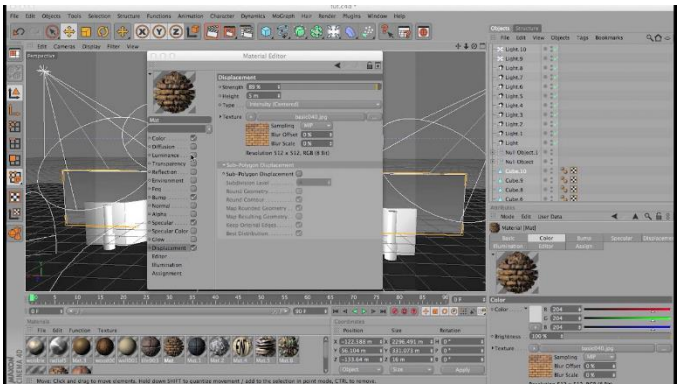

Fig. 33: Texturing Process 4

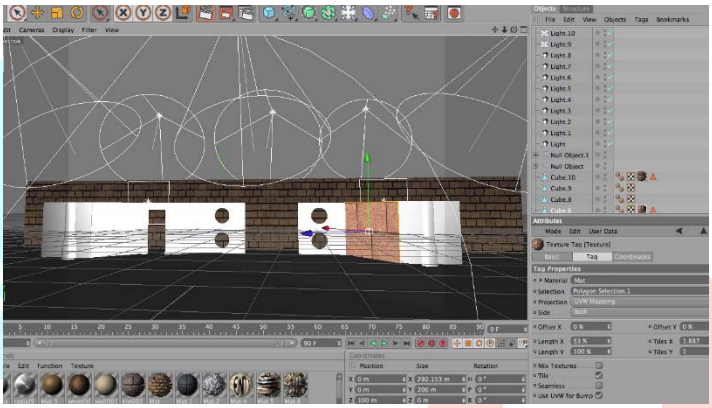

Fig. 34: Texturing Process 5

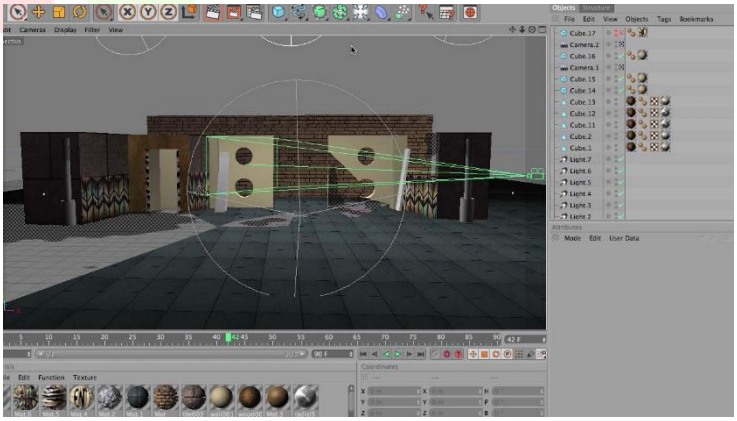

Fig. 35: Texturing completed

Later on, the virtual rendering was done to depict the "look" or appearance of the scenery for the performance. This consists of other effects such as the oil spill and the tile floor décor. The motivation behind this is to simulate the metal shop environment simply achieved with *CINEMA 4D R 10*. The following visuals show the set from different angles as in every three-dimensional model.

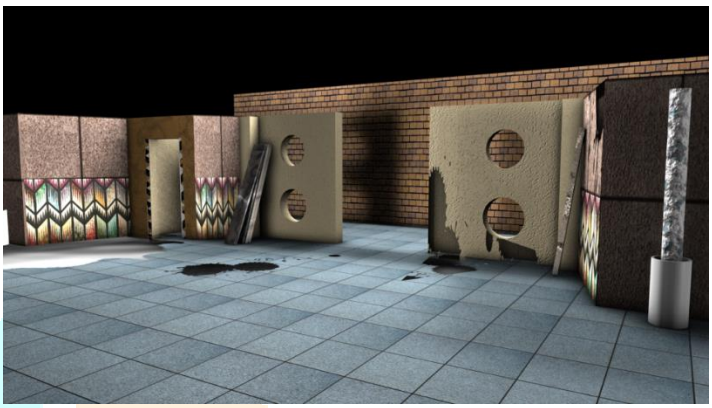

Fig. 36: Final Virtual Rendering I

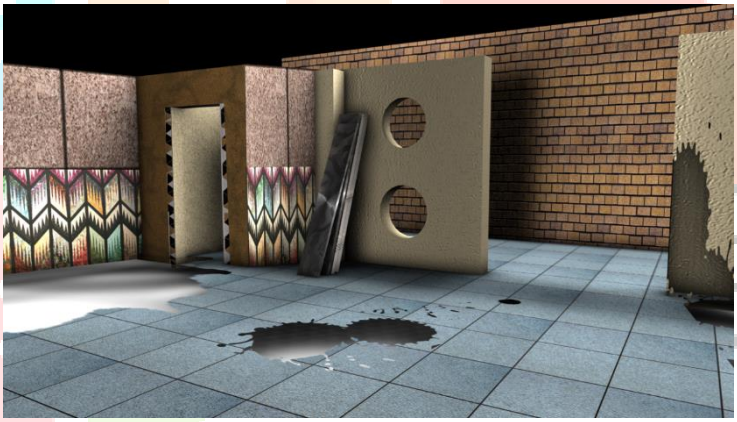

Fig. 37: Final Virtual Rendering II

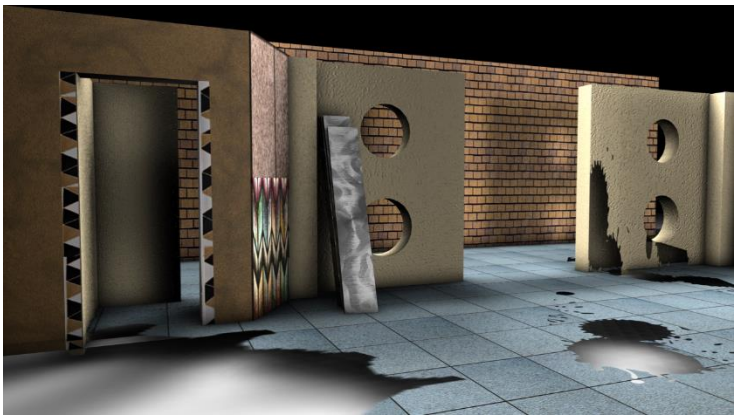

Fig. 38: Final Virtual Rendering III

1.4 Production

Staging the Performance

The performance production stage involved the actual shooting in the television studio against the green screen background and foreground floor, which is technically known as Chroma Key. First of all, a sizable green fabric was hung in the studio to serve as the background and foreground floor. (Fig. 39-41)

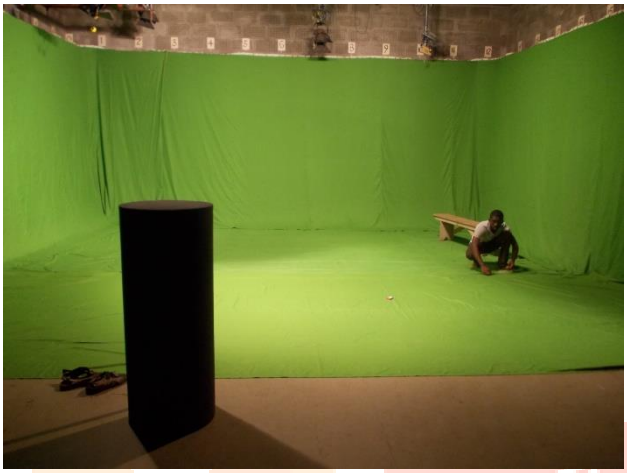

Fig. 39: Television Studio covered with the Green Screen (Cyclorama) fabric

Generally, "blue screen" or "green screen" shooting procedure affects the choice of costume and selection of props. In the merging negative, all costumes in general according to colour moved away from shades of green and blue. This idea of careful selection of costumes was to prevent colours from merging into each other. Also, props chosen for the production took the same requirements.

Fig. 40: Joining the green fabric together

After stretching the green fabric (*cyclorama*), I proceeded with the floor plan marks on the foreground floor to guide the actor's movement and placement of props and the set as well. These marks constituted the outline of the floor plan. The import of this is to place the actors' movement in a trajectory that does not conflict with virtual sets, as the virtual

is a scale reproduction of the actual (Fig. 44-47). In this respect, the floor plan marks were done in conjunction with the composite editor and director of photography.

Fig. 41: Set Designer checking for accurate measurements on the foreground

Fig. 42: Marking the outline of the floor plan and the entire set

Fig. 43: Checking for accurate measurements of floor plan

Fig. 44: Scenic or Set Designer explaining markings to the D.O.P (Director of photography)

The floor plan outline or marks enabled the placement of props, lighting of the green screen and the hanging of microphones. Therefore, in lighting the set physically, the background was lit differently from the foreground. This was to ensure the efficiency of the final product. The background lighting was for an ideal compositing and the foreground to allow the incorporation of the subject with the composited background.

Fig. 45: Props arranged according to the script demand

Fig. 46: Lighting the foreground floor and background

Fig. 47: Director of Photography and Lighting Technician

Fig 48: A bird's eye-view depicting a lighting camera man positioning lights

Fig. 48: Sound designer hanging cables connecting microphones

Fig. 49: Sound Designer hanging microphones

The actual shoot began on the next day with several dress rehearsals involving the director, scenic designer, actors and other crew members as shown in figure 50.

Fig. 50: Director and actors working on dress rehearsal

Later on, the actors were made up before the final recording.

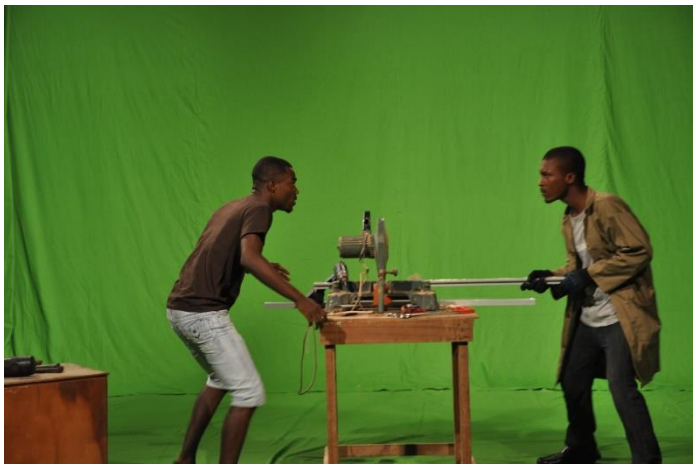

Fig. 51: Ray and Zulu boy

The shooting style consisted of the master scene technique, where most of the shots were taken on a wide-angle and later zoomed in close-ups. A number of three high-definition digital cameras were used in the filming.

3.8 Post-Production

The post-production stage involved apart from conventional technicalities of continuity, placement of soundtracks and the credits. The main concerns here were to do with the compositing of live and virtual productions in a way that there is no dichotomy in pictures, light and sounds. The editing software, like ***ADOBE PREMIERE PRO CS5*** and ***ADOBE AFTER EFFECTS CS5*** were used to achieve the virtual set design. According to Jackman (2007) mentions compositing as a technology that combines two or more images from different sources. He refers the whole process to the separation of layers in Photoshop that are combined to create a new image. Jackman's explanation affirms the notion behind the compositing technique, which was used for the project. Thus, the performance shot against the green screen fabric was superimposed against the virtual set. The whole effect becomes effective, when shot under even lighting conditions. The following visuals illustrate the editing interface and the effect.

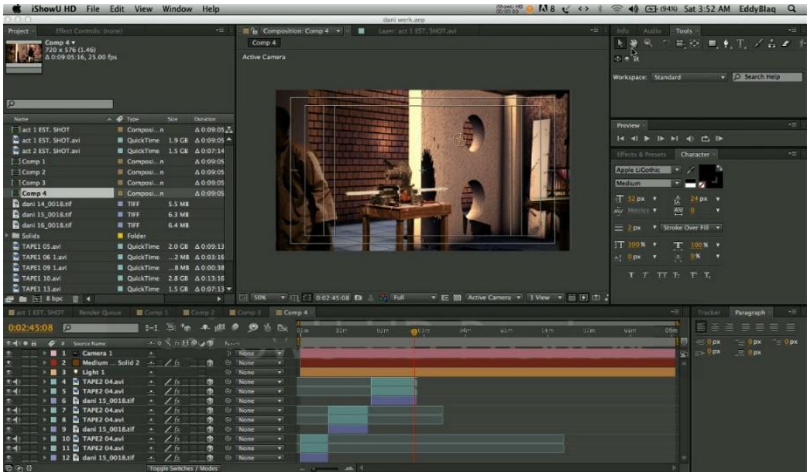

Fig. 52: *ADOBE PREMIERE PRO CS5* Interface

Plate 1: Compositing process 1

Plate 2: Compositing process 2

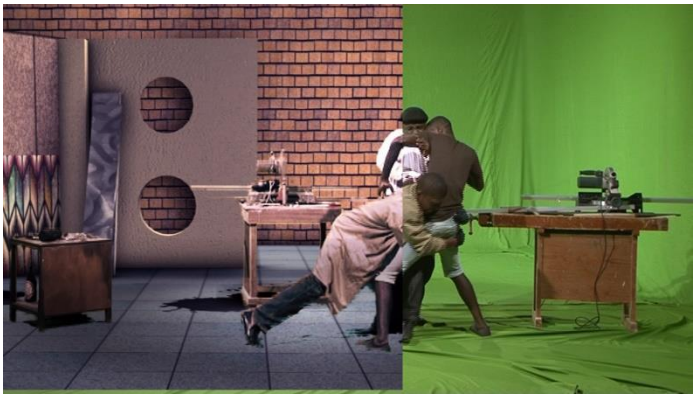

Plate 3: Compositing process 3

3. Results

The research aimed at redesigning the stage sets in *Workshop Negative*, a social satirical drama written by Cont Mhlanga, known as one of the renowned Zimbabwean playwrights. In redesigning the stage set, the ***CINEMA 4D R 10*** software, a computer-aided design application enabled the researcher to create the atmosphere virtually, making it suitable for the television medium. Therefore, **ADOBE *PREMIRE PRO CS5*** and ***ADOBE AFFTER EFFECTS CS5*** software applications were used for the editing and compositing of the recorded video. These applications also made it viable for the cutting, joining and keying of the virtual set. The study also required shooting two acts of the play against a green background and foreground floor in the television studio employing all the phases in television production recognized as pre-production, production and post-production.

From my experience, apart from the blue backgrounds mostly used for Chroma key technology, using the green fabric background and foreground floor was quite advantageous because of the nature of digital cameras and the high-definition picture generation they produced.

The green fabric background and foreground floor used in this project caused a lot of creases and folds because of the rigorous actions and movements in the play. These folds delayed the shooting process due to the rigorous actions in some parts of the play. Therefore, the foreground floor fabric was stretched intermittently after several takes. It also resulted in unwanted shadows which were not easily eliminated during the compositing process.

Despite the thorough rehearsals organized during the pre-production stages, actors rehearsed again with props and the camera shots to become acquainted with the virtual space in the television studio before the actual recording.

Challenges faced by acting in virtual space demands thorough rehearsal to master the blocking, miming and dance movements.

From the knowledge gained, virtual set projects in general demand more lights such as 1000watts or 800watts to achieve high-quality pictures. It also helps in the kind of even lighting which is normally a pre-requisite in executing the technology. Not using enough lights initially marred the shoot which was corrected by adding some 1000 and 800 watts lights. Also, where the lighting facilities are not enough, they can be augmented with the inbuilt lighting of the software on post-production.

Designing the scenery employing the conventional methods before proceeding to the virtual or digital scenic design enabled me to indicate guided floor plan marks on the foreground which enabled actors in the staging and blocking.

It is observed that the virtual sets created provided precise impression of size and proportion in design.

4. Conclusions and Further Research

In this paper, the author presents an alternative way that numerous settings in theatrical plays can be redesigned for performance making it suitable for the television medium. Therefore, the employment of the virtual sets in creating suitable environs to tell our local stories for the television medium. On the other hand, this same technology used in designing virtual settings can also be employed in the theatrical space for “live” performance.

The teaching of digital or virtual set design as an option can be looked at in various theatre, television and film institutions to enhance the productions. Therefore, using several computer-aided design (CAD) applications to create digital or virtual environs will provide more possibilities in the scenic design discipline.

Although, some scholar’s may argue the fact that this technology would make the conventional methods in scenography fade away gradually, this new wave must be accepted and embraced well. Therefore, the onus lies on scenographers to become versatile in the use of computer design technology and learning further skills to meet the digital scenic design epoch.

This project generates other avenues for further research in the near future. Therefore, virtual scenographers, production designers, virtual art directors and digital production designers can conduct experiments and studies into the modeling of props and settings in various theatrical plays performed "live" on stage or the television space considering virtual and augmented realities.

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