Engaging by Design: Utilization of VR Interactive Design Tool in Mise-en-scène Design in Filmmaking

Dr. Samah Nassar
October University for Modern Sciences and Arts, Faculty of Arts and Design, Cairo, Egypt,
snassar@msa.edu.eg

Abstract

Despite the numerous technological advances in production design in filmmaking, filmmakers aiming to engage the audience in an immersive film experience face the challenge of being limited by a 2-dimensional restriction through which their movies are displayed on screen. This is a concept that virtual reality (VR) has come to transform as it presents itself as an interactive tool that provides the viewers with the 360-degree view of the entire scene. This research is intended to evaluate the resulting impact and the process by which the redesign of the cinema will occur when VR is used for mise-en-scène in film design and production. A careful determination of the impact of VR as an interactive tool for the mise-en-scène is achieved through the close analysis of related articles, researches, and books, which allow us to examine the predictions made by earlier researchers and to subsequently assess the validity of those predictions in terms of how plausible they are today. Through surveying the present literature as well as reviewing the stances of the industry's experts, this research paper hypothesizes that VR is a powerful tool with a robust potential to evolve the mise-en-scène design methods. In addition, a google form questionnaire is conducted to gauge the diverse public views on VR and how individuals feel regarding the impact of the virtual reality on the mise-en-scène and the film experience in general. Suggested results indicate that strategies and educational methods on designing methodologies should be implemented for designers to align with the new design concepts from the VR technology. Through the literature examination and questionnaire results, we review how the mise-en-scène would be extensively developed through VR and elucidate the interest amongst the public to undergo such a unique film experience concluding the crucial value that the VR implementation would bring to the film industry.

Keywords:
Virtual Reality, Interactive Technology, Design, Mise-en-scène, Filmmaking

Paper received 14th August 2020, Accepted 25th September 2021, Published 1st of November 2021

Introduction

Virtual reality is presently becoming increasingly commonplace as well as consumers, among various other things, utilize this technology for accessing the cinematic VR experiences. Moreover, the cinematic VR restricts the ability of the filmmakers to efficiently guiding the attention of the audience. In modern times, the viewers are commonly feeling isolated when watching omnidirectional movies through the HMDs. This report intends to analyze how virtual reality technology could impact as the interactive design tool on the mise-en-scène design in filmmaking. The method that would be used for conducting this research has been properly described in this paper. The results gained from the research have been described briefly to highlight the future aspects of utilizing virtual reality in filmmaking.

Methods and materials

Literature review

This research mainly intends to investigate the methods by which cinema would become completely immersive when virtual reality would be used for mise-en-scène. It is being predicted by the researchers that the mise-en-scène would be extensively impacted through the use of virtual reality and the increased focus would be placed on both the designers and viewers and improving their experience. Through surveying the present literature as well as reviewing the industry experts, this research paper would hypothesize regarding the potential methods by which the VR technology would impact the mise-en-scène and cinematic production (Singh et al., 2020). Using VR as the tool for narrative filmmaking is presently proposing the various issues that are required to be determined. The VR filmmakers would not face the audience distraction, the overall direction of

This work is licensed under a Creative Commons Attribution 4.0 International License

the attention, as well as the proper use of the plot in the immersive world. For achieving the cohesive experience, the films might be required to be closely replicate the life events. The use of virtual reality technology is required to be done for an increased level of engaging the users with the films (Wohlgenannt, Simons & Stieglitz, 2020).

The primary concept of the VR as well as the desire of escaping the present circumstances through the visual means mainly existed long prior the invention of computers. Through strictly focussing on the various concepts of the illusion as well as the immersion, the increased panoramic painting could be considered as the attempt of creating the displaced reality. Even though the VR systems are being able to provide an interesting experience as well as the exploration, there are major issues that could arise when tricking the sensory systems of humans (Kavanagh et al., 2017). According to earlier researchers, it has been determined that virtual reality systems could develop major sensory issues among humans. The major biological visual systems is the dynamic, as well as the adaptive camera which could capture the images with incredible accuracy. The headsets used in virtual reality would operate solely a few inches from the visual systems. When the eyes of humans would be focussed on any object in the real world, the brain of humans would command that eyes to execute the two crucial tasks (Schutte & Stilinović, 2017). The initial would be the vergence that is the rotation of the eyes of humans towards this particular target. The second could be denoted as accommodation. This could be considered as the altering of each of the lens sizes of the eyes for focussing on that particular object (Li et al., 2017).

The researchers claim that even though the major industry driving VR is entertainment, there are various other disciplines, specifically in science as well as technology, which embrace the augmented as well as virtual reality. The survival as well as the sustainability of the VR is being considered sometimes contingent upon the success in the sectors like space travel, manufacturing, and anatomical research. Fact, the major investments as well as the technology breakthroughs frequently come from the outside from the entertainment industry (Farshid et al., 2018). According to the researchers, the initial successful version of the head-mounted displays of the VR was being used by NASA for training the astronauts for the missions of space exploration. These particular systems, even though are significantly heavy as well as not specifically ergonomic, was being considered of high value for the ability to replicate the circumstances that would not otherwise exist on earth (Schwind et al., 2019). The VR(virtual reality)/AR(Augmented reality) flight simulators have become ubiquitous to provide the required training to the pilots for making them habituated to the situation of the flights. The researchers also claim that with the recent growth of the success of the consumer VR systems, numerous design-heavy industries have increasingly invested heavily in the application of VR for improving performance (Sitter et al., 2017). The majority of the automotive manufacturers are presently implementing the VR demos of the products for the end-users alongside the in-house VR for the engineering as well as the product design (Elmqaddem, 2019). This is allowing the interaction with the product prior it would physically exist, making the required modification as well as the corrections for reducing the overall risk of any unseen design failures possible during the development.

The researchers have determined that as the cinema embraces VR filmmaking, it would borrow the concepts as well as the implementation methodologies from various other industries. Moreover, the movie industry would face their respective individual challenges when VR is being considered (Bailenson, 2018). It does not proceed progressively, such as the video games, yet it should signal to the viewers when and where to look for following the plot points as well as the progression. When the researches of conventional storytelling are considered, it could be considered that the researchers claim that the narratology offers the language as well as the tools for analysis of the several aspects of the narrative, including the reader, the viewer with the understanding as well as the interpretation (Slater, 2018). The storytelling is not any new concept, but the conditions of modern people are such that they are consistently bombarded with competing narratives in their daily lives. The researchers claim that when the narrative could be determined to be increasingly immersive for the audience in the story world, the major difficulty is developed for the designers especially those who would be designing the electronic media for managing which portions of the movie would be presented as the 3D version for the audience (Jones & Dawkins, 2018). Considering the narrative in VR is increasingly complicated than the written or even the oral storytelling. In the oral tradition, the storyteller craft the narrative for the audience, with contributing their respective individual experience,

to the story through the emphasis or even the embellishments (Ayoub & Pulijala, 2019). In the oral narration to any group of people, each person who would be listening emphasizes the various modules of that particular story as well as each of the people has their respective experience that could either be individual or even communal. The use of VR for telling stories would change the overall method of expressing the encounters among one another (Pottle, 2019).

The researchers claim that even though, virtual reality would help in altering the methods by which the mise-en-scène designed to be set up for delivering the stories to the audience, there are some issues and problems that are required to be also considered (Cuperus et al., 2017). While the conventional mediums would primarily control the frame of the context that would be viewed by the viewers, the virtual reality provides the audience with the full agency for choosing where to look, stand as well as what to listen in the 3D realm (Wang et al., 2018). During the creation of content for the VR, it is crucial for considering as well as understanding the methods in which it would be completely different from the conventional storytelling in the films. With the borderless edge that would expand in surrounding the viewers, the major issue with the VR techniques in the film is providing the assurance that the audience would be engaging with the content of the movie as it has been intended by the creators of the films (Tepper et al., 2017). While the cinema has a long decade history as well as the toolkit for engaging with the audience, the main playbook for VR is being still unwritten. For the VR films that do not consider the attention of the audience, it could be observed that many viewers would miss the major plot points, the moments of increased tension or even the other story critical actions of any film. Presently, there is the major misconception that VR is increasingly necessary the action that would completely surround the viewer (Mateer, 2017). Rather, the mise-en-scène set design is the major aspect of any movie that would capture the attention of the viewers with over one or two locations within the environment, that would undergo action at any provided point much like the convention films. It is critical to keep the audience's attention where the actions would be happening, instead of making the audience absorbed in the rest of the immersive space (Izard et al., 2018). Another major issue with the use of the conventional film methods in VR storytelling is the language of the jump cuts or even the series of shortcuts for focussing the attention of the audience on the crucial characters or even the moments within any scene. An absolute staple in the convention film, the often utilization of the jump cuts in the VR could be increasingly jarring for the audiences who would be completely immersed in the 360-degree scene (Emmelkamp & Meyerbröker, 2021). While the jump cuts could be considered as the necessary aspect in the movies, it is critical to restrict these as much as possible for preserving the suspension of the audience of disbelief as well as for minimizing the VR sickness that might be encountered due to the exposure to any virtual environment causes the symptoms similar to motion sickness (Radianti et al., 2020). All these points have to be fully considered while designers working on the main mise-en-scène set. Definitely, it will affect their approach to design the mise-en-scène.

Methodology

The methodology that is being used for determining the impact of virtual reality as the interactive tool for the mise-en-scène is the research of the articles that are available on the related articles, researches, books on the internet. The research of the internet articles helps in determining what was claimed by the earlier researchers and then direct the research towards the direction of what could be achieved through the research. The research articles have provided the base for the research in the above literature review. The methodology of using the research articles would help in determining what predictions were made by the earlier researchers and then determine whether the predictions have come true or not. It was earlier claimed by the researchers in various articles that the use of VR would be done in the majority of the aspects of the present world and it would provide major benefits to the people. The use of the questionnaire would also be done for determining the views of other people and what they feel regarding the impact of virtual reality on the mise-en-scène. The questionnaire is being considered as the improved method of gaining the required information from a large number of people as well as the people who do not have the required time for being part of the interviews. The questionnaire would allow the

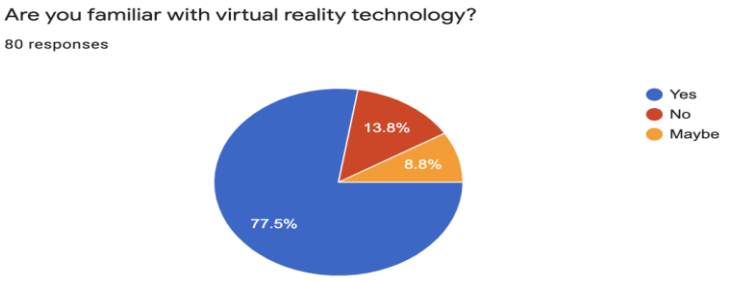
This work is licensed under a Creative Commons Attribution 4.0 International License

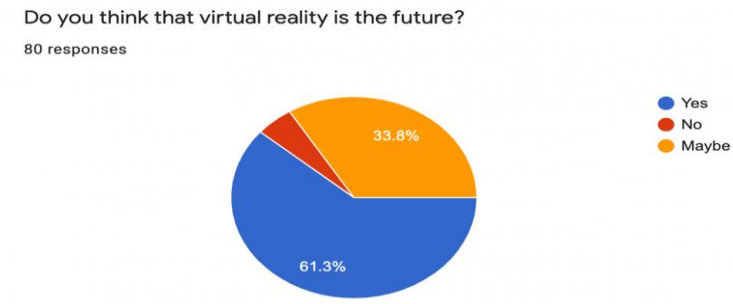
people to take their required time, think about the aspects that they intend to answer promptly within the google forms. The participants could state their respective views or even the feeling privately without any worry of any possible reaction of the researcher. The questionnaire developed for this research includes (Yes - No - May be) questions, the attitude scales as well as the closed questions. The researcher did the best to include a diversity of participants in order to avoid bias this method meant to have fairly responses rate. The questions that have been integrated into the questionnaire for this research are:

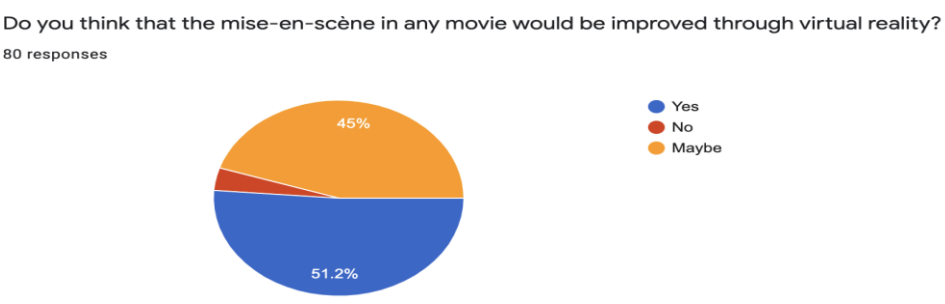
- Are you familiar with virtual reality technology?
- Have you ever experienced any short video through virtual reality?
- Do you think that virtual reality is the future?
- Are you a frequent viewer of movies and videos?
- Do you think that the mise en scene in any movie would be improved through virtual reality?
- Would you like to watch all movies in virtual reality?

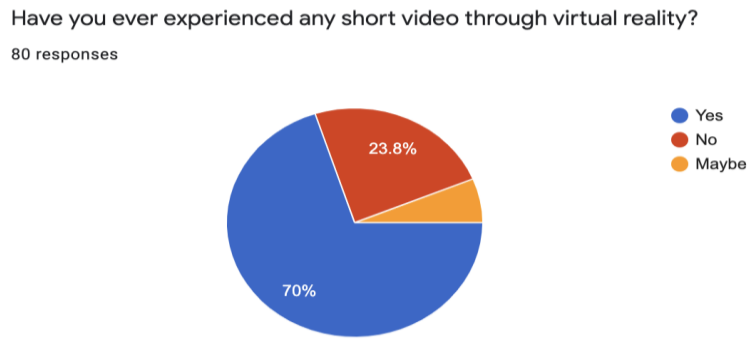
Results

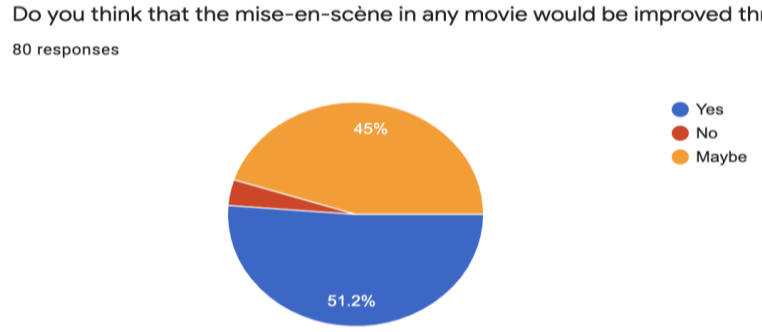
From the answers received for all the questions that are asked to the participants, it has been determined the mise-en-scène would be extensively developed through the virtual reality. The participants' claims that majority of them are familiar with the virtual reality technology and how it operates. They claim that they have experienced the short video through the virtual reality and have really enjoyed the experience gained. The majority of the participants are the regular visitor of the movies that helped in ensuring that the accurate responses would be gained. It has been determined from the research that the mise-en-scène in the present times are only omni-directional and it does not require the addition of huge number of elements in the frame. Through the introduction of virtual reality in the mise-en-scène, it would be required to introduce elements in the surrounding of the movie because through the virtual reality technology, the viewers would be provided with the 360-degree view of the entire show, and designers have to understand and master this technology, in order to upgrade their awareness of designing the mise-en-scène for films.

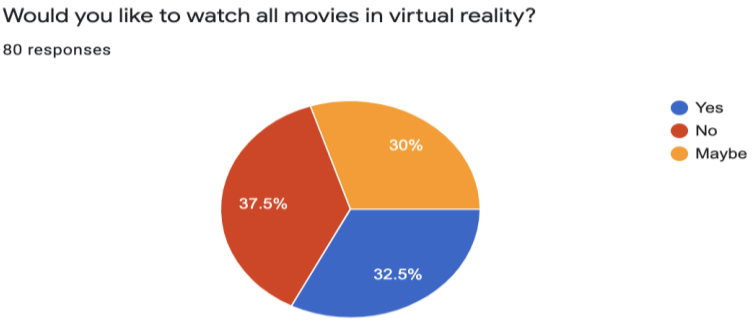












Discussion

From the above literature review and the questionnaire, it has been determined that the mise-en-scène would be increasingly improved through the use of virtual reality as an interactive tool. Virtual reality technology provides the filmmakers with the functionality of providing the all-around experience of the movies where the viewers would be present in the movie in some form. The mise-en-scène would be required to develop for the entire surrounding that is not required to the omnidirectional conventional movies. The main issue that would be faced by the filmmaker is engaging the users in all the shots of the movie and ensure that the proper elements are placed in all the frames of the movie.

Conclusion

Therefore, the conclusion could be determined from the above discussion that the introduction of the virtual reality technology in the mise-en-scène of the movies would help the filmmakers to provide the immersive experience of movie watching for the viewers if designers put in mind the factors that affect the mise-en-scène to achieve its purpose in the best way. In addition, the virtual reality techniques will affect the filmmaking production and mise-en-scène through the camera movements that will reverse the audience ability to be part of the set design, therefore production designers will have to master and design a real-world or it will conquer the whole grounds been built by the whole crew to achieve the most believable sense. Another challenge will face the designers in filmmaking is to create an unbounded mise-en-scène, which will be guided by audition items before the final shooting, or before actual execution. This pre-examination to the mise-en-scène will all the designers to avoid a lot of obstacles or errors that might be done in the shooting terminologies. Another impact has been found is the pliability to shoot the scenes from any angles unlike the old fashion mise-en-scène that provide a limited option for shooting, also audience would be impacted by the various shots than can watch by going through different trails. The VR filmmakers would not face

This work is licensed under a Creative Commons Attribution 4.0 International License

the audience distraction, the overall direction of the attention, as well as the proper use of the plot in the immersive world. For achieving the cohesive experience, the set, and production designers might be required to be closely replicate the life events and the digital transformation within the virtual reality techniques. Through the literature examination and questionnaire results, we review how the mise-en-scène would be extensively developed through VR and elucidate the interest amongst the public to undergo such a unique film experience concluding the crucial value that the VR implementation would bring to the film industry.

References

1. Ayoub, A., & Pulijala, Y. (2019). The application of virtual reality and augmented reality in Oral & Maxillofacial Surgery. BMC Oral Health, 19(1), 1-8.
2. Bailenson, J. (2018). Experience on demand: What virtual reality is, how it works, and what it can do. WW Norton & Company.
3. Cuperus, A. A., Klaassen, F., Hagenaars, M. A., & Engelhard, I. M. (2017). A virtual reality paradigm as an analogue to real-life trauma: its effectiveness compared with the trauma film paradigm. European journal of psychotraumatology, 8(sup1), 1338106.
4. Elmqaddem, N. (2019). Augmented reality and virtual reality in education. Myth or reality?. International journal of emerging technologies in learning, 14(3).
5. Emmelkamp, P. M., & Meyerbröker, K. (2021). Virtual reality therapy in mental health. Annual Review of Clinical Psychology, 17, 495-519.
6. Farshid, M., Paschen, J., Eriksson, T., & Kietzmann, J. (2018). Go boldly!: Explore augmented reality (AR), virtual reality (VR), and mixed reality (MR) for business. Business Horizons, 61(5), 657-663.
7. Izard, S. G., Juanes, J. A., Peñalvo, F. J. G., Estella, J. M. G., Ledesma, M. J. S., & Ruisoto, P. (2018). Virtual reality as an educational and training tool for medicine. Journal of medical systems, 42(3), 1-5.
8. Jones, S., & Dawkins, S. (2018). The sensorama revisited: evaluating the application of multi-sensory input on the sense of presence in 360-degree immersive film in virtual reality. In Augmented reality and virtual reality (pp. 183-197). Springer, Cham.
9. Kavanagh, S., Luxton-Reilly, A., Wuensche, B., & Plimmer, B. (2017). A systematic review of Virtual Reality in education. Themes in Science and Technology Education, 10(2), 85-119.
10. Li, L., Yu, F., Shi, D., Shi, J., Tian, Z., Yang, J., ... & Jiang, Q. (2017). Application of virtual reality technology in clinical medicine. American journal of translational research, 9(9), 3867.
11. Mateer, J. (2017). Directing for Cinematic Virtual Reality: how the traditional film director's craft applies to immersive environments and notions of presence. Journal of Media Practice, 18(1), 14-25.
12. Pottle, J. (2019). Virtual reality and the transformation of medical education. Future healthcare journal, 6(3), 181.
13. Radianti, J., Majchrzak, T. A., Fromm, J., & Wohlgenannt, I. (2020). A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda. Computers & Education, 147, 103778.
14. Schutte, N. S., & Stilinović, E. J. (2017). Facilitating empathy through virtual reality. Motivation and emotion, 41(6), 708-712.
15. Schwind, V., Knierim, P., Haas, N., & Henze, N. (2019, May). Using presence questionnaires in virtual reality. In Proceedings of the 2019 CHI conference on human factors in computing systems (pp. 1-12).
16. Singh, R. P., Javaid, M., Kataria, R., Tyagi, M., Haleem, A., & Suman, R. (2020). Significant applications of virtual reality for COVID-19 pandemic. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14(4), 661-664.
17. Sitter, B., Yang, J., Thielen, J., Naismith, N., & Lonergan, J. (2017, May). 78-3: Screen Door Effect Reduction with Diffractive Film for Virtual Reality and Augmented Reality Displays. In SID Symposium Digest of Technical Papers (Vol. 48, No. 1, pp. 1150-1153).
18. Slater, M. (2018). Immersion and the illusion of presence in virtual reality. British Journal of Psychology, 109(3), 431-433.
19. Tepper, O. M., Rudy, H. L., Lefkowitz, A., Weimer, K. A., Marks, S. M., Stern, C. S., & Garfein, E. S. (2017). Mixed reality with HoloLens: where virtual reality meets augmented reality in the operating room. Plastic and reconstructive surgery, 140(5), 1066-1070.

20. Tepper, O. M., Rudy, H. L., Lefkowitz, A., Weimer, K. A., Marks, S. M., Stern, C. S., & Garfein, E. S. (2017). Mixed reality with HoloLens: where virtual reality meets augmented reality in the operating room. Plastic and reconstructive surgery, 140(5), 1066-1070.
21. Wang, P., Wu, P., Wang, J., Chi, H. L., & Wang, X. (2018). A critical review of the use of virtual reality in construction engineering education and training. International journal of environmental research and public health, 15(6), 1204.
22. Wohlgenannt, I., Simons, A., & Stieglitz, S. (2020). Virtual reality. Business & Information Systems Engineering, 62(5), 455-461.

This work is licensed under a Creative Commons Attribution 4.0 International License