The Space of/in a Theater: "Virtual Architecture" and "Expressionism" as Possibilities-Towards Contemporary Iranian Experiences

Ava Ghassemi

Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Master of Science
in
Architecture

Eastern Mediterranean University
February 2021
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

Prof. Dr. Ali Hakan Ulusoy
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science in Architecture.

Prof. Dr. Resmiye Alpar Atun
Chair, Department of Architecture

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Architecture.

Prof. Dr. Kokan Grchev
Supervisor

Examining Committee

1. Prof. Dr. Kokan Grchev

2. Asst. Prof. Dr. Hassina Nafa

3. Asst. Prof. Dr. Nazife Özay

ABSTRACT

Recently, with the rapid development of virtual reality (VR) technologies the architectural discourse which once was the discourse of form and style, has overcome these boundaries. Architecture now in the words of Silva (2006) characterized by the fusion of information, art, and most importantly technology. Virtual Reality (VR) is served as a novel method to create virtual spaces which are considered as architecture itself. The spatial experience in this virtual architecture is subjective and is manifesting through the cognitive process in each individual's awareness of surroundings. This awareness is however related to the degree of immersion that users might have in which the sense of presence or being in the place will enhance. This study explores the possibility of defining such a virtual space for theatre performances. In this manner, an Iranian expressionist theatre performance has been chosen and the main features of space in both physical and virtual environments have been compared. Accordingly, the virtual theatre space is defined as the immersive virtual environment which gives the audience an opportunity to be inside the performance and have a more tangible theatrical experience. However, it does not mean that virtual theatre space is intended to replace the physical one; but it means that architectural theory and practice will no longer be attached to conventional static conditions that previously defined designs. What has been a theatre for hundreds of years is now changing; theatre in this new virtual platform is no longer just focused on the here and now, but the here, now, and everywhere.

Keywords: Theatre Architecture, Virtual Reality, Virtual Theatre Space, Expressionism, Expressionist Theatre

ÖZ

Son zamanlarda, Sanal Gerçeklik (VR) teknolojilerinin hızla gelişmesi ile birlikte, geçmişin mimari söylemleri olan biçim ve stil konularının başka bir boyuta evirildiği gözlemlenmektedir. Silva (2006) Mimarlığın, günümüzde bilgi, sanat ve en önemlisi teknolojinin bir aradaki etkileşimi ile oluştuğunu vurgulamıştır. Mimarlık, sanal alan oluşturma olarak kabul edildiği noktada ise Sanal Gerçeklik (VR), mimarlıkta sanal alanlar oluşturmak için yeni bir yöntem olarak önümüze çıkmaktadır. Sanal mimaride mekân deneyimleme öznel bir durum olmakla birlikte her birey çevresine ilişkin farkındalığını, kendi bilişsel dünyası ile biçimlendirmektedir. Bununla birlikte, bu farkındalık kullanıcıların o yerde olma veya bulunma hissinin derecesini etkilemektedir. Bu çalışma, tiyatro gösterileri için sanal alanı tanımlama ve olasılıklarını araştırmayı amaçlamaktadır. Bu bağlamda, bir İran ekspresyonist tiyatro performansı seçilmiş ve hem fiziksel hem de sanal ortamlarda mekânın temel özellikleri tartışılmıştır. Bu araştırma, sanal tiyatro alanının, izleyiciyi performansın içerisine dâhil etmekle birlikte daha somut bir tiyatro deneyimi sağlayan sürükleyici bir sanal ortam oluşturduğunu göstermiştir. Bununla birlikte, sanal tiyatro alanının fiziksel olanın yerini almasını amaçlayan bir olgu olmadığını da açığa kavuşturmuştur; artık mimari teori ve pratiğin, geçmiş tasarımları biçimlendiren geleneksel statik koşullara bağımlı olmayacağı anlamına geldiğini söylemek mümkün olmuştur. Yüzlerce yıldır bilinen tiyatronun değişmekte olduğu ve yeni sanal tiyatronun ise artık sadece buraya ve şimdiye değil aynı zamanda her yere odaklanabildiği anlaşılmıştır.

Anahtar Kelimeler: Tiyatro Mimarisi, Sanal Gerçeklik, Sanal Tiyatro Mekânı, Ekspresyonizm, Ekspresyonist Tiyatro

DEDICATION

To my family,

For their endless love and support

ACKNOWLEDGEMENT

I would first and foremost like to express my special gratitude to my supervisor Professor Kokan Grchev who patiently guided me from the earlier stage of this process. This thesis would have remained just an unshaped idea had it not been for his dedicated support and encouragement.

I would also like to thank my family; my father for his constant motivations, my mother for her unconditional love, and especially my brother without whom I would not have been able to complete this academic path.

TABLE OF CONTENTS

ABSTRACT……iii

ÖZ…….…...iv

DEDICATION……v

ACKNOWLEDGEMENT……..…….vi

LIST OF TABLES……..….….x

LIST OF FIGURES…….…xi

1 INTRODUCTION……1

1.1 Problem statement…….....4

1.2 Aims, objectives, and research questions…….....7

1.3 Methodology…….....9

1.4 Limitations…….....10

1.5 Structure of the thesis…….....10

2 THEATER ARCHITECTURE: AS A DISCIPLINE……..12

2.1 A brief glaze on the history of theatre design…….……....12

2.1.1 Theatre vs. theatre architecture…….....12

2.1.2 Open-air theatre: Greek, Roman, and Elizabethan theatre……....15

2.1.3 Enclosed theatre: From Renaissance to present……20

2.2 Theatre typology and basic elements…….…....25

2.2.1 Stage typology……...28

2.3 Theatre typology in Iran…….....32

2.3.1 A brief glaze on the history of performance in Iran……..32

2.3.2 Iranian performance and acting place…….……...37

2.4 Findings and conclusion……43

3 EXPRESSIONISM: AS MOVEMENT, ARCHITECTURE, AND THEATRE…….....48

3.1 Expressionism in general……....48

3.1.1 History of the movement……..….48

3.1.2 Definition, characteristics, and preoccupations of the movement…….51

3.1.3 Influences to expressionism……...56

3.2 Expressionist architecture……..59

3.2.1 Definition and main principles…….....59

3.2.2 Expressionist architecture in contemporary designs……64

3.2.3 Theatrical spaces suggested by Expressionist architects……..….65

3.2.4 Bruno Taut and new form of theatre……66

3.2.5 Hans Poelzig and design of the Große Schauspielhaus……71

3.2.6 Hans Scharoun and thoughts on theatrical space……...73

3.2.7 Henry van de Velde's theatre designs……...75

3.3 Expressionist Theatre…….……....80

3.3.1 Expressionist theatre as an avant-garde movement……...80

3.3.2 Main aspects in analysing a theatre play……...83

3.3.3 August Strindberg: A Dream Play (1901)…….....87

3.3.3.1 The overall atmosphere of the play…….……...87

3.3.3.2 The stage productions…….91

3.3.4 Case study: Expressionist theatre in Iran-The Recipe of Diptera with Mushroom Sauce (2018)……..95

3.4 Findings and conclusion……..….100

4 VIRTUALITY IN ARCHITECTURE: AS AN UN-BUILT SENSIBLE ARCHITECTURAL SPACE……..…104

4.1 Virtual Environment (VE)…….....105

4.2 Virtual environment (VE) vs. physical environment (PE)……110

4.2.1 The notion of space and spatial experience…….....113

4.2.1.1 Space perception…….……...113

4.2.1.2 Spatial experience……..115

4.2.1.3 The notion of presence…….....119

4.3 Findings and conclusion……..124

5 VIRTUAL THEATER: BEING INSIDE AND OUTSIDE THE PERFORMANCE……128

5.1 Virtual theatre performance…….…....128

5.2 Virtual reconstruction of theatre buildings……..135

5.3 Virtual theatrical experience……....138

5.4 Dislocation: Being inside and outside the performance……..140

5.4.1 Case study: The Recipe of Diptera with Mushroom Sauce……...140

6 CONCLUSION……...……...147

REFERENCES……151

LIST OF TABLES

Table 1: Stage typology and set design over time……..31

Table 2: A summary of Iranian performance over time…….38

Table 3: The review on the contemporary theatre buildings in Tehran……..39

Table 4: Expressionism movement from early to the last phases……...51

Table 5: Expressionist characteristics in general……55

Table 6: Suggested features for a new theatre space by Bruno Taut, Hans Poelzig, Hans Scharoun and Henry van de Velde……..…..80

Table7: Analysing a theatre play……..……..86

Table 8: The involvement of VR in architecture……..……112

LIST OF FIGURES

Figure 1: Model of a Greek Hellenistic theatre, based on the theatre at Epidaurus, 4th century BCE……16

Figure 2: Theatre of Epidaurus, first built in 4th century BCE……...16

Figure 3: Terminology for parts of the Roman theatre……..…18

Figure 4: Plan of Roman theatre according to Vitruvius……...18

Figure 5: Line illustration of interior of a Shakespearean theatre from Playhouse tales by C. Walter Hodges, 1974……19

Figure 6: Interior audience areas of the Globe theatre built in 1599 by Shakespeare's playing company…….19

Figure 7: Interior of Olimpico theatre, Vicenza, Italy, built in 1580–1585……21

Figure 8: Figure in space with plane geometry and spatial delineations by Oskar Schlemmer, 1921……24

Figure 9: Figur und Raumlineatur (Figure and space delineation) by Oskar Schlemmer, 1924……24

Figure 10: The arena stage theatre: Actors theatre of Louisville, Kentucky, USA……27

Figure 11: The thrust stage theatre: The University of Southern Indiana, Performance Centre, Evansville, Indiana, USA……..27

Figure 12: The end-stage theatre: Whitney Museum of American Art, New York, USA……27

Figure 13: The proscenium stage theatre: American Airlines theatre, Roundabout Theatre Company, New York…….27

Figure14: The stage and audience arrangement in a flexible theatre: Donald Savage theatre and Communication Building, the State University of New York College, Buffalo……28

Figure 15: Naghali (Narration) by a male performer in an Iranian café……....34

Figure 16: Tekyeh Dowlat painted by Kamalolmolk…….36

Figure 17: The City Theatre in Tehran built in 1972…….…….40

Figure 18: North elevation of the City theatre, Tehran …….…….40

Figure 19: The auditorium of the Main Hall with proscenium stage design……..41

Figure 20: The ground floor plan of the City Theatre……....41

Figure 21: Main auditorium of Vahdat Hall located in Tehran, Iran…….42

Figure 22: Main plan of Vahdat theatre…….42

Figure 23: The dualism between Apollonian and Dionysian according to Nietzsche…….58

Figure 24: Das Eismee (The Sea of Ice) by Caspar David Friedrich, 1824 ……..…60

Figure 25: Monument to the March Dead by Walter Gropius, Weimar, 1921..……..60

Figure 26: The Chilehaus (Chile House) office building, Fritz Höger, 1921-1924, Hamburg…….…61

Figure 27: The south view of second Goetheanum in Dornach, Rudolf Steiner, 1923……64

Figure 28: Dr Chau Chak Wing Building, designed by Frank Gehry, 2014……..64

Figure 29: The exterior of the building, located near the entry gate to the 1914 Werkbund exposition in Cologne……..…….67

Figure 30: Glass Pavilion, view of lower level, with water cascade at centre……..……68

Figure 31: Glass Pavilion, view of upper-level interior…….……68

Figure 32: The World Master Builder, the illustration of opening Curtain on the right and the Cathedral-Star on the left…….…….69

Figure 33: The auditorium of Große Schauspielhaus designed by Hans Poelzig, Berlin, Germany…….……72

Figure 34: The decoration of the dome and the interiors columns of Große Schauspielhaus designed by Hans Poelzig, Berlin, Germany…….……72

Figure 35: The exterior of Berlin Philharmonic by Hans Scharoun, 1963…….....74

Figure 36: The auditorium of Berlin Philharmonic, 1963……..74

Figure 37: Van de Velde's theatre for Werkbund's first exhibition in Cologne with the view of auditorium on the left, 1914……76

Figure 38: Van de Velde's theatre with semicircle front steps……..77

Figure 39: Van de Velde, Werkbund Theatre stage without tripartite divisions, presenting a scene from Goethe's Faust, Part I in 1914…….78

Figure 40: Van de Velde, Study of Stage Scenery for "Faust, Part I" Walpurgis Night, 1914……..……...……78

Figure 41: Circular diagram of Agnes journey on earth which including of 10 different places……..……..88

Figure 42: A Dream Play Stockholm, directed by Robert Wilson, photograph by Lesley Leslie-Spinks2, 1999…….……..92

Figure 43: The stage design by Carl Grabow for the world premiere of a Dream Play, 1907, Stockholm, Svenska theatre…….94

Figure 44: A symbolic scenography for a Dream Play by Svend Gade in 1916 for the second of the scenes in Fingal's Cave……95

Figure 45: The Recipe of Diptera with Mushroom Sauce, Niavaran cultural centre, Tehran, Iran, 2018. Photo by Reza Javidi……...……97

Figure 46: The Recipe of Diptera with Mushroom Sauce play with audience sitting around the acting place. Photo by Reza Javidi……..…….97

Figure 47: The Recipe of Diptera with Mushroom Sauce, Tehran, Stage design: author, 2018. Photo by Reza Javidi……..……..98

Figure 48: Stage design of the Recipe of Diptera with Mushroom Sauce including: 1. The main entrance, 2. Seating areas, 3. Acting place, and 4. The grave designed as a void……...……..99

Figure 49: Placeholder by Brenda Laurel and Rachel Strickland, 1993……...……107

Figure 50: Participant exploring the non-immersive environment (left) and the immersive environment (right)…….……109

Figure 51: Visualization of a liquid architecture in cyberspace...……...…….118

Figure 52: Every aspect of this world varies with position, time and information, and with the interests of the inhabitants……..118

Figure 53: Non-realistic simulation of a supermarket (on the Left) vs. the photo-realistic simulation……..……..121

Figure 54: Enhancement of realistic features and implementation of intangible aspects will leads to a more immersive experience and accordingly the sense of presence…….……122

Figure 55: The notion of presence in physical environment, remote location, and an immersive virtual environment. Virtual presence is the key notion in virtual theatrical experience…….123

Figure 56: Mark Reaney's VR scenography for The Machinal (2000) is operated in real time to move in relation to the actors' movements and actions……..……130

Figure 57: Live shadow play and a VR model electric chair combine for the climax of Machinal (2000)……...131

Figure 58: Yacov Sharir navigates through the interior of a VR human body in Dancing with the Virtual Dervish, 1994……...133

Figure 59: VR reconstruction of the theatre of Dionysus, angle 1……....…..136

Figure 60: VR model of Rome's theatre of Pompey emphasizes its grandeur and newness at the time it was originally built, angle 2……..……136

Figure 61: The diagram of space organization and stage-auditorium relation. The Recipe of Diptera with Mushroom Sauce (2018)……..……...141

Figure 62: The diagram of space organization in virtual theatre.……..……...142

Figure 63: Theatre space fluctuated between physical and fictional one.…..……..143

Figure 64: The organization of neutral and presentational space: the Recipe of Diptera with Mushroom Sauce, 2018……..…….144

Figure 65: In virtual theatre space, the presentational space, theatre performance, and neutral space will all merge into one total space……..……144

Chapter 1

INTRODUCTION

Recently, the world of performing arts and accordingly many stage productions almost came to cease as the unexpected situation occurs worldwide by the global pandemic[1]. It is both challenging and necessary to bring performances back on stage, but this time, with the aim of digital technologies, and through a new platform. With a glance at the current condition, in any aspects of human activities, from aesthetics to various scientific branches, the strong influence of advanced digital technologies is almost undeniable. By following these rapid advances in technology, In Ehn's (1998) words, it is time to unite two sides of enlightenment: the hard (technology and science) and the soft (art, values, ethics, and democracy). Although Ehn (1998) suggests the combination of these two sides during 1998, this issue is still a debatable point in any aspect of human life. In the domain of architecture, with the rapid growth of advanced technologies and digital media, the architectural discourse which once was the discourse of form and style, now has been overcome with these limitations; architecture is now in the words of Silva (2006) characterized by the fusion of information, art, and technology. The growth and development of various digital technologies enable designers to explore new aesthetic features and provide solutions for making difficult spatial compositions that do not follow traditional principles of geometrical proportions.

[1]Since 2020, the COVID-19 pandemic has had a large negative impact on the film and theater industry. Almost all over the world, cinemas, and movie theaters have been closed. Film festivals, theatrical releases, and performances have been canceled or postponed to future dates.

This point leads to an innovative architectural approach that goes beyond the traditional way of thinking and accordingly leads to a new way of designing. Among diverse skills and methods regarding technology these days, Virtual Reality (VR) technologies are undoubtedly served as a novel platform for architecture. Designers have been moving increasingly closer to the use of virtual reality technologies not only as additional tools to present their designs but also due to create virtual spaces which can be considered as architecture itself; this involvement of VR technologies is the main concern of this research. In this manner, the term 'Virtual Reality' is used to describe an artificial computer generated environment which can be explored and interacted with users. The users are immersed within the virtual three-dimensional world as it is real; it stimulates users' perception to create the 'illusion of reality' and made them experience the environments that previously were un-thought of the build. This involvement has unwrapped an opportunity for architects to reach an easier 'paperless environment' in design in which those ideas that before were unimaginable, un-representable, and unbuildable, with the contribution of virtual technologies would be possible to reach and in some cases will remain abstract, and fluid even after finalization.

In this research, virtuality[2] in architecture, as an un-built sensible architectural space, will be examined through the possibilities of defining a theatrical space that is exclusively for expressionist theatre performances. Accordingly, there are two key reasons why expressionist theatre has chosen as a case:

1. Among various theatre plays, the expressionist plays are defined by their abstract, dreamlike, and unrealistic atmosphere with a strong emphasis on representing inner

[2] The term virtuality is used as a synthetic and sensible quality that is in exact opposite to the features of physical space.

visions, imaginations, and feelings. Expressionist theatre plays express subjective emotions rather than the objective reality and mostly, in a symbolic, poetic, and un-naturalistic way. As a result, the expressionist theatre can be considered as an anti-naturalist tendency that has been rejected the conventional principles in both drama and play. Since the aspects that defined the atmosphere of an expressionist play are abstract, subjective, and un-naturalistic it would be hard and even impossible to completely apply them into a pragmatic architectural environment. The unrealistic features of an expressionist play might go under several transforms and even disappeared. As Boland, Collopy, Lyytinen, and Yoo (2008) argue through the process of designing, the architectural projects will remain in a liquid format for long before they crystallize or became finalize. The word liquid here is considered as an abstract part of the design process which is contained of constant developments; a level that designer transforms his ideas due to make it possible for crystallizing or finalizing; due to make it more real and practical. In this sense, the virtual space would enable designers to create an unrealistic artificial world for the expressionist performances which are still abstract and un-localized.

2. The expressionism as an avant-garde movement, had a bold positive program in bringing art out of the isolation of special auditoriums, museums and libraries; if art was no longer the depiction of ‘reality’ but the ‘creation of new things’, then there was no longer any essential difference between ‘art’ and ‘life’ (Kleberg, 1993). This fact indicates why most of architects in association with expressionism attempted to create a theatre space in which the borderline between stage and audience is so thin. According to these two main reasons, virtual theatre space will enable the audience to have the sensory experience in which the intimate connection between performers

and audience, or as mentioned, the unity of art and people, would be maximized and the borderline between audience and stage would appear so blurred that audience experience the sense of being inside the performance rather than being observers.

Moreover, the virtual theatre space will not limit to a specific location; it could be installed everywhere, at any time; there would be no construction restrictions. Audiences from all over the world would allow participating in this virtual theatrical experience. What has been a theatre performance for hundreds of years is now changing; theatre in this new platform is no longer just focused on the here and now, but the here, now, and everywhere (Moneta, 2017).

1.1 Problem statement

This research unwraps the opportunity to explore the possibility of defining virtual architecture as an un-built sensible theatre space exclusively for performing expressionist plays. This study will be equally significant for people working in drama and professionals in the realm of architecture for three main reasons:

1. The goal of theatre, as an artistic event, is to express the overall massage of the artist to the audience; in this theatrical expression the importance of theatre architecture is more than a frame to a picture, but the audience is mostly unaware of the contribution of theatre architecture to theatrical experience; many might misunderstood decoration for theatre architecture and generally ignore the importance of all architectural elements for a theatre performance and accordingly, the experience that is following by that (Mackintosh, 2003). Staging a theatre performance above all is acting within architecture and in this sense, theatre, as an artistic event, defines spatially within a specific space with a specific architectural style, size, shape, and specific arrangement and position (Rufford, 2015).

2. It might be assumed that in architecture, space only defines as tangible, material-based and geometric objects, while theatre space sometimes can be defined so abstract in which according to Pallasmaa (2014) vaguely hinted features of the place or space might be required to define a platform for performance. Accordingly, through this research, instead of considering architecture only as a material-based and geometric object, it is intended to define architecture as an abstract, intangible, and limitless medium.

3. Through an expressionist performance, instead of reproducing the details of a realistic drama, the setting only creates those simplified images that the theme of the play called for (Styan, 1981). Therefore, the atmosphere of the play similar to other types of expressionist artworks is often virtually ‘abstract’ and ‘un-localized’. These characteristics distinguish the atmosphere of the expressionist theatre from other types of plays and accordingly can be applied through a virtual spatial medium in and of the theatre building; a simulation in which computer digital graphics are used to create an artificial synthetic and realistic-looking world. Based on the mentioned characteristics of the expressionist play and its abstract atmosphere, with the association of virtual reality tools, the message of an expressionist drama can be expressed not only through acting and directing, but also through the visual language of a virtual architectural space in which the whole theatre architecture will convey the abstract and un-localized theme of the plays.

4. Expressionism in architecture, as an avant-garde tendency, was always seeking to attack the institution of art and convert life as a whole in which there would be no borderline between life, art, and people. By suggesting the unity between life and art;

between people and theatre; expressionists aimed to reach a theatre space in which theatre performances be experienced rather than observed, thus by focusing on the theatre space and stage-auditorium relation, architects suggested that the borderline between audience and stage should appear so blurred that audience experience the sense of being inside the performance rather than being detached observers.

In this sense, by defining a virtual theatre space, the composition of all theatrical elements such as stage, audience place, and the performance itself would be united in one total work of art. Therefore, the main intention of expressionists which was the unity of art and life, audience and performance, the whole theatre space will be united and accordingly will lead to a more tangible theatrical experience for the audience; a dimensionless and limitless theatre space in which the stage, auditorium, and the building itself are dissolved into one total space.

Currently, in Iran, theatre in a form of contemporary style whether expressionist or not is staging on theatre buildings that are mostly located in Tehran. The theatre space and arrangement of auditorium and stage, in most of them, is considered as a black box and end-stage in which proscenium theatre is a subset. Since constructing or renovating the theatre buildings would not be worthwhile, exploring the possibilities of defining a virtual theatre space could be a great opportunity for Iranian contemporary productions to be staged on a new immersive platform. In this case, the atmosphere of a theatre play will not be restricted to the stage and scenic design, but the whole space of the theatre building will engage the audience from all over the country to have a more tangible theatrical experience.

1.2 Aims, objectives, and research questions

The main aim of the research is to examine the possibility, and if so, the crucial factors in defining an immersive virtual space for performing expressionist theatre play. In this manner, studying the theatrical elements including stage-auditorium arrangement, as well as the atmosphere of expressionist performance is aimed to examine in both physical theatre space and the virtual environment. As a result, theatre architecture as a discipline that shaped and developed through history, expressionism as movement and its influence on theatre design, virtuality in architecture as a synthetic theatre space are intended to be explored. Accordingly, the research is contained of four main parts:

1. Study theatre architecture as a discipline which is including the development of theatre architecture both in western culture and Iran history. The study of western theatre architecture eventually leads us to the time of modernism and the influences of expressionism as an avant-garde tendency on theatre space and stage productions. Since the final case study of research is an Iranian expressionist theatre, the study on the development of theatre and performance in Iran will review to reach a better understanding of Iranian theatre both in drama and architecture.

2. Study expressionism as movement, architecture, and theatre due to define overall definition, characteristics, main aspects, and preoccupation of expressionism as well as the influences of the movement in theatre and architecture. This part will also contain main case studies of the research in the medium of both theatre architecture and theatre plays.

3. To study the possibility of defining a virtual theatre space, the research is also contained of one part about technology and architecture which accordingly the theoretical aspects of virtuality in architecture as an un-built sensible space, the virtual environment, and the difference between virtual and physical environment, space perception and experience in an immersive virtual environment are studied. This part aims to investigate the main aspects of a virtual spatial environment for a theatre space.

4. Study on these three main parts will lead us to the concept of virtual theatre and theatrical experience in an immersive virtual environment. In this manner, the main aspects of theatre space for an Iranian expressionist theatre play, *The Recipe of Diptera with Mushroom Sauce* (2018) in a virtual platform is explored.

Therefore, this research intends to explore the possibility of defining a virtual space of and in a theatre building which would be in association with the expressionist theatre performances. Through this exploration, it also intends to find proper answer to the following main question:

_How an immersive virtual space for an expressionist theatrical experience can be defined? Accordingly, to reach to a proper answer, the research is intended to review the solutions for:

First, what is the collaboration between theatre as an artistic event and theatre architecture as a discipline? Second, what are the main characteristics and influences of expressionism as an avant-garde movement on theatre architecture and the theatrical experience following that? And third, what is the involvement of virtual reality technology in the domain of architecture?

1.3 Research methodology

The research is considered as qualitative based on historical, theoretical, and comparative methodology. The materials for the historical and theoretical parts have been collected through literature reviews from online sources, books, and scholars. The historical reviews on theatre architecture, started from ancient Greek and Roman theatre in western history, and the traditional performance in Iranian culture which accordingly led to a better understanding of the collaboration between theatre as an artistic event, and theatre architecture as a discipline in both western culture as well as the Iranian context. The reviews continued to the modern time and exclusively focused on the attempts of expressionist on theatre design and their suggested theories on defining a new theatre-audience relation. Therefore, the research contains the design works of four expressionist architects as case studies which are including: *Bruno Taut and new form of theatre*, *Hans Poelzig and design of the Große Schauspielhaus*, *Hans Scharoun and thoughts on theatrical space*, and *Henry van de Velde's theatre designs*. The similarities and differences of these chosen cases, in both theory and practice, compared with each other to find the main intention of expressionist designers in defining an abstract and limitless theatre space. Study on this part specified the influence of expressionism as an avant-garde movement on theatre architecture along with the unique characteristics of theatrical experience that is following by that. In the medium of theatre, both drama and practice, the study is including two main cases; the European expressionist theatre play: August Strindberg: *A Dream Play (1901)*, and the contemporary Iranian expressionist play: *The Recipe of Diptera with Mushroom Sauce (2018).* Study on this part indicated how theatre space for expressionist plays, in both European and Iranian context is defined, and accordingly how suggesting a virtual architectural space will support

this atmosphere. The final findings of historical and theoretical reviews along with the results of chosen case studies examined and concluded through proposed theories and suggestions on the possibilities of redefining an immersive virtual theatre space for a contemporary Iranian expressionist play *The Recipe of Diptera with Mushroom Sauce (2018)* in which main features of theatre space in both physical and virtual environments have been compared.

1.4 Limitations of the study

In defining a virtual theatre space through the case study of *The Recipe of Diptera with Mushroom Sauce* (2018), noticing the importance of theatre architecture to a theatrical experience is the main concern. Accordingly, in analysing the theatrical elements of the chosen case, in both physical and virtual environment, the research only focus on how in performing a theatre play with expressionist atmosphere, the nature of theatre space and the stage-auditorium composition can play a crucial role to have a more tangible theatrical experience. Moreover, the involvement of virtual reality in the field of performing art and also architecture is defined through an immersive space experience. Therefore, the suggested theories on defining a virtual theatre space is compared with the physical space in three main scopes: the sense of presence, the space perception, and the space experience. The final results and proposed theories on this research might establish an opportunity for further precise studies and also pragmatic theatre space designs in the future.

1.5 Structure of research

The overall structure of this study is suggesting on the diagram below:

THE SPACE OF/IN A THEATER: "VIRTUAL ARCHITECTURE" AND "EXPRESSIONISM" AS POSSIBILITIES-TOWARDS CONTEMPORARY IRANIAN EXPERIENCES

INTRODUCTION

- Problem statement
- Aim, objectives, and research questions
- Methodology
- Limitation of the study

LITERATURE REVIEW

Theater architecture: as a discipline

Theatre vs. Theatre architecture
History of theatre design
-Open-air theatre
-Enclosed theatre
Theatre typology and basic elements
Stage typology and theatre plays
Theatre typology in Iran
The history of performance in Iran
Category of Iranian dramatic forms
Iranian performance and acting place

- **Findings and conclusion**

Expressionism: as movement, architecture, and theater

Expressionism in general
-History, definition, common characteristics, preoccupations ,and Influences to expressionism
Expressionist architecture
-Definition and main principles
-Expressionist architecture in contemporary designs
-Theatrical spaces suggested by Expressionist architects
Expressionist Theatre
-Expressionist theatre as an avant-garde movement
-Main aspects in analyzing a theatre play

- **Findings and conclusion**

Virtuality in architecture: as an un-built sensible architectural space

Virtual Environment (VE)
Virtual environment (VE) Vs. Physical environment (PE)
The notion of space and spatial experience
Space perception, experience, and the notion of presence

- **Findings and conclusion**

Virtual theater: being inside and outside the performance

CASE STUDIES

- Bruno Taut and new form of theatre
- Hans Poelzig and design of the Große Schauspielhaus
- Hans Scharoun and thoughts on theatrical space
- Henry van de Velde's theatre designs
- August Strindberg: A Dream Play (1901)
- The Recipe of Diptera with Mushroom Sauce (2018)

FINAL CONCLUSION

Virtual theatre performance
Virtual reconstruction of theatre buildings
Virtual theatrical experience
Dislocation: Being inside and outside the performance
-Case study: The Recipe of Diptera with Mushroom Sauce

Chapter 2

THEATER ARCHITECTURE: AS A DISCIPLINE

2.1 A brief glaze on the history of theatre design

2.1.1 Theatre vs. theatre architecture

Normally when we think of theatre, we image the performance representing an architectural space exclusively designed for this purpose (Carlson, 1989). However, with a brief glaze on the history of theatre, from west to east, we might face many examples in which theatre plays performed in a variety of places. As a result, theatre as an art form, might not necessarily require a specifically designed building to be presented; it can be performed either in decorated buildings or at places such as the street corners, but when a group of people gathers together to experience a theatrical performance, it might need some attempts to organize the specific space due to improving the theatrical experience for both audience and performers (Hildy, 2018). In this manner, discussing theatre architecture is about finding the right space for the play or even the right play for space; the play only as a text, for instance, can be performed in a space, while a play that contains events belong only to the space in which it makes the space to be performed same as the actors perform (Wiles, 2003).

Accordingly, theatre architecture is more than a frame to a picture, but the audience is mostly unaware of the contribution of theatre architecture to theatrical experience; Mackintosh (2003) argues that a theatre is a three-dimensional event which is unique since it represents a set of artistic aims and attitudes; an artistic event in which there

a specific communication not only between actors but with a group of people as the audience who are seeing the theatre. All interact with one another. Many misunderstood decoration for theatre architecture and generally ignore the importance of all architectural elements for a theatre performance and accordingly, the experience that is following by that (Mackintosh, 2003). Therefore, 'Theatre' can be defined as a zone in which a group of people stand or sit to see a performance, but 'Theatre Architecture' can be considered as a discipline in which this zone is specialized and elaborated to provide the audience with a better theatrical experience as well as helping the performers to express their art in a perfect way (Hildy, 2018).

Architecture expresses space and its specific feeling; staging a theatre performance is about acting within architecture in which it requires giving attention to distance, scale, ration and even immaterial aspects such as light and shadow and this relation between architecture and theatre performance apply to any type of theatres (Rufford, 2015). Architecture is about sculpting of space and the organization of environment and within this organization, the theatrical experience as an art form would take place. In other words, 'Theatre' is considered as a temporal art form while 'Architecture' is a spatial practice. Although theatre is a temporal art, it defines spatially; in which the performance practices always happen within a specific space with a specific architectural style, size, shape, and specific arrangement and position within space. This fact can be clearly defined by Jacques Copeau's words; according to Jacques Copeau (1879-1949), the French theatre director, architecture is one of the most fundamental aspects of a theatre which is located at the heart of theatre; in Copeau's words, architecture does not contain drama, but it creates drama through the co-creation of its meanings, conventions, and aesthetics (Rufford, 2015). To test

Copeau's idea we can select a specific place and time in history and considering the features of both built form and drama of that theatrical movement and by analysing the features of each theatrical movement in the dramatic genre and acting style, the importance of architectural condition and architectural elements to the theatre would be obvious. For instance, in Japanese Kabuki theatres, the *Hanamichi*, the long runway platform that passes from stage to the audience and connects the stage to the back of the auditorium, uses for actors to entrance and exist to the play; actors stop on *Hanamichi* and explain their roles to the audience. The development of the playing areas in Japanese Kabuki theatres was determined by the movement of the actor toward the audience, and *Hanamichi* was introduced to satisfy this basic impulse to extend the area of the performance through the audience (Ernst, 1974). *Hanamichi* can be considered as a physical and meta-theatrical passage between reality and fantasy (Rufford, 2015) which according to Scott (1999) allow actor to appear and disappear at will by providing a platform for the audience to witness a transition from actors to the characters. This transition, however, in other types of stage designs such as proscenium-arch theatre happens unseen on the backstage and the wings.

The history of theatre architecture as a disciple can be discussed through two main classifications: the open-air theatre structures and the enclosed buildings. In both of these classifications, theatre architecture can be considered as a temporary structure or as a complete permanent building; it can be used only for theatre performances or it can be a multipurpose building which covers not only theatre performance, but also meetings, concerts, and certain types of sporting events (Hildy, 2018).

Through this chapter, it is intended to cover the history of theatre architecture and its development over the years in both western and Iranian culture. However, since the theatre is one of the most persistent architectural objects in the history of western culture (Carlson, 1989) the study is started from the history of western theatre developments.

2.1.2 Open-air theatre: Greek, Roman, and Elizabethan theatre

The words 'Theatre' is derived from the Latin word *'Theatrum'* which in turn comes from the ancient Greek word *'Theatron'* means a 'place for seeing' (Sear, 2006). Theatres are undoubtedly the symbols of ancient Greek society that give voice to both religious and cultural concerns (Paga, 2016); in ancient Greece, the theatre was the place for dramatic performance; the place where first and foremost the tragic and comic plays and dithyrambic poetry were performed; the Greeks were first among the western cultures to reformed the ritual concerns into theatrical performances (Friedman, 1953). The theatre space enclosed audience together with musicians, dancing chorus, and masked performers with their elaborated costumes which all framed by the *Skene* with its scenic decorations (Hart& Walton, 2010).

During the late classical and Hellenistic periods, Greek theatres in design were contained for three main parts:

A) The *Cavea*, *Koilon* or *Theatron* which was the seating area and usually was horizontally divided by *Diazomata*, *Kerkides* or wedge of seating.

B) The orchestra or performing area

C) The *Skene* or *Scaenae frons*, the scene building which was used as a background. to performance as well as served as a generic façade for an interior space (Paga, 2016) and two passageways called *Paradoi* or *Parados* were used by both audience

and performers to enter and exit the orchestra (Figure 1, 2). These three main parts were constant in Greek theatre design through the classical and Hellenistic era. However each of these parts has been modified based on the topographical conditions or the ritual and functional demands. Even with the modification of theatre plan from rectilinear to circular, the *Cavea, Orchestra*, and *Skene* largely remained intact (Paga, 2016).

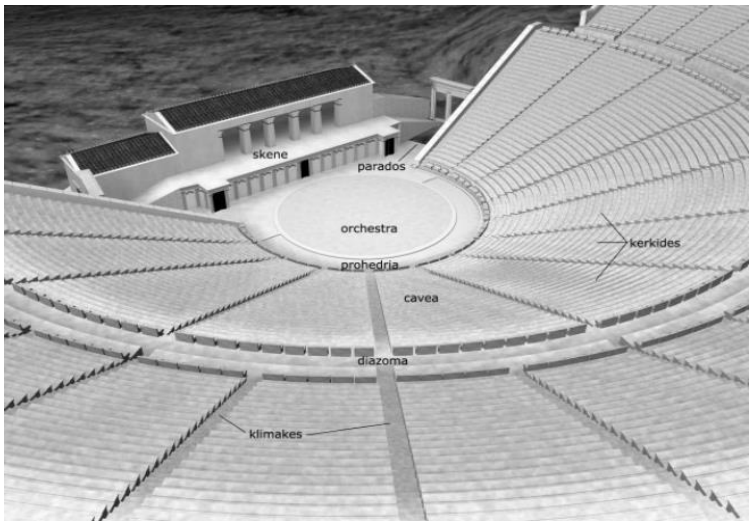


Figure 1: Model of a Greek Hellenistic theatre, based on the theatre at Epidaurus, 4th century BCE (Paga, 2016)

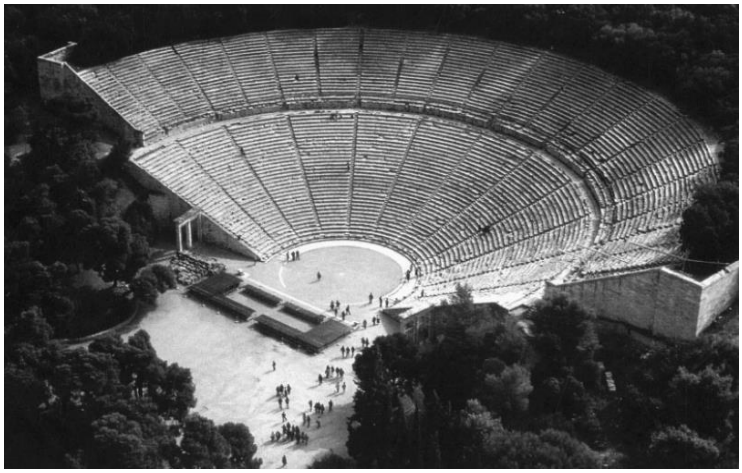


Figure 2: Theatre of Epidaurus, first built in 4th century BCE (Paga, 2016)

According to Paga (2016) this type of space division created separate zones of interior and exterior settings where the audience from the performance was physically separate. Moreover, the elevated *cavea* and low, flat *orchestra* created centripetal axes of viewing in which audience could have direct attention to the performance at the centre of orchestra; the iconic Greek theatre should be considered as a more complex, and multifaceted structure; the fluctuations of its form and the multiplicity of uses such as ritual, performative, political and economic indicates the fact that how dynamic can theatre be within Greek architecture. The direct link between form and function converts theatre from a conventional structure to a building that can shed light on the changes that Greek architecture had through ancient times. In contrast to Greek theatres, Roman theatres in design were closer to modern theatres. Even the theatre terminology comes from Roman authors especially Vitruvius and modern authors use the ancient terminology to describe various parts of a theatre in such a way that the seating, same as the Greek theatres, was designed in a semicircle around the orchestra with passageways and staircases. The extremely wide stage and scene-building were joined to the auditorium with the same high which created a sense of enclosure similar to modern theatres. However, according to Sear (2006), Roman theatres were different in design in various parts of the Roman Empire which makes it complicated to define each part of them precisely. They typically had a semi-circular orchestra and *Cavea*. Based on the social class of the spectators, the *Cavea* was horizontally divided into three main zones: *ima cavea*, the lowest part of the seating, *media cavea* which follows the *ima cavea*, and *summa cavea*, the highest part of the *Cavea*. The Roman stage was extremely broad and deep and close to the walls at three sides; the walls on the sides were contained of doorways which were leading to basilicas beyond (Figure 3, 4). The back wall of the

stage which was called the *Scaenae frons* was situated in front of the *Cavea* was contained of three doors that lead to the rooms (Postscaenium) on the backstage. In front of the *Scaenae frons* were supported by columns. The Romans adopted this theatre from the Greeks with some certain modifications; Greek theatres were semi-circular in the plan while Roman theatres were designed mostly in a strict half cycle. The Greek theatres were built beside hills or slopes while Romans did not consider natural landscape as dictation to where they should build the theatres (Brouwers, 2018).

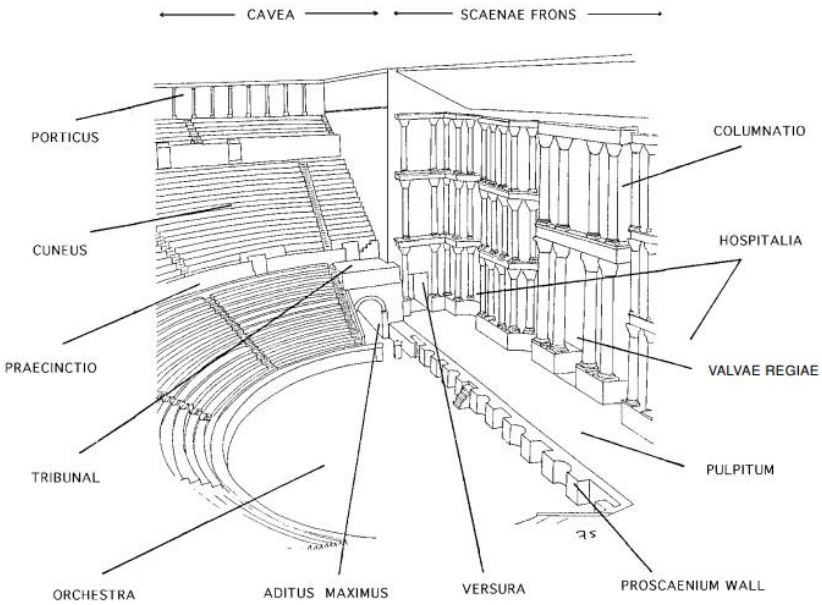


Figure 3: Terminology for parts of the Roman theatre (Sear, 2006)

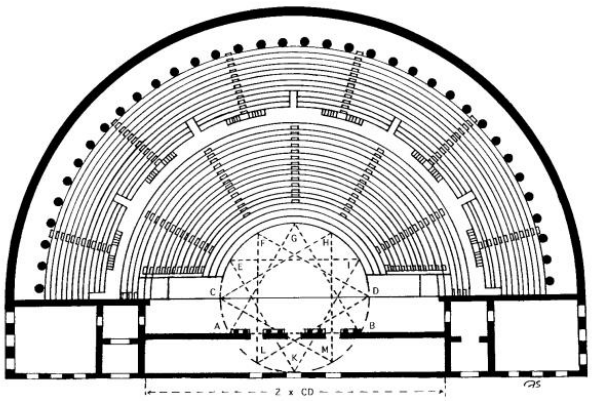


Figure 4: Plan of Roman Theatre according To Vitruvius (Sear, 2006)

Another type of open-air theatre was Elizabethan theatres (Figure 5). Shakespeare and his contemporaries had a great influence on theatre in Europe which the contemporary western theatres evolved directly from them. The first of such open-air theatres known mostly as Elizabeth theatres was built in 1576 in Shoreditch in North London. Elizabethan theatres consisted of several floors surrounding a courtyard (Figure 6). The arrangement of the audience in galleries around the stage was multi-tiered (Ham, 2014).

Figure 5: Line illustration of interior of a Shakespearean theatre from Playhouse Tales (Eve, 2004)

Figure 6: Interior audience areas of the Globe Theatre built in 1599 by Shakespeare's playing company (Pye, 2014)

Elizabethan theatres were including of six central parts: these theatres were conventional construction by craftsmen rather than innovative design by architects. The forms were recognizably classical, the finished look of the theatre was an illusion since the marble was painted not real, they packed as many people as possible, and the main focus was on a pure geometry (Mackintosh, 2003).

2.1.3 Enclosed theatre: from Renaissance to present

Through the time of the middle ages in the west, the theatre was performed mostly in found spaces such as ruins of Roman theatres, churches, and churchyards halls; These spaces which were both temporary and permanent spaces for performing theatre can be configured as arena theatres, thrust theatres, end-stage theatres and also surround stage or promenade spaces (Hildy, 2018). The only theatre form that is not found in the middle ages is the proscenium theatre which was designed during the Renaissance. Because of the economic, political, and military collapse of the Roman Empire, people had less chance to spend time in theatres. Therefore, during the early Renaissance, many of them remained abandoned (Mullin, 1970). The revival of theatre buildings in the Renaissance begins with the interest in classical literature including drama and since drama needed a place to be performed the interest in the revival of theatre as a place to see performance became once again important. Many factors influence the forming of theatre architecture during the Renaissance but above all was the *De Architectura* by Vitruvius in which he explored theatre as a civic architecture.

As a result, the scenic conventions and theatrical presentation underwent major changes which were all following by the discovery of linear perspective and *De Architectura* (Palmer, 2013). Some Renaissance architects attempted to imitate the

Roman theatres in both form and function while others were trying to modify the theatre building due to make them suit contemporary tastes (Mullin, 1970). The interest in *Scaenae frons* was replaced with fascination in using perspective; this fascination can be seen in the oldest existing theatre building in Europe; the famous *Teatro Olimpico Theatre* (1580–1585) designed by Andrea Palladio in Vicenza, Italy (Figure 7).

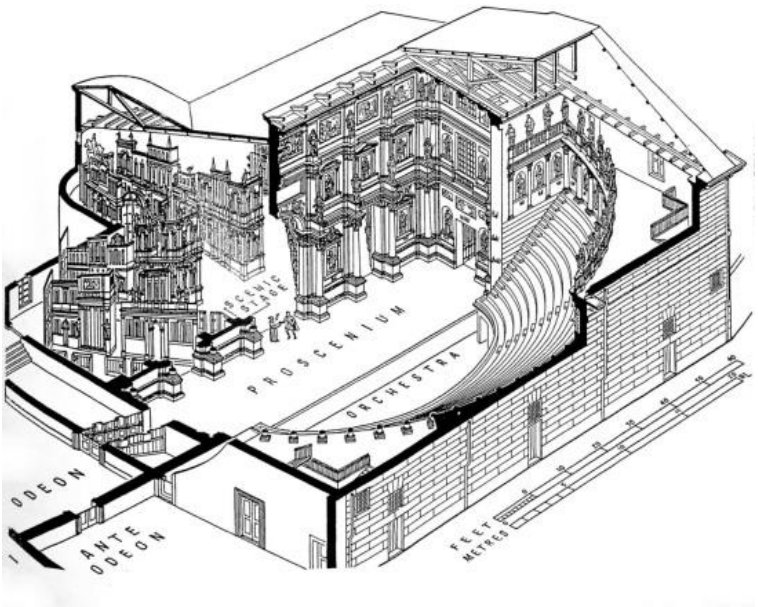


Figure 7: Interior of Olimpico theatre, Vicenza, Italy, built in 1580–1585 URL-1

It was during the Renaissance that the innovations in the use of light for performance became significant; light in the time of the Renaissance was used as an integral part of staging (Palmer, 2013). As a result, Renaissance designers not only were creating a theatrical space which was often within an existing room at court but also they were designing the stage environment for viewing a theatrical experience (Palmer, 2013). The classical and medieval space was infinite and bounded while during the Renaissance space became more extensible (Wiles, 2003).

With the beginning of the 19th century and up through the year 1920, various new classes of people attracted to theatres this fact led to the erection of new theatre buildings in Europe which was mostly inspired by John Ruskin and William Morris attempts to remove the current borderline between art and people (Kuenzli,2012). As a result, architects were looked to ancient Greek and Roman theatres as examples of how theatre buildings can break the social classes and create unity; in the words of Bruno Taut a type of theatre in which audience and actors are all caught up in the magic of togetherness (Kuenzli, 2012).

A majority of architects and designers at this time, attempt to bring the audience and actors in more intimate contact with one another than before (Cole, 1955). This desire was the most influential factor in shaping the theatre architecture during the 19th century that resulted not only in changing the size and shape of the auditorium but also removing the boundaries of picture frame proscenium theatres (Cole, 1955). The avant-garde theatrical movements in the late 19th century and the early 20th century reacted against naturalism as well as the architecture itself by resisting its monumentality, materiality, and stability (Hannah, 2008).

'Event' in modernism philosophical frame brought the built environment more in harmony with the dynamism of performance, time, movement, and action and accordingly challenged architecture as being fixed and persistent space (Hannah, 2008).[3]

[3] Regarding the term event-space that was first suggested by Bernard Tschumi, Hannah (2008) states modernism's perceptual revolution challenged architectural discourse by rejecting its materiality and stability. Thus, theater, as both dramatic practice and architecture, is spatialized through the concepts of time, movement, and action.

The relation between audience and stage has always been a major consideration for architects since at least the Renaissance, but it was since the late of 19th century that manipulation of theatre space and variations on traditional themes became the main concern (Aronson, 1981). This fact led to a clear moving from absolute space to the abstract one in which any type of space could be defined as a specific area for a theatrical experience (Wiles, 2003).

By walking through the time of 19th century and the beginning of the 20th century, the influence of Bauhaus, as one of the most influential schools of architecture and visual arts, on the development of contemporary theatres is noticeable as well. In 1961 Walter Gropius states that Bauhaus is embraced the whole range of visual arts from architecture to stage works (Koss, 2003). Through this time, some architects by ignoring the traditional models engaged the theories of performance in architectural works. Bernard Tschumi for instance, explored the relationship between these two disciplines, architecture and performativity arts, in his theories and suggested the concept of event-space; in which he states that there is no event without architecture, and no space without event (Ferrari, 2012). Moreover, Oskar Schlemmer's artistic and theoretical works on theatre and stage design became one of the central fields of Bauhaus school works. The stage space is understood as an architectural space where based on the law of motion of the human body in space, human bodies were transformed into artificial figures and the stage objects created forms in motion (Nikolic, 2014). With his theatrical theories, Schlemmer attempts to go beyond the two-dimensional nature of the stage and reach the spatial depth and sensation in stage works (Figure 8, 9).

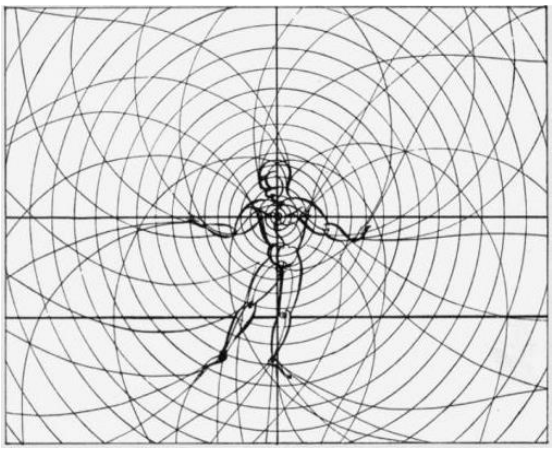


Figure 8: Figure in space with plane geometry and spatial delineations by Oskar Schlemmer, 1921 (Dickey, 2019)

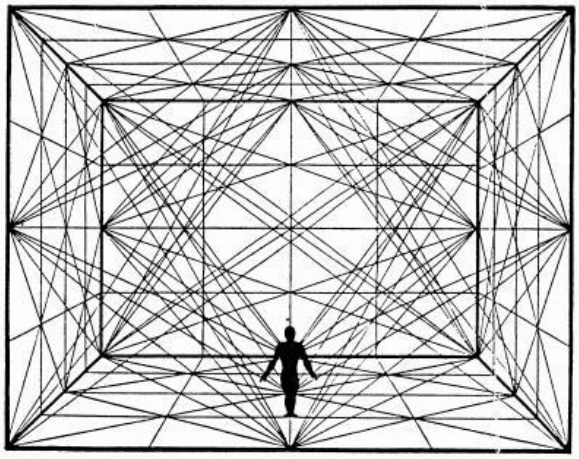


Figure 9: Figur und Raumlineatur (Figure and space delineation) by Oskar Schlemmer, 1924 (Dickey, 2019)

The situation of figure 9 suggests the movement of the body within the neutral field of architectural space (Bowler, 2016). On the other side, the person on figure 10 is situated within the cubic stage space while being fixed by a firm system of geometric lines, angles, and planes that according to Bowler (2016) seems to become part of the architecture itself. Along with Bauhaus, the attempts of the avant-garde groups of Expressionists, futurists, Constructivists, Dadaists, and Surrealists had also changed the traditional way of theatre design. These avant-garde movements changed the traditional model with a new conception of space in the performance that rejects the

fixed positions of the audience and one-sided composition of stage (Temizer, 2003).[4]

2.2 Theatre typology and basic elements

Over the years, theatre architecture has always been configured based on the actors-audience relation; all theatre forms regardless of the performance that is taking place in them require an acting space on which performers express their art and a place where people as the audience can easily gather and see the performance. Accordingly, the basic elements that defined the space known as theatre are including acting space called the 'stage' and a sitting area for the audience called 'auditorium' or 'house'. It is based on the arrangement of these two basic elements that various types of theatre are distinguished. The term 'open-stage' used for an arrangement in which stage and auditorium are both in the same architectural space while the proscenium or picture-frame stage is those where the whole or part of the stage is in space separated from the audience by a wall with an opening called proscenium arch (Ham, 2014).

In general, theatre forms, based on the relation between stage and the auditorium, can be classified into four main forms. However, there are a variety of different terms or other classifications that have been applied for stage-auditorium relation. Thus not all the mentioned terms might cover every possible stage-auditorium relation. The most common type of theatre forms based on the arrangement of the acting area and auditorium are listed below:

A) Arena stage also called theatre in-the-round, island stage or centre stage theatre;

B) Thrust stage also called open stage, or courtyard theatre;

C) End stage theatre which proscenium theatres are a subset;

[4] The characteristic of these avant-garde involvements on theatre design specially the Expressionists is more explored on following chapter (chapter 3).

D) Flexible stage, black box, Environmental, promenade, or studio theatre.

Arena stage theatres or commonly known as theatres in the round are one of the most basic theatre forms of drama (Barron, 2009). The form is based on circular arrangements of the audience around the stage in which the stage is enclosed by the audience. Therefore, the intimate connection between performers and audience would be maximized however it will lead to less possibility for theatrical illusion since the audience view stage from all sides (Figure 10). This type of theatre form was common from Ancient Greek and Roman to Shakespeare's day and until the latter half of the twentieth century (Barron, 2009).

In thrust stage theatre, the audience is arranged on three sides of the stage while leaving one side for taller scenery as background. The shape of the stage in thrust theatres may be in various forms such as semi-circular or half a polygon with any number of sides (Figure 11). End-stage theatres in contrast are those that the audience is located only on one side in front of the stage. As a result, in comparison with Arena stage and Thrust stage theatres in which some audience might look at others on the opposite side, in End-stage theatre audience might have full attention to performance since the audience's space on all but one side is blocking off (Figure 12). In all these three types both stage and audience seating occupy the same architectural space. While in Proscenium stage theatres as mentioned former, the acting area and auditorium are not in the same architectural space and are separated by a proscenium arch, thus the audience witnesses the performance through a frame (Figure 13).

Figure 10: The arena stage theatre: Actors Theatre of Louisville, Kentucky, USA URL-2

Figure 11: The thrust stage theatre: The University of Southern Indiana, performance centre, Evansville, Indiana, USA URL-3

Figure 12: The end-stage theatre: Whitney Museum of American Art, New York, USA URL-4

Figure 13: The Proscenium stage theatre: American Airlines Theatre, Roundabout Theatre Company, New York, NY, USA URL-5

Flexible stage theatres known as black box are those that there is not necessarily a certain relation between the stage and the sitting place. The stage and the auditorium

are not fixed and it can be made into any type of theatres which suit the need of the performance (Figure14).

Figure14: The stage and audience arrangement in flexible theatre: Donald Savage Theatre and Communication Building, the State University of New York College, Buffalo URL-6

These mentioned forms are still the major types of contemporary theatre space designs. Besides with stage, various spaces have been provided to support the performance; the backstage which is including of places such as dressing rooms, rehearsal rooms, and green rooms, and also spaces such as wing space located on either sides of stage used for actors awaiting or entrance to the stage, trap rooms located below a stage, fly spaces above stage, and rare stages which is located at the back of stage (Hildy, 2018).

2.2.1 Stage typology

Stage types are one of the important factors that influence the way drama performs. The drama has undergone changes throughout history which are partly linked to the way that stages reshape and develop over time; each drama requires a different platform to perform. In other words, the body of the play, secondary text, scene explanations, stage direction for acting and speaking all depend on where the play is going to perform. What mentioned former about theatre typology was a general classification of theatre buildings based on the arrangement of acting place and audience area. However, according to Lethbridge & Mildorf (2003), there is another

classification that is including the development of stage form, stage scenery, and the influence of stage design on the drama. This classification based on the period is including:

A) Greek Classism

B) The middle Ages

C) Renaissance England

D) Restoration Period

E) Modern Times.

The ancient Greek drama was performed in large amphitheatres on a round stage about three quarters surrounded by a mass of audience. In this manner, actors could hardly be seen and be heard, so they had to perform in loud and declamatory voices with large gestures while wearing masks and symbolical costumes. Since most of the Greek plays were performing during the daylight, it was almost impossible to create an illusion of real life such as a night scene. Thus, most of the stage scenery was neutral or covered by real landscapes (Lethbridge & Mildorf, 2003).

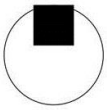
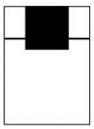
Through the middle ages, plays mostly performed at wagons that were stopping in market places surrounded by the audience. As a result, the lack of distance between the audience and the acting area stopped the creation of a realistic illusion that was not intended. The play had religious themes such as mystery and morality in which actors used their everyday experiences that accordingly increased the interaction between audience and performances (Lethbridge & Mildorf, 2003). During Renaissance England, the stage in Elizabethan Theatres was surrounded on three sides by the audience; this form increased intimacy between actors and audience. The

lack of artificial lighting in Elizabethan Theatres made it necessary to perform the plays during daylight. In this manner, the audience had to imagine the scenes that were assumed to happen at night through word scenery and information that was given by actors on their speaking. The Blackfriars theatre, however, was exceptional that performed indoors and under candlelight (Lethbridge & Mildorf, 2003).

During the seventeenth and eighteenth centuries, theatres were indoors and smaller compared to open-air Elizabethan theatre; the theatres were hold up to 500 audiences while former Elizabethan theatres could hold up to 2,000 people. During the restoration, the audience was located in an illuminated room and the borderline between audience and actors was not clear as today. The stage was closed by a decorated frame which enlarged the distance between the acting place and audience. There were no curtains and the changes in the scene were happening in front of the audience. In this manner, the restoration theatres represented an idealized image of scenery instead of creating a sense of reality on stage (Lethbridge & Mildorf, 2003).

The following table (Table 1) represents a summary of theatre typology and the stage design through the history based on Lethbridge and Mildorf (2003) classification of theatre space. The review started from Greek classism and continues to the modern time. This classification indicates that how the developments of theatre space through the history of western culture, along with the use of technology in stage design, influenced the nature of performances.

Table1: Stage typology and set design over time. Source: author

Time period	Stage type	Theater building	Theater play & stage design
Greek Classism		Open-air amphitheater	• Loud and declamatory voices • Large gestures • No creation of realistic illusion • Neutral stage scenery or real landscape
The middle Ages		Wagons that were stopped in market places	• Religious plays with themes of mystery and morality • No clear distance between stage and audience • No creation of a realistic illusion
Renaissance England		Enclosed Elizabethan Theatres	• Lack of artificial lighting • Set design through word scenery and information given by actors
Restoration Period		Enclosed theaters	• Large distance between acting place and audience. • Representing an idealized image of scenery instead of creating a sense of reality on stage • Audience located in an illuminated room • Closing stage with a decorated frame
Modern Times		Proscenium Theatre	• Illumination of stage • Audience located in a dark room with full focus on what is performing on stage • Use of technology in stage design • Creation of realistic illusion

The stage form in the theatre of modern time which including the theatre plays of the 19th and 20th century is considered as a proscenium stage where the audience witnesses the performance through a frame as it is a picture. In Proscenium Theatre, the stage is illuminated during the time that the play is performed while the auditorium remains in the dark. In this manner, the audience has full focus on what is performing on stage in front of them, and of course, with the aim of various technologies, it is easier to create a sense of illusion in reality (Lethbridge& Mildorf, 2003). According to Bowler (2016), in a proscenium theatre, the audience is all situated in a position of 'Frontality', the term that refers to the sense of illusion or unreality to whatever is performing on stage since the audience is witnessing the stage production through a frame and they cannot touch whatever that is on the stage to check if those are real or not.

2.3 Theatre typology in Iran

2.3.1 A brief glaze on the history of performance in Iran

According to Beyzaie (2005), a researcher needs to investigate the presence of dramatic forms that were performed throughout history because these theatrical elements paved the way for further serious forms of theatre. In this manner, Beyzaie (2005) classified Iranian plays into four general parts:

A) *Naghali* or Narration

B) Puppetry

C) *Ta'ziyeh* or passion play

D) Farcical play.

In this general classification, each type of mentioned drama itself is including several subtypes; according to Kazemimojaveri (2016) dramatic performances in Iran can be classified into eight main types:

A) Ritual performances

B) Processional performances or quasi theatrical processions

C) Street performances or outdoor performances

D) Dramatic storytelling and narration, dramatic-musical storytelling, and narrative dances

E) Puppetry or Puppet Theatre

F) Traditional farcical play

G) *Ta'ziyeh* (Mourning) or passion play

H) Western theatre or contemporary theatre.

Ritual performances including masked dances and supplicatory rituals which involved musical narration and dances based on epic stories; since it was not possible to find a play in Iran on a large scale, people have transferred their theatrical taste to dance, ceremonies and celebrations (Beyzaie, 2005).

Processional performances are including mourning and celebrations such as *Kuse bar nashin* (the Ride of the Beardless man) which after the advent of Islam its name reformed into *Mir-e-Nowrouzi* (the Prince of the New Year), *kin-e Siyavosh* (revenge of Siyavosh) (Gaffary, 1984), and *Mogh koshi* (Magiphonia or killing a Magus). Some argue that the mourning of *Siyavosh*, who was an innocent hero killed unjustly, was an inspiration for forming *Tazieh* (passion play) which appeared some thousand years later (Gaffary,1984). *Tazieh* as one of the important Iranian performances is intended to be explored in the following parts.

Dramatic storytelling and narration is including picture-recitation, and *Naghali* (Recounting). The earlier form of *Naghali* formed after the development of language, in such a way that in multi-person communities, the chief of the tribe conveyed the stories of heroes to the listeners (Beyzaie, 2005). Thus, in *Naghali* Narrator or performer tells historical or religious stories or in some cases, narrates famous stories of *'Shahnameh'* (The Book of Kings, a long epic poem by the Persian poet Ferdowsi). In this manner, one performer is playing all the different characters of the story with special rhythm, gestures, and expression (Figure 15). In picture-recitation and narration, the Narrator (performer) tells and acts the stories of heroes while showing special pictures to the audience (Kazemimojaveri, 2016).

Figure 15: Naghali (Narration) by a male performer in an Iranian café URL-7

Street performances or outdoor performances including performance such as trick and magic to entertain the audience; they were mostly called *Ma'rekeh* (show). However, they are mostly considered as entertainments rather than traditional performances.

Puppet Theatre is including *Kheymeh shab bazi* (marionette) and *Sayeh bazi* (shadow puppetry) (Beyzaie, 2005). In *Kheymeh shab bazi* (marionette), 'glove dolls' were for performing during daylight, and 'string puppets' were for evening performances (Gaffary, 1984). In *Kheymeh shab bazi*, the puppets were controlled by the performer in front of the audience, while in *Sayeh bazi* the shadows of the dolls that were placed in front of a light source reflected on the curtain. The traditional type of *kheymeh shab bazi* was performed in public places for lower-class people while the modern type since 1970 has been performed in theatre halls (Kazemimojaveri, 2016).

Traditional farcical plays were performing by clowns and gypsies in public places such as public squares, tea houses, and bazaar. To provide a central stage in public

places or courtyard of private houses, the small pool (Howz) in the centre was covered by a wooden board and carpets while surrounded by the audience. Thus, temporary places for performing traditional comedy plays were built. The term *Ru-howzi* (over the pool) or *Takht-e Hozi* (wooden beds over the pool) is used to describe improvised traditional comedy (Gaffary, 1984) (Figure 17). Along with *Ru Howzi, Siah bazi* was another type of Traditional farcical plays which in contrast to *Ru Howzi* were mostly performed at public places (Kazemimojaveri, 2016).

Ta'ziyeh is a ritual based theatrical performance which derives its form and content from religious traditions. Although its appearance might seem Islamic, it is strongly Persian which reflecting inspiration from its social, political, and cultural heritage (Chelkowski, 1977). It is the Passion play which was born in the middle of the 18th century and expresses consolation, sympathy, and mourning; a performance by Shia Muslims which represents the tragic death of *Hussain* (the Prophet Muhammad's grandson). *Ta'ziyeh*, like Western Passion Plays, was performed outdoors at public places such as streets and crossroads where a huge amount of audience could gather and witness the performance. Later, it performed indoors in courtyards of private houses. Then a specific design place called *'Takiyeh'* or *'Hussainiyeh'* was constructed for the staging of the plays which were temporary places made by individuals (Kazemimojaveri, 2016). They were an open-air constructed place, but almost had awnings to shield the audience and performance. One of the famous *Takiyeh* was *Takiyeh Dowlat* (1868); a permanently constructed place in Tehran with a capacity of 4,000 people (Figure 18). The place was demolished in 1946 and replaced by a Bank (Chelkowski, 2010). The form of this building was a combination of a European amphitheatre and open houses (Figure 16). However, it was used

exclusively for performing *Taziyeh* rather than opera or ballet. In *Tekyeh* audience gathered around a round or square acting place *(Sakku)* that was surrounded by loggias decorated with carpets and crystal chandeliers (Gaffary, 1984). This circular arrangement of the audience around the acting place same as arena theatre created a more intimate interaction between audience and actors. Thus, the audience became physically part of the performance (Chelkowski, 2003).

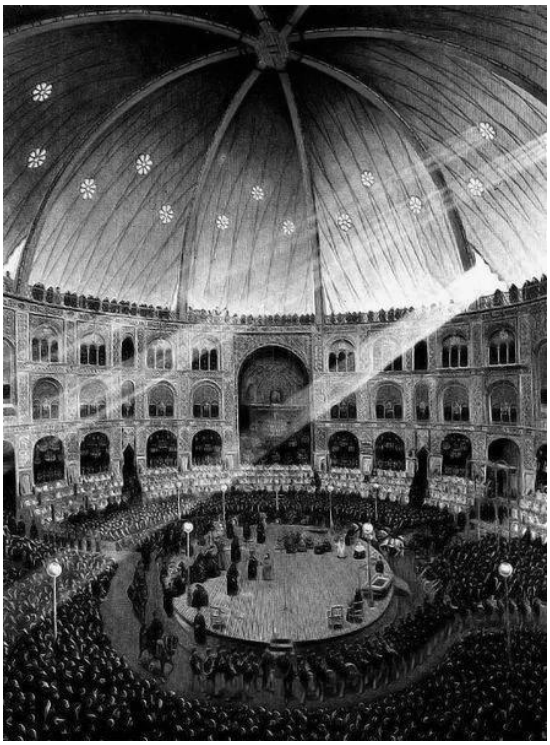


Figure 16: Tekyeh Dowlat painted by Kamalolmolk URL-8

After the establishment of *Teatr Melli* (National Theatre) in 1911 and the constitutional revolution of 1912, the first type of western-style theatre was presented in Iran. Accordingly, the writer started to translate European plays by Schiller and Moliere (Lazgee, 1994). In this manner, During the *Qajar era* (1794–1925) the attempts of modernization of society began, and the development of former types of performance which before were highly popular ceased and gave way to western types of performance (Talajooy, 2011). However, during the *Pahlavi period* (1925–

79) and in the mid of 1950s the practitioners encouraged the idea of creating an Iranian theatrical tradition that shared avant-garde elements. The 1979 revolution in Iran made a new momentum for theatre which led to the Islamization of culture and accordingly all artistic activities. Although nowadays theatre in Iran is dealing will strong censorship, artists have achieved noticeable success.

2.3.2 Iranian performance and acting place

As mentioned formerly, the earlier forms of Iranian performance do not necessarily require a designed building in which to be performed. One main reason would be the fact that these performances were mostly considered as public entertainment rather than a dramatic art. As a result, most of the Iranian performances represented in an area which was not exclusively designed for performing; places such as café, tea houses, public squares, street, bazaar, and courtyard of private houses, or temporally constructed places by locals where a group of the audience could easily gather and witness the performers, are among the places which were used for performing. However, during the *Qajar era* (1794–1925) under the influence of western culture, the attempts of designing theatre buildings in a form of European amphitheatre and open houses began. In 1886, the first European style auditorium was constructed in *Dar al Fonun School* (Gaffary, 1984). Another famous example of European style design as the mentioned former was *Tekyeh Dowlat* (1868) which was for ritual ceremonies such as *Ta'ziyeh.* From the Pahlavi period (1925–79) and till the contemporary time, the western-style theatre became an integral part of Iranian theatre, and thus, theatre buildings share the same characteristics with contemporary western theatres. The following table (Table 2) represents the review of Iranian performances along with subtypes and acting places of each. The arrangement of the audience and stage for most of these performances do not follow any pattern. Any

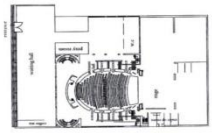
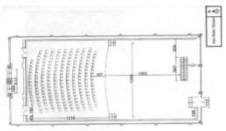
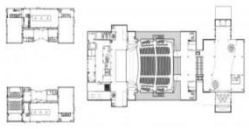
space, both outdoor and indoor, that was suitable for acting and gathering were used for performing; except for Ta'ziyeh or Iranian Passion play which were performed in a temporary or permanent designed space known as *Tekieh*.

Table2: A summary of Iranian performance over time. Source: author

Typology of performance	Approximate starting time	Subtypes	Acting places
1.Ritual performances	Before the Islamic conquest (633–65)	• Ritual masked dances • Musical narrations based on epic stories of the past or current achievements	**1.**Open air public area **2.**Open air public area
2.Processional performances Or quasi theatrical processions	Before the Islamic conquest (633–65)	• Mourning and lamenting • Marrying and festivities	**3.**Royal courts, Public squares, and Tea houses **4.**Streets and public squares
3.Dramatic storytelling and narration	Starting before the Islamic conquest and continue up to present time	• Picture narration • *Naghali* based on historical, religious, or *Shahnameh* stories	**5.**Public places (Traditional ones), and Theater halls (Modern types (since 1970
4.Street performance Or Ma'rekeh (show)	Its origins found through pre-Islamic era and reshape former types	• Snake charming • Tricks and magic	**6.**Public squares, Tea houses, Bazaar, Over the pool in the Courtyard of private houses
5.Puppetry	224 to 651 CE by the arrival of Indians in Iran	• *Kheymeh shab bazi* (marionette) • *Sayeh bazi* (shadow puppetry)	**7.**streets and crossroads, Courtyard of private houses, *Tekieh* or *Hussainiyeh*
6.Traditional farcical play	Since 17th century	• *Ru Howzi* (over the pool) • *Siah bazi* (play of blackman)	
7.Taziyeh or passion play	In the middle of 18th century	• *Dooreh Taziyeh* • *Women Taziyeh* • Farcical *Taziyeh*	**8.**Contemporary western style theater buildings
8.Western theater or contemporary theater	Since 1848 to present time	–	

However, these days, theatre in a form of contemporary western style, is staging on theatre buildings that are mostly located in Tehran. The theatre space and arrangement of auditorium and stage, in most of them, can be considered as a black box and end-stage in which proscenium theatre is a subset (Table 3). Famous contemporary theatre buildings in Iran which were design under the influence of European theatre halls are including *Tehran Performance Art Center* (2016), *Iranshar Theatre hall* (2002), *The City Theatre* (1972), *Vahdat hall* (1967), *Sangelaj Theatre* (1961), *Ferdowsi Theatre* (1946), *Saadi Theater* (1950) etc.

Table3: The review on theatre buildings in Tehran. Source: author

Building	Date Built	Ground Floor Plan	Stage Type
Roudaki Theater Hall	1957-1967		**2 Halls:** Up to 740 seating capacity • Proscenium
The City Theater	1967-1972		**5 Halls:** Up to 579 seating capacity • Proscenium • Black box
Iran Shahr Theater	2006-2009		**2 Halls:** With 212 and 288 seating capacity • Proscenium • Black box
Tehran Performance Art Center	2007-2016		**10 Halls:** Up to 1000 seating capacity • Proscenium • Amphitheater • Black box

To be more engaged with the design of the theatre buildings, the design and arrangement of the stage-auditorium of *The City Theatre* and *Vahdat hall* as samples is explored in the following parts:

The City Theatre was designed by Ali Sardarafkhami in 1972 and took five years to be constructed (Figure 17, 18). This cylindrical building has a height of around 15 meters and a length of about 34 meters. The exterior of the building is all covered with extended pillars and a trefoil star base; the curved beams protecting the protruding ceiling of the building (Ghasemzadeh & Toofan, 2014). The building follows a circular plan on each floor. Although the circular form of the building might remind the classic Greek and Roman theatre form, the arrangement of stage and audience is not circular.

Figure 17: The City Theatre in Tehran built in 1972 URL-9

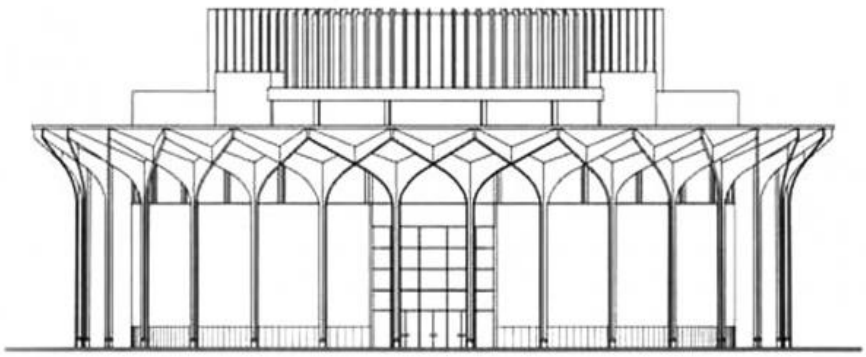


Figure 18: North elevation of the City theatre, Tehran URL-9

This complex is including five main halls; the "Main Hall" on the ground floor with a capacity of 579 sittings. The design form of the Main Hall is considered as a proscenium in which the acting area and auditorium are not into the same

architectural space and are separated by a proscenium arch, thus the audience witnesses the performance through a frame (Figure 19, 20). The "Chaharso" hall with a capacity of 120 sittings, "Qashqai" hall with about 100 sittings capacity, and "Sayeh" with 55 sitting which designed in black box form, along with "Plateau Performance" halls are all located on underground floor.

Figure 19: The auditorium of the Main hall with proscenium stage design URL-9

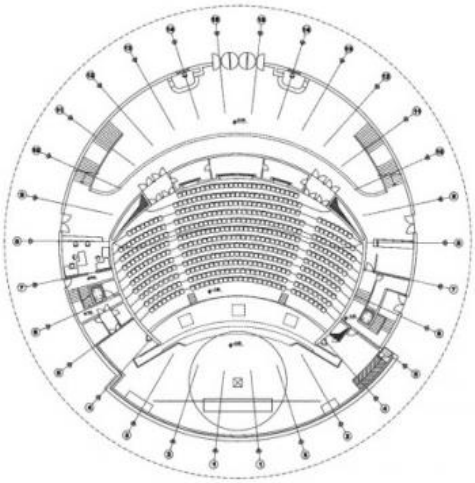


Figure 20: The ground floor plan of the City theatre URL-9

Vahdat Hall is another theatre building located in Tehran which was built under the influence of Vienna State Opera in 1967 and with the aim of performing ballet, opera, and both Iranian and European music concerts. However, after the 1979

revolution, the building has been exclusively for theatre plays and Iranian music concerts. This theatre complex is including of two main halls: *Vahdat* and *Roudaki*. The building has seven levels with a total area of 21000sq. The ground floor of *Vahdat Hall* is including 10 main entrances, a waiting room, balconies, an auditorium, and places for orchestra. The theatre hall in the ground floor is consisting of three levels of storied balconies as well as 20 special cabins in the eastern and western part of the hall (Figure 21, 22). During the first years of its opening, the hall had the latest lighting and sound system technologies and revolving stages. The main stage is including three different podiums (Mohammadi, 2013).

Figure 21: Main auditorium of Vahdat Hall located in Tehran, Iran URL-10

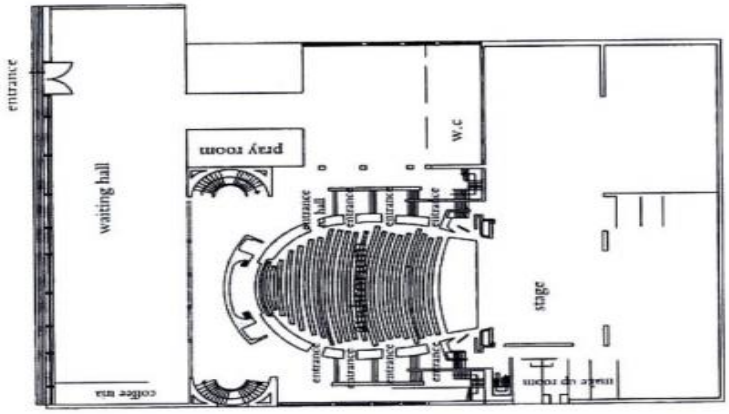


Figure 22: Main plan of Vahdat theatre (Mohammadi, 2013)

2.4 Findings and conclusion

Theatre architecture is not just the materialization of a specific space, but it is in fact, a physical expression of a specific history, architectural style, social and political circumstances; accordingly, a play is not simply a transformation of text or drama into a stage production, but a representation of the aesthetic and cultural theme of a specific time and location in history (Marker, Frederick & Marker, 2002). Besides the contribution of theatre architecture to theatre plays, this fact is the main point that shaped and influenced theatre both in drama and architecture. Based on the reviews that have been done through this chapter over these issues, final findings can be discussed in three main parts:

1. The contribution of theatre architecture to theatre play: A theatre is a three dimensional event which is unique since it expressing a set of artistic aims and attitudes; it is an artistic event in which there is a specific communication not only between actors but also with a group of audience who are witnessing the performance (Mackintosh, 2003). As Mackintosh (2003) states all these factors interact with one another in order to express the overall message of the artist to the audience; this expression is the final goal in a theatrical experience and in this theatrical experience, the importance of theatre architecture is more than a frame to a picture, but the audience is mostly unaware of the contribution of theatre architecture to theatrical experience; many might misunderstood decoration for theatre architecture and generally ignore the importance of all architectural elements for a theatre performance and accordingly the experience that is following by that. The reason according to Bowler (2016) is that in a theatrical experience, the focus would be mostly on whatever as a theatre is happening on stage, while the rest of the space and how it will affect the theatrical experience will remain in the dark while staging a

theatre performance above all is acting within architecture. As Rufford (2015) argues for any theatre to be expressed it is required to give attention to distance, scale, ration, and even immaterial aspects such as light and shadow. Therefore, theatre is defined spatially; in which the performance practices always happen within a specific space with a specific architectural style, size, shape, and specific arrangement and position. Although theatre as an art form might not necessarily require a specially designed space to be expressed, the review on the history of theatre architecture and its developments over time is indicating that when a group of people gathers to witness the performance, that zone is being organized for both audience and actors comfort. However, these organizations as mentioned in this chapter have been changing many times over the years.

2. The developments of Western theatre architecture through history: From the earliest times to the present, the theatrical meaning, aesthetics, and acting style have been merged with theatre architecture (Rufford, 2015). The huge size of Greek and Roman open-air theatres, for instance, required large gestural acting plays; their design type was based on space division that created separate zones of the interior and exterior settings in which audience from the performance was physically separate, while the small Elizabethan amphitheatres created a more intimate theatrical experience in which the contact between audience and actors were intensified. It is why according to Wiles (2003) discussing theatre architecture is always about finding a right play for the space or the right space for the play; the play only as a text, for instance, can be performed in a space, while a play that contains events belong to space and it makes the space to be performed same as the actors perform.

Since the Renaissance time with the creation of enclosed space theatres, designers not only were creating a theatrical space which was often within an existing room at court but also they were designing the stage environment for viewing a theatrical experience (Palmer, 2013). These changes in theatre architecture became increasing with the beginning of the 19th century when architects and designers attempted to bring audience and actors in more intimate contact with one another or in the words of Bruno Taut a new type of theatre where audience and actors all are caught up in the magic of togetherness (Kuenzli, 2012). This desire was the most influential factor in shaping the theatre architecture during the 19th century and up to the first of the 20th century.

The attempts of the avant-garde groups such as Expressionists, futurists, Constructivists, Dadaists, and Surrealists had changed the traditional models of theatre design. These avant-garde groups attempted to reject the fixed traditional composition of theatres and suggest the new composition of stage-audience relation. This fact according to Wiles (2003) led to a clear moving from absolute space to the abstract one in which any type of space can be defined as a specific area for a theatrical experience or as Peter Brook, an English theatre director, mentioned even an 'Empty Space' can be considered as a bare stage for performing theatre; this empty space as Brook mentioned is like the blank canvas for a modernist painter to paint (Wiles, 2003).

3. The development of theatre architecture in Iran: with a brief review of the history of Iranian performance over time it can be concluded that although the conventional dramatic performances in Iran were rich in concept and performing

style, they had no exclusively designed space to be performed. One key reason might be the fact that these performances mostly considered to be traditional performative entertainments, rather than being 'Theatre' because what is meant by the theatre is a dramatic art or organized artistic system that first needs a text and then a director, as well as other factors such as acting, staging, music, lighting, painting, and architecture (Beyzaie, 2005). As a result, most conventional Iranian performances, represented in areas those were not exclusively designed for performing. Places such as café, tea houses, public squares, streets, bazaar, and courtyard of private houses, or temporally constructed places by locals where a group of the audience could easily gather and witness the performers. In this manner, the arrangement of the audience and stage for most of these performances did not follow any pattern. Any space, both outdoor and indoor, that was suitable for acting and gathering were used for performing; except for *Ta'ziyeh* or Iranian Passion play which were performed in a temporary or permanent designed space known as *Tekiyeh*. However, during the 17th century and the beginning of the 18th century, under the impacts of western culture, the attempts of designing theatre buildings in a form of European amphitheatre and opera houses began. During this time, various travels to European countries led to applying European patterns into society. The western world, Europe, or as the Iranian called it *'Farang'* was a world full of ideal concepts and beauty which had a major contrast with Iran's society at that time.

As a result, the development of former types of performance which were highly popular ceased and gave way to western type of performances; the construction of the first European style auditorium in *Dar al Fonun* school in 1886, the establishment of *Teatr Melli* (National Theatre) in 1911, and the constitutional

revolution of 1912 all leaded to the presentation of the first type of western-style theatre Iran. One of the famous examples of European style theatre design as mentioned former was *Tekyeh Dowlat* (1868) which was for ritual ceremonies such as *Ta'ziyeh*. The form of this building was similar to European opera houses; same as arena theatres, the building has consisted of a circular arrangement of the audience around a platform called *(Sakku)* which was used as an acting place. This arrangement of stage-auditorium created an intimate interaction between actors and audience alike to England Elizabethan theatres in which the audience became physically part of the performance. In the mid-1950s, the practitioners encouraged the idea of creating an Iranian theatrical tradition that shared avant-garde elements. However, the 1979 revolution in Iran led to the Islamization of culture and accordingly all artistic activities such as theatre.

These days, theatre in a form of contemporary western-style is staging on theatre buildings that are mostly located in Tehran. The theatre space and arrangement of stage-auditorium, in most of them, can be considered as a black box and end-stage in which proscenium theatre is a subset. Same as modern style proscenium theatre, the stage is illuminated by lighting technologies while the audience is located in a full dark auditorium; there is a high focus on what is performing on stage as well as an easier way to create a realistic illusion for plays.

Chapter 3

EXPRESSIONIM: MOVEMENT, ARCHITECTURE, AND THEATRE

3.1 Expressionism in general

3.1.1 History of the movement

The shift from the 19th to the 20th century in Europe is defined by a variety of artistic movements, styles, and tendencies that mostly had no clear directions (Furness, 2017). As a result, various isms such as naturalism, impressionism, symbolism, neo-romanticism, then futurism, and expressionism exist side by side, having a strong overlap with each other, and hard to be distinguished precisely. All these tendencies during the end of the 19th century and the beginning of the 20th century were imaginative responses to the situation of real-world (Furness, 2017).

The expressionism movement originated in Germany in the late 19th century and beginning of 20th century as a reaction to previous current styles such as impressionism and naturalism, then eventually became prevalent in other parts of Europe which were the most prominent among other artistic tendencies. It was not only one of the important movements during the first decade of the century in northern Europe, but it influenced the whole art and culture of the 20th century (Behr, Fanning & Jarman, 1993). From its beginning and until the First World War, expressionism was understood as a modernist and internationalist movement in Germany, but it was after the world war and in the twenties that the movement began

to be seen beyond German borders. Meanwhile, the movement began to be distinguished from Dadaism, cubism, surrealism, and futurism which in fact it had much in common (Grace, 1989). In general, the term expressionism is used to describe the activities of German, Dutch, Danish, and Austrian avant-garde artists during the Interbellum[5] (Sheppard, 2016). However, the expressionist artists debated on the intention and final goal of the movement to such a degree that there were a number of expressionists that were loosely connected (Kuhns, 1997).

The term expressionism was first originated in painting. According to John Willett (1970) expressionism first used as early as 1850 to describe modern paintings and also during the year 1880 to describe those paintings that were expressing emotion and passion beyond the common registration of impressionism with more violent and energetic themes such as Van Gogh artworks (Furness, 2017). However, according to Grace (1989), the term of expressionist art did not use until the year 1911 when it applied to describe modern paintings such as Fauves, Braque, and Picasso (Grace, 1989). At first, during the year 1912, the word expressionist was used to define artworks that were different from impressionism or those works that were anti-impressionists. Therefore, although the movement began in Germany, it applied to works of non-German artists such as Matisse and Van Gogh (Bassie, 2008). In this manner, the term first applied to visual arts such as paintings and printmaking and then a little later to literature, cinema, and theatre (Bassie, 2008). On the other side, Grace (1989) marks the beginning of the expressionism movement in 1905 when a group of expressionist painters known as *Die Brücke* (The Bridge) came together[6]. In

[5] Interbellum is a term that used to describe the period between the end of the First World War on November 11, 1918 and the beginning of the Second World War on September 1, 1939.
[6] Die Brücke (The Bridge) was a group of German expressionist artists including Erich Heckel, Karl Schmidt-Rottluff, and Fritz Bleyl that were formed in 1905 in Dresden.

this manner, expressionism is covering the period between the forming of *Die Brücke* in 1905 to the emerging of *Neue Sachlichkeit* (New Objectivity) style in 1925 (Behr et al., 1993)[7]. New objectivity rejected the idealism and formal focus of expressionism (Crockett, 1999) and was soon called post-expressionism. However many post-expressionist artworks shared the same characteristics of expressionism and same as expressionism had some common features with previous movements such as impressionism (Crockett, 1999).

Some scholar such as Bocinski (2016) marks the emergence of expressionism in a different way than other; Bocinski (2016) argues that expressionism as an artistic style emerged as a response to a phenomenon called 'fin de siècle' which means the end of the century in French; when many people were anxious about the uncertainty of turning into 20th century. As a result, a group of artists tried to express these feelings of uncertainty through their artworks. One of the most famous expressionist works that represent these senses of intense anxiety and unease is 'The scream' by Edvard Munch (1893). Hermann Bahr (1916) states in expressionism, the man screams from the depth of his soul; the claim has well depicted in Munch's painting.

According to Furness (2017) in contrast to naturalists who prided themselves on their modernity, at the end of the 19th century a new way of thinking was felt to be lacking, a new way of expression through a subjective vision which was detached from naturalist and realistic description of the social condition (Furness, 2017). In this manner, Furness (2017) argues that the art is ready for a new beginning where there is a call for self-expression, creativity, and a denial of tradition and like so,

[7] Neue Sachlichkeit (New Objectivity) rejected expressionism irrationalism and subjectivity and as a challenge to expressionism, suggested a more rationalistic style. New Objectivity was a return to the objective world with realistic features that first became prevalent in Germany (Bassie, 2008).

expressionism seemed to be an appropriate message for the new century and up to the outbreak of First World War; when it was still a catch-all phrase for latest modern, futurist, cubist and Fauviste artworks (Bassie, 2008). In 1933, after the Nazis took power in Germany, expressionism was labelled as degenerate and by the end of the Second World War, the movement was rejected by historians as being irrelevant and out of touch with the Machine Age (Sheppard, 2016). Accordingly, with the beginning of the slogan *"Aktion Wider den undeutschen Geist"*(action against the un-German spirit) expressionist art slowly began to fade in Germany and other parts of Europe (Grace, 1989)[8].

The table below (Table 3) represented a review of the expressionist movement from its beginning along with other movements that emerge as a rejection or addition to previous ones.

Table 4: Expressionism movement from early to the last phases. Source: author

Movement	Expressionism	New Objectivity (Neue Sachlichkeit)	Abstract Expressionism	Neo Expressionism
Time period	**1920-1930 \1933**	**1925-1933**	**1940-1950**	**1970-Mid 1980**
Main Characteristic	Emphasizing on subjective and individual feelings rather than objective reality	Rejecting expressionism irrationalism and subjectivity	Exploring the subconscious and highly personal imaginations	Reacting against the detached intellectualism and ideological purity of Minimalism and Conceptualism

3.1.2 Definition, characteristics, and preoccupations of the movement

All the 'isms' in art, architecture, and literature are difficult to be precisely defined; the main reason is that there is a general, as well as the specific application for each

[8] In the 1930s, the German Student Union (DST) by proclaiming a nationwide "Action against the Un-German Spirit" ceremonially burn books that were against the ideology of Nazis. According to Grace (1989), this fact caused expressionist art to slowly fade in Germany and other parts of Europe.

of them (Furness, 2017). This is why historians still disagree on what expressionism is and many artists themselves rejected the label (Bassie, 2008). For expressionism same as all the isms, there is a strong overlap with modernism in general which makes it difficult to select expressionism from the middle of the modern period and attempt to define it individually and most importantly, very precisely.

Expressionism according to Furness (2017) not only has an overlap with modernism but it also has backgrounds in Baroque dynamism and Gothic distortion (Furness, 2017). Baroque dynamism as a sense of motion due to evoking emotional states and Gothic distortion which led to rejection of harmony and naturalism were mostly represented in expressionist visual arts.

In general, the main characteristics that define expressionist artworks are the intense subjectivity and the use of absolute metaphor. Above all, the artist and his inner emotion are the centres of everything in which the objectivity of naturalists and the *"l'art pour l'art"* (art for art sake)[9] aspect of symbolism according to Furness (2017) are left far behind. Emphasizing self-expression, creativity, ecstatic passion and a denial of tradition are the main characteristics of expressionism. In visual arts such as painting, the movement is mostly focused on expressing dynamic composition and formal distortion (Sheppard, 2016) with emphasizing on inner vision, inner imagination, more vital emotions, and more dynamic powers of description; the representation of subjective creation from within that had no hesitation to deform the conventional principles of reality due to express more powerfully (Furness, 2017). Expressionist artists all showed the same tendency to reject harmony and naturalism,

[9] l'art pour l'art (Art for art's sake) is a French slogan from the early 19th century that expresses the inner value of art which is separated from any ideological, moral, and political orientations.

the same desire to bring things that before had been ended up separated; a desire to remove the contract between void and solid, and the boundaries between exterior and interior (Wermester, 1999); a shift from the outer world of empirical experience to an inner world that a man can test only against himself (Selz, 1974). Since the main focus of expressionist art was on individual and subjective human experiences, the characteristics that can be seen through the works of expressionist artists are not obvious and it is why many critics and even artists themselves could rarely agree on the use of this term to describe artworks (Bassie, 2008). According to Conrad Fiedler, the artistic personality is no longer the production of its time, but it is a creator of new forms and visions in which each artist expressing his own individual world. In this manner, the activity of art depends exclusively on the eye, on the interest in seeing (Selz, 1974). In Kasimir Edschmid (1917) words, an expressionist artist does not see, he looks, he does not depict, he lives, he does not reproduce, he creates, He does not select, he searches (Edschmid, 1917 as cited by Grace, 1989) or as Beckmann claims: “I am seeking for the bridge that leads from the visible world to invisible world; the inner and spiritual world (Grace, 1989)”. All indicate the fact that what defines expressionist art is above all celebrating the free exercise of human passion and imagination through more formal or visual practices; the celebration of subjective emotion or 'inner necessity’. It is why according to Grace (1989) to think of expressionism as a self-expression movement is a misreading of the theory developing alongside it. However, to define expressionism as self-expression means an artist speaks only to him or herself, while for expressionists it was always important to communicate with others (Grace, 1989).

Although the movement has no clear definition, the subordination of objectivity and realism in order to get subjective or emotional effects and attempts to achieve new visionary dimensions is representing in all art forms which expressionism followed more than most other avant-garde movements (Sheppard, 2016). Accordingly, as Bürger (1984) states, expressionism can be considered as an avant-garde tendency by rejecting the essence of previous movements. Bürger (1984) by emphasizing Dadaism, surrealism, and expressionism, tries to define a general historical avant-garde that is distinguished from other artistic movements of the early 20th century. Bürger (2010) argues about two main principles that shaped the avant-garde tendencies:

• First the attack on the institution of art

• Second transforming of life as a whole.

These two conditions according to Bürger (2010) go hand in hand; the attack on the institution of art is considered as a condition in which the possible understanding of utopia, where art and life are united, defines. In this manner, Calinescu (1987) defines avant-garde tendencies such as expressionism as a more advanced phase of modernism in which the ideological and political orientations are different from the formal character of modernism. Therefore, expressionism is complex and contradictory in its definition; it encompassed the liberation of the body as well as the excavation of the psyche and within this frame, as mentioned former, there are political and revolutionary commitments (Bassie, 2008). These social and political ideologies attempted to achieve mostly in utopian designs of expressionist architects which will be discussed later. In this manner, expressionism as an artistic style and movement emphasize subjective and individual feelings rather than objective reality;

it is the expressive distortion of reality to such a degree that the external objective world is filtered through the internal subjective world of artists' emotion (Behr et al., 1993). The general characteristics of the movements and the results of the expressionist preoccupations are represented as a summary in the table below (Table5).

Table 5: Expressionist characteristics in general. Source: author

General characteristics and preoccupations of Expressionism	Results
The subordination of objectivity and realism	The objectivity of naturalists and *"l'art pour l'art"* (art for art sake) aspect of symbolism are left far behind
Emphasizing on the intense subjective creation	
A shift from outer world of realistic experience to individual inner world	More vital emotions, and more dynamic powers of description
A denial of traditional principles of harmony and naturalism	Deforming the conventional principles of reality Rejecting the essence of previous movements
The use of absolute metaphor	Achieving new visionary dimensions
The artist's inner emotion at the center	
Emphasizing on self-expression, creativity, and ecstatic	
The attack on the institution of art	Considered as an avant-garde tendency
Transforming of life as a whole	
New political, social, and revolutionary commitments	The new understanding of utopia, where art and life are united

In other words, when we talk about expressionist art; we talk about an attempt to express an inner reality that is behind the appearance. According to Schopenhauer's philosophy, the ultimate task of art is to express the inner world, the inner experience of the artist, and the inner nature of the world. Hence, the goal of expressionist art was expressing the inner message and all the external aspects had to convey this

message (Behr et al., 1993) and along with these attempts, the social, political, and revolutionary ideologies were co-existed.

3.1.3 Influences to expressionism

According to Furness (2017) According to Furness (2017) the movement, tendency, or mentality known as expressionism originated within an intellectual atmosphere that contained various sources of influence such as Nietzsche's theory of Vitalism, Marinetti's Futurism, Whittnan's Pantheism, and Dostoevsky's psychological theories. Same as expressionists, Futurists believed in breaking down the classical principles and suggesting new possibilities for human life through a utopian and visionary society. Pantheism, on the other hand, is the belief that god and the universe are one and inseparable. Therefore, Pantheists believe in unity and equality at all levels since everything is part of everything else (Hults, 2001). Nietzsche's Idealist Vitalism suggests that all actual existence refers to as an immaterial principle. Life in Vitalism defines as the opposite of mechanism. In philosophy, the difference between these two terms laid in their primary distinction between the notion of self-organization and causation (Lash, 2006). In mechanism, causation and configuration of beings are well determined while in Vitalism causation is self-causation so beings are largely indeterminate. In this manner, for Nietzsche, the *Übermensch* (translated as over-man or superman), the main character in his book *Thus Spoke Zarathustra* has such levels of self-organization (Lash, 2006).

All these philosophical views lead to a sub-rational aspect and became an important part of the movement. Although expressionism in its essence was influenced by all these philosophical sources, it was above all strongly influenced by the philosophy of Nietzsche (Furness, 2017). He by far was the most influential philosophical figure

for expressionist artists and his views were mostly reformulated by expressionists (Grace, 1989). In his book *Thus Spake Zarathustra* (1883–1885), Nietzsche emphasizes 'self-awareness', 'self-mastery' and 'passionate self-fulfilment' which gave expressionist artists the inspiration to seek their self-awareness and inner vision rather than influence by the outer world. He argues about human and animal instinct, the power of feelings and will, and also the superiority of body over reason or feelings over logic (Grace, 1989): "Where is the madness with which you should be filled? My brothers, destroy, destroy the ancient tablets!" [10] Nietzsche's emphasis on idealism and intense subjectivity was a main source of inspiration expressionists to seek for a New Man same as the Zarathustra.

Along with this subjectivity, self-awareness, and idealism, Nietzsche's uncertainty was also reflected in expressionist works which led to utopian visions and in some cases the nihilism and anticipations of a universal dread (Furness, 2017). Besides Nietzsche, other important sources of philosophy to expressionists was Fyodor Dostoevsky (1821-1881) who inspired Nietzsche himself and also Henri Bergson (1859-1941) and his focus on subjective force and radical change (Furness, 2017) as well as the philosophical roots of Romantics, Kant, Hegel, Schopenhauer, and Husserl (Grace, 1989), but it was the strong influence of Nietzsche's ideas that shaped the philosophical background of expressionism movement. According to Grace (1989) 'the soul of the expressionist movement is Nietzschean'. 'Empathy' and 'abstraction' for instance, are both fundamental in Nietzsche's philosophical views which can be seen in expressionist arts as well (Grace, 1989). In his other book, *The Birth of Tragedy* (1872) Nietzsche argues about two opposite tendencies in

[10] Nietzsche, as cited by Furness, 2017, p. 8

Greek tragedy. The theory represented the dualism between two worlds: *Apollonian* and *Dionysian* that both together create the tragic story; the Apollonian is a world of rationality, discipline, and harmony where everything has a logical reason while Dionysian is a world of irrationality, chaos, and disorder. In other words, Apollonian is a world of consciousness while Dionysian originating from the subconscious (Figure 23).

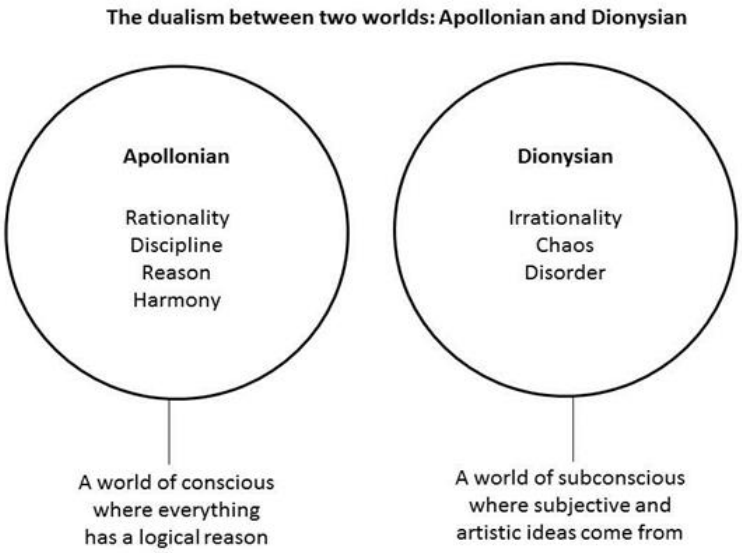


Figure 23: The dualism between Apollonian and Dionysian according to Nietzsche.
Source: author

This world of the subconscious is the main inspiration for expressionist artists where everything is based on abstraction, chaos, and disorder rather than following the logical order. Talking about the subconscious would remind the psychology and theories of Sigmund Freud and Carl Jung in which they emphasized the importance of the subconscious to personal works. According to the psychological theories of Freud and Jung, the personal subconscious contains a collection of feelings, attitudes, and abstract memories on a specific concept (McLeod, 2018). This collection is the origin of personal artistic works for expressionist artists where they represent their

inner feelings and abstract imaginations without the limitation of the logical world. As a result, the foundation of expressionism, in general, resulted from the exploration of the artist's conscious through the subconscious (Smith, 2005). It is through this exploration that abstract, imaginary, irrational, and subjective ideas come from which led to both artistic self-expression and creating visionary dimension.

3.2 Expressionist architecture

3.2.1 Definition and main principles

In 1915, the term 'expressionist' found its way to the domain of architecture when Adolf Behne uses it in his article published in Der Strum. Later in 1914, Bruno Taut inspired by the abstract and synthetic paintings suggested the unity of expressionist to architectural design and accordingly, developed a new structure based on expression and dynamism by using materials such as glass and concrete (Colquhoun, 2002). Eventually, expressionist architecture became prevalent in Europe during the 1920s while being defined as a reactionary movement that was too detached from reality. According to Bletter (1983) expressionist architecture, same as the movement itself was a reaction to the uncertainty of the post-First World War period; a reaction that shaped, developed, and spread around Europe; became futurism in Italy and expressionism in Germany (Colquhoun, 2002).

Although expressionist is a permanent tendency in modern architecture, according to Colquhoun (2002), the term of expressionist was used to refer to what is not functionalist and rationalist; it defined through the emphasizing on form and abstraction while rejecting modernist rationalist ideals, conventional principles of aestheticism, traditional norms, previous restrictions, and the uprising of sprit against reality (Bletter, 1981). In expressionist architecture, the emphasis on the form mostly

inspires by natural phenomena such as caves, rocks, and crystal and also organic, non-geometric forms all due to creating architecture based on motion, emotion, ambiance, and radicalism (Sheppard, 2016).

For that reason, as discussed formerly, Furness (2017) defines expressionism as a modern style tendency that also has backgrounds in Baroque dynamism and Gothic distortion. This sense of motion and formal distortion are the obvious features of expressionist designs, whether through visual arts such as painting or architectural designs (Figure 24, 25, 26).

Figure 24: Das Eismee (The Sea of Ice) by Caspar David Friedrich, 1824 URL-11

Figure 25: Monument to the March Dead by Walter Gropius, Weimar, 1921 URL-12

Figure 26: The Chilehaus (Chile House) office building, Fritz Höger, 1921-1924, Hamburg URL-13

According to Giedion (1967) the common spirit of the 19th century and the beginning of the 20th century carried an exclusive understanding of 'space' that affected the aesthetics of architecture. As a result, most of the architects attempted to focus on function, spatiality, and material. Although modern architecture, in general, had this main focus, the expressionist architecture, as a modern tendency not only focuses on spatiality and function but formal practices as well.

According to Sharp (1993) in expressionist architecture, the word architect is a suspect term since the paper format of such style allows architects to deal with any type of imaginary and individual designs. In general, the main features that define expressionist architecture can discuss through two main discourses:

1. Rejecting Modernist principles of aesthetic: A tendency toward dynamism, fragmentation, and distortion: During the early 1990s, avant-garde artists attempt to apply original ideas and philosophies in their works in order to detach from previous concepts. In this manner, influenced by a variety of philosophical sources such as Freud's psychological thoughts on conscious and unconscious, Nietzsche's ideas about self-awareness, empathy, and abstraction, these avant-garde artists got

interested in challenging rationalist orders between self and others, inside and outside, conscious and unconscious, thus they attempted to explore the unconscious due to reach to meanings (Tierney, 2007). This fact resulted in representing concepts and inner ideas into the designs rather than concerning about other factors that might define and affect the works. Therefore, expressionist designers same as other avant-garde artists got involved with a strong tendency toward formal practices that resulted in distortion, fragmentation, or expression of the overstressed emotion as well as a tendency toward Baroque dynamism and gothic distortion due to express a sense of motion, ambiance, and radicalism that were opposite to modern rationalist design based on harmony, unity, and symmetry.

2. Expressing subjective and individual experiences: A tendency toward utopian fantasy, imaginary, and mysticism: Many scholars consider expressionist as paper format architecture that enable architects to express their subjective experiences and developed their ideas through the nonconforming discipline of architecture (Olgren-Leblond, 2018). Since a perfect emotional expression needed a return to natural and primitive essence, it led to an ideal society in a form of utopia (Behr et al., 1993). Accordingly, Giedion (1967) summarized expressionist architecture as a tendency that utopian fantasy, imaginary, and mysticism are the main focuses. The architects associated with expressionism were a group of various visionaries who were under a common ideological purpose, but their attempts resulted in diverse visionary and utopian suggestions in design that were hardly cohesive or systematic in style (Olgren-Leblond, 2018). As a result, Giedion (1967) argues that expressionist architecture failed to give any service to architecture because it did not include any systematic and effective approach. As a result, in the domain of architecture,

expressionism was only limited to its passionate spirit. However, some Expressionist architects, mostly the Crystal Chain attempted to define a more tangible form of design outside the realm of paper. In this manner, their attempts led them to the medium of theatre and film as possible domains where their expressionist designs could physically realize. Stage design, whether in theatre or film, provides expressionist architects a platform in which their imaginary and subjective ideas could be physically constructed (Olgren-Leblond, 2018).

During the 1930s and by the end of Second World War, the movement was eventually rejected; architects and designers lost their interest in movement and most importantly in its fixation of previous concerns in architecture with the aim of abstract and expressive forms (Sheppard, 2016).

By the end of 1925 most of the expressionist architects such as Bruno Taut, Erich Mendelsohn, Walter Gropius, Mies van der Rohe, and Hans Poelzig changed their tendency toward new objectivity which as discussed former, in comparison with expressionism, was more practical approach. However, a few designers such as Hans Scharoun continued to work as an expressionist. Banham (1980) argues that expressionist architecture was anti-rationalism by which he distinguished expressionism from international style. However, according to many scholars such as Pruden (2018), the expressionist movement in architecture led to the evolution of future functionalist architecture (Pruden, 2018). Until the 1970s scholars commonly rejected the influence of the expressionists on the later International style, but this has been reconsidered more positively in recent years (Sheppard, 2016).

3.2.2 Expressionist architecture in contemporary designs

As discussed formerly, expressionism in architecture eventually faded at the end of 1925 by claiming that it failed to give any service to architecture since it was only defined through formal practices. However, the main features that shaped expressionist design can be applied to any contemporary formal approaches that have the same tendencies. Even though the philosophical influences behind would be varied. Thus, it can be concluded that any formal practices that share two main features can be considered as a tendency in association with expressionism:

A) Compositions do not follow any previous principles in geometrical propositions such as harmony, unity, and continuity. As a result, purity, perfection, and order will convert to impurity, imperfection, and disorder or chaos (Figure 27, 28).

Figure 27: The south view of second Goetheanum in Dornach, Rudolf Steiner, 1923 URL-14

Figure 28: Dr Chau Chak Wing Building, designed by Frank Gehry, 2014 URL-15

B) The influence of philosophical sources seems to be represented only on the aesthetic and physical aspect of the design in which the final form became the 'iconography' of the style. Accordingly, today the notion of expressionist architecture can refer to any approaches in architecture regardless of time or location that reveals some of the characteristics of original movement such as dynamism, distortion, fragmentation, disorder, and in general, the rejection of conventional and rational principles of aesthetic.

3.2.3 Theatrical spaces suggested by Expressionist architects

Rather than representing imaginary, fantasy, and mystical architectural designs, some expressionist architects attempted to define a more tangible form of design outside the realm of paper, thus their attempts led them to the medium of theatre and film as possible domains where their expressionist designs could be physically realized. The film seems to be a more possible way to represent the expressionist designs, buildings, and even cities without the common restrictions of the architectural realm. Two important examples of these expressionist films are The Cabinet of Doctor Caligari (Das Cabinet des Doktor Caligari) which was filmed in 1919 and The Golem: How He Came into the World (Der Golem, wie er in die Welt Kam) in 1920 (Olgren-Leblond, 2018).

The set design of both films is abstract in form, stylized, and employed twisted perspective. The scenic design of the Golem movie was done by expressionist architect Hans Poelzig in which he attempts to express all the dynamic, ecstatic, and fantastic elements within the structure of his design (Clarke, 1974). Stage design whether in theatre or film provides expressionist architects a platform in which their imaginary and subjective ideas could be physically constructed (Olgren-Leblond,

2018). Accordingly, many expressionist architects got interested in theatre architecture by suggesting a new way of theatre space. Through the following discourses, the suggestions and theatre designs of Bruno Taut, Hans Poelzig, Hans Scharoun, and Henry van de Velde have been chosen to be more explored.

3.2.4 Bruno Taut and new form of theatre

The main features that define expressionist architecture presented in Bruno Taut's illustrations. He created most of his expressionist designs as his contribution to the Crystal Chain correspondence or the *Utopian Correspondence* (Die Gläserne Kette) between 1919- 1920, as well as his famous works such as *Alpine architecture* (1919), *Die Stadtkrone* (The City Crown) (1919), *Der Weltbaumeister* (The World-Master Builder) (1920), *Die Auflosung Der Stadte* (The Dissolution of Cities) (1920). All of these illustrations were including imaginary and fantasy ideas in the form of architectural sketches (Pruden, 2018) under the influence of Paul Sheerbart, a German author, who inspired Taut through his writings on glass architecture and his ideas on the glass as a symbol to reach a pure society (Bletter, 1975). Sheerbart's writings reveal an architectural vision that was crucial to most of the expressionist architects especially Bruno Taut.

Inspired by light mysticism, the gothic cathedral, and 19th-century glass structure, Scheerbart expected the architecture of colourful glass designs that representing a spiritual world and extra-dimensional space. It can be said that Bruno Taut's essay *'A Necessity'* was the first expressionist manifesto and the design of Glass Pavilion in Werkbund Exhibition of 1914 was the physical expression of it which has been labelled as a paradigm of Expressionism or as an expressionist icon (Olgren-Leblond, 2018). Under the inspiration of expressionist paintings, the goal of the

Glass pavilion was the combination of architecture with other arts such as paintings and sculpture in order to reach a new expression in the domain of architecture that ‘unites art and life’(Gutschow, 2006) (Figure 29).

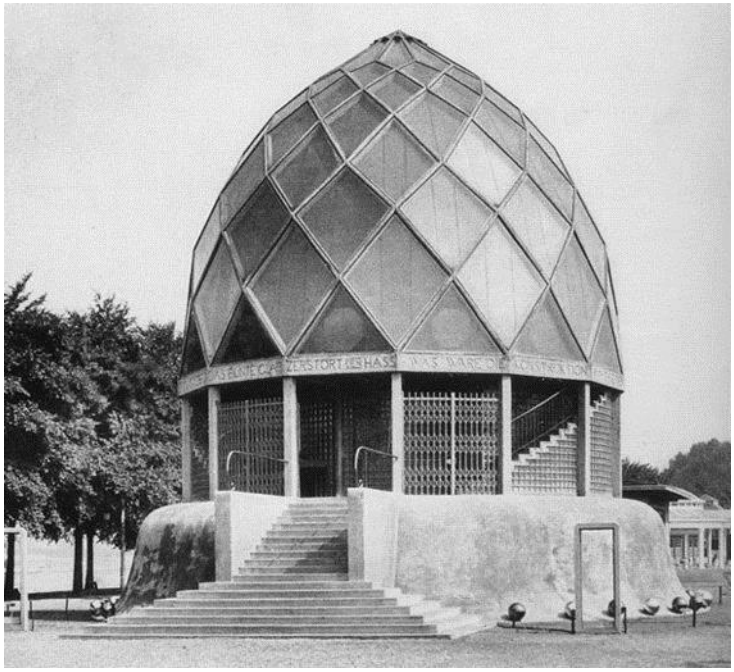


Figure 29: The exterior of the building, located near the entry gate to the 1914 Werkbund exposition in Cologne (Gutschow, 2006)

As a result, Taut’s purpose was to create a functionless monument that was more theoretical and inspirational than practical; a glass made monument which above all reflect Taut’s expressionist ideas rather than being a practical design. In this manner, Taut intended to not only provoke a change in architecture, but also to give a new vision for social, political, and cultural conditions (Gutschow, 2006). It promoted the use of glass by providing a novel environment of glass, concrete watercolour, and sound (Sharp, 2002) (Figure 30, 31).

Figure 30: Glass Pavilion, view of lower level, with water cascade at centre (Gutschow, 2006)

Figure 31: Glass Pavilion, view of upper-level interior (Gutschow, 2006)

These socialist features, and his intentions for the unity of art and life are much clearer through Taut's utopian illustrations: *the Alpine architecture* (1919) which was including of portfolio of 31 watercolours with text (mostly Scheerbart's writings) that represented a glass made buildings plans for a visionary city in Alps;

the illustrations are divided into five sections in which they reached to a more and more cosmic and abstract dimensions (Fig38), *Die Stadtkrone* (The City Crown) (1919) which represented the utopian urban concept in a form of a garden city where people would live in an apolitical socialism situation around a single purpose-free crystalline structure, *Die Auflosung Der Stadte* (The Dissolution of Cities) (1920) which was the utopian plan represented in colourful two dimensional planes, and *Der Weltbaumeister* (The World-Master Builder) (1920) which was an experimental theatrical work that goes from a curtain opening to curtain closing while in between same as a theatre performance, the suggested architectural forms arise, collapse and became cosmic into the space and return to earth as lights while illuminating the glass made buildings on earth (Miller, 2017) (Figure 32).

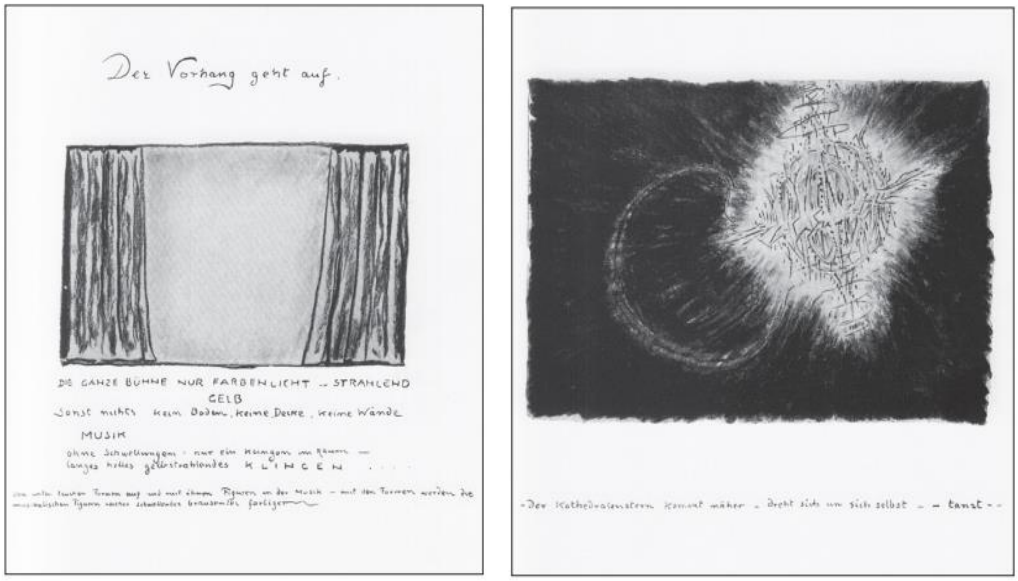


Figure 32 : The World Master Builder, the illustration of opening Curtain on the right and the Cathedral-Star on the left (Miller, 2017)

For Taut, same as other expressionist architects, theatre was a proper medium to express his new visionary ideas about the unity of art and life. People's theatre groups which were including of 'Free People's Theatre' and 'New Free People's

Theatre' were both two main institutions in Germany that attempts to bring theatre to a lower classes which before were not. The origin of people's theatre was to promote the opportunities of theatre plays at prices that were accessible to the common workers; this fact inspired Taut in 1914 to claim that the social idealism of people's theatre that help to shape a new architecture that he attempted to achieve. Accordingly, Taut was among the expressionist architects that rejects the design of conventional theatre buildings and suggests a new type of theatrical experience. In his essay 'On New Theatre Building' (Zum neuen Theaterbau) which was published in 1919, he argues about socialism and providing the theatre space that can have entertainment for all people from all social classes (Olgren-Leblond, 2018).

As a result, by suggesting a new form of theatre, Taut, same as his glass pavilion and utopian illustrations, attempts to unite expressionist world of imagination and fantasy to the real world so that even middle class of people can find enjoyment in theatre which previously were excluded because of their social class and lack of cultural awareness; In 'On New Theatre Building' Taut represented the universal Master builder as an ideal theatrical performance where there is no ceiling, no walls, and no floor visible; a limitless theatre space in which the stage appears to audience as nothing but a glaze of yellow light (Olgren-Leblond, 2018).

Accordingly, in can be concluded that Taut intended to provoke a shift in theatre architecture by representing his theoretical and inspirational ideas rather than practical architectural design. The main point behind his theoretical suggestions can be summarized through two parts:

First, rejecting the conventional theatre designs and suggesting visionary, extra-dimensional, and limitless theatre space as a sample of pure society. Taut attempts to

define a theatre space that was for ideal theatrical performances and amuse people from all social classes.

Second, emphasizing the use of Glass as the main material to go beyond the limits of materialism and to reach higher levels of expression, abstraction, and freedom in architecture in order to suggest a new expression of the 'unity' of life and art.

3.2.5 Hans Poelzig and design of the Große Schauspielhaus

Hans Poelzig's renovation of Schumann circus into the Grosses Schauspielhaus was for director Max Reinhardt which opened in 1919 in Berlin. The interior of the building was including an expansive dome and a semi-circular seating area for up to 3,500 visitors from all social levels within the community (Olgren-Leblond, 2018). It was a success of lighting techniques which in its time was innovative; the interior was representing a massive, dramatically sculptured architecture reminding the dynamism of gothic style architecture (Clarke, 1974). The stage design of the theatre was a combination of a normal stage with a revolving stage for scene changes or shifts, and a cyclorama, a large curtain for special lighting on stage, which both were among the innovative technologies for its time. The decoration of the dome and the interiors columns were all made of plaster that was illuminated by vibrant colour and lighting during the performance (Figure 33, 34). The design of Große Schauspielhaus captured the attention of other expressionist architects such as Wassili Luckhardt who admired Poelzig's attempts to finally reach the feeling of 'unity' within the architecture of theatre (Olgren-Leblond, 2018).

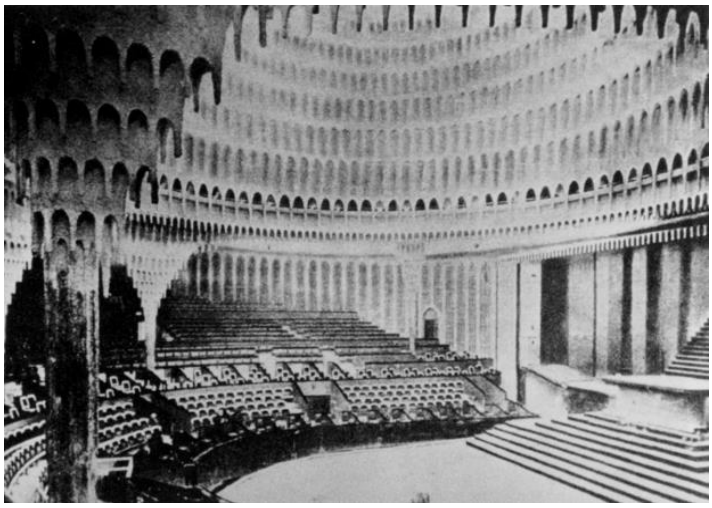


Figure 33: The auditorium of Große Schauspielhaus designed by Hans Poelzig, Berlin, Germany (Esslin, 1977)

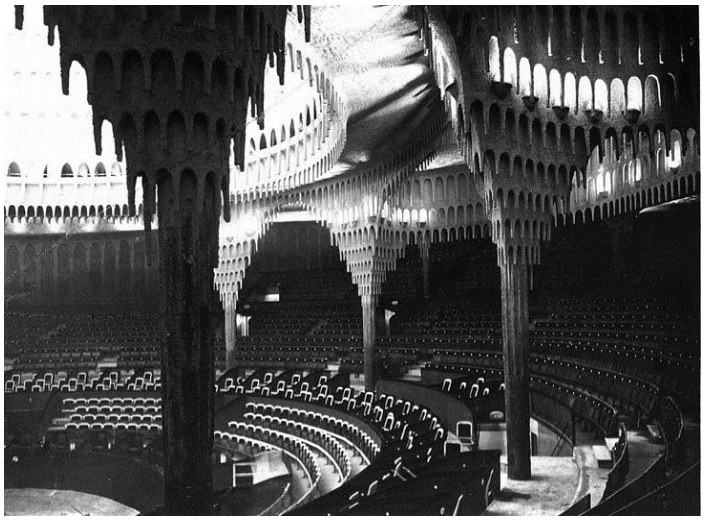


Figure 34: The decoration of the dome and the interiors columns of Große Schauspielhaus designed by Hans Poelzig, Berlin, Germany URL-16

The Grosses Schauspielhaus (1919) and several projected plans for a Festspielhaus at Salzburg (1920-1921), and set design for the movie The Golem (1915) are among the famous works of Poelzing (Clarke, 1974). The main features of Hans Poelzig's theatre design and his intention by the notion of 'unity' in theatre can be discussed through the following main parts:

First, expressionism in architecture, as an avant-garde tendency, was always seeking to attack the institution of art and convert life as a whole in which there would be no

borderline between life, art, and people. As a result, instead of designing the proscenium or picture-frame stage, the space design and circular stage-auditorium arrangement inside the Great Theatre indicated how Poelzig's attempts to reach the feeling of unity by creating an arena stage that was completely enclosed by the audience. Therefore, the intimate connection between performers and audience, or as mentioned, the unity of art and people, would be maximized.

Second, in expressionist architecture, the emphasis on form is mostly inspired by natural phenomena and non-geometric forms all due to creating architecture based on motion, emotion, ambiance, and radicalism. The interior of Poelzig's theatre represents these features that best. Expansive decoration of dome, interior columns with a massive, dynamic and dramatically sculptured architecture, the innovating lighting technology which illuminated the interior of the building with vibrant colour during the performance all together were used by Poelzig created an expressionist atmosphere.

3.2.6 Hans Scharoun and thoughts on theatrical space

Hans Scharoun in his short essay entitled '*Thoughts on Theatrical Space'* argues about the relation between architecture, space, and performance. By emphasizing the importance of expression, experience, and the primitive impulses in architecture, Scharoun represented his interest in theatre as a medium in which he could apply his ideas since theatre captured the passion and dynamism that he, as an expressionist, wanted to achieve.

His 1963 Philharmonic Hall in Berlin is a sample of his attempts to represents his ideas. Berlin Philharmonic concert hall in Berlin, Germany (1956-63) designed by

Hans Scharoun is a production of expressionist movement by rejecting the geometry and symmetry in favour of organic forms. Same as other expressionist works, the building of theatre does not relate to its surroundings (Figure 35, 36).

Figure 35: The exterior of Berlin Philharmonic by Hans Scharoun, 1963 URL-17

Figure 36: The auditorium of Berlin Philharmonic, 1963 URL-17

Scharoun argues that theatre is about an experience rather than observation. But the conventional theatre design and typical theatre building failed its audience to achieve this goal because of two main reasons: First, according to Scharoun, in the conventional theatre designs audience observes the stage rather than having a theatrical experience, and the second problem is that theatre according to Scharoun is an architectural vision that is too ‘spatially false and too pictorial’ to allow for unity

between audience and stage (Olgren-Leblond, 2018). In this manner, Scharoun describes a theatre space in which form, light, colours, and sound immerse the audience in such a way that there would be no difference between audience seating and stage, and the seating area becomes an extension of the stage itself; by suggesting a dimensionless theatre building in which the stage, auditorium, and the building itself are dissolved through the use of colours, light, and the glass and accordingly, creating a limitless theatre space (Olgren-Leblond, 2018). As a result, what Scharoun intended to suggest by a theatre space was including of two main characteristics:

First, by suggesting the unity between life and art, between people and theatre, he argues that the theatrical experience should experience rather than observe. Therefore, by focusing on the stage-auditorium relation, he suggests that the borderline between the audience and stage should appear so blurred in which audience would experience the sense of being inside the performance rather than being observers.

Second, the composition of all theatrical elements such as stage, audience place, and the performance itself would be united in one total work of art. In this manner, the whole theatre space will be a united and accordingly will lead to a more tangible theatrical experience for audience.

3.2.7 Henry van de Velde's theatre designs

Henry van de Velde designed a theatre building for Werkbund's first exhibition in 1914 in Cologne which was among the three innovative architectural designs for the exhibition, along with Taut's glass pavilion, and Gropius and Adolf Meyer's Model Factory (Kuenzli, 2012). The building hosted avant-garde symbolic and expressionist

theatre plays such as experimental dance performances by Alexander Sacharoff and production of E´mile Verhaeren's The Cloister performed in original French. Many critics, including Walter Gropius in his Bauhaus book International Architecture (1925), labelled the theatre building as a precursor for the international style architecture since it shared the functionalist building principles. According to Kuenzli (2012) the exterior of the building had unornamented surfaces with rational massing of architectural volumes as well as the rational auditorium design which cause the building to have a functionalist format while on the other hand, the features such as interior dramatic light effects, sculptural form, and combination of arts and visual media all caused the building to overlap with the expressionist style (Figure 37).

Figure 37: Van de Velde's theatre for Werkbund's first exhibition in Cologne with the view of auditorium on the left, 1914 (Kuenzli, 2012)

This fact caused Eric Mendelsohn to relate building to rational expressionist architecture and took it as a model for designing of his Einstein Tower (1920–21). Moreover, in designing the theatre van de Velde, same as most of expressionist artists, redefined the classical static monumentality to reach Dionysian aesthetic principles; the features that came from emotions and particular passions and were influenced by Nietzsche's philosophy (Kuenzli, 2012). The importance of the theatre

building in 1914 Werkbund's exhibition is its aesthetic innovation, new approaches to set design and stage lighting, and advanced technologies that were used for stage and auditorium (Kuenzli, 2012). By embracing the Dionysian principles, Van de Velde led his design to have ritualistic and dynamic feature; he combined the features of the medieval cathedral with principles of Greek theatre in which he designed a semicircle front steps for the building and doubled auditorium same as cathedral nave with the stage as high platform and choir. To express the classical idea of stasis, dynamism, and movement he uses patterns of light and shadow that were representing both the interior and exterior façade of the building (Figure 38).

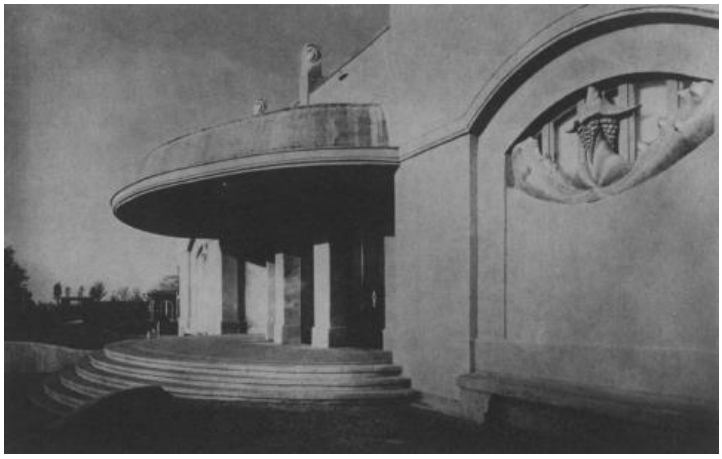


Figure 38: Van de Velde's theatre with semicircle front steps (Kuenzli, 2012)

Along with the architecture of the building, Velde's drawing of scenery Set designs indicates his interest in the innovative use of abstract lighting effects and dynamism as crucial principles of expression. The set design for the play Goethe's Faust, for instance, represents a mountainside that transfers into a shadowlike apparition. Instead of framing the seating, the proscenium arch was transforming into light and shadows. It merged with the seating design on the stage while representing an image of a mountainside. As a result, with his suggestion on stage scenery, Van de Velde attempts to remove the barriers between stage and auditorium and make the audience

to be more involved through the performance and his mountain scenery (Kuenzli, 2012). Van de Velde’s stage designs for Goethe's Faust are the obvious examples of how he, as an expressionist architect, attempts to reach an abstract atmosphere for theatrical performance in which there is no clear borderline between performance and audience (Figure 39, 40).

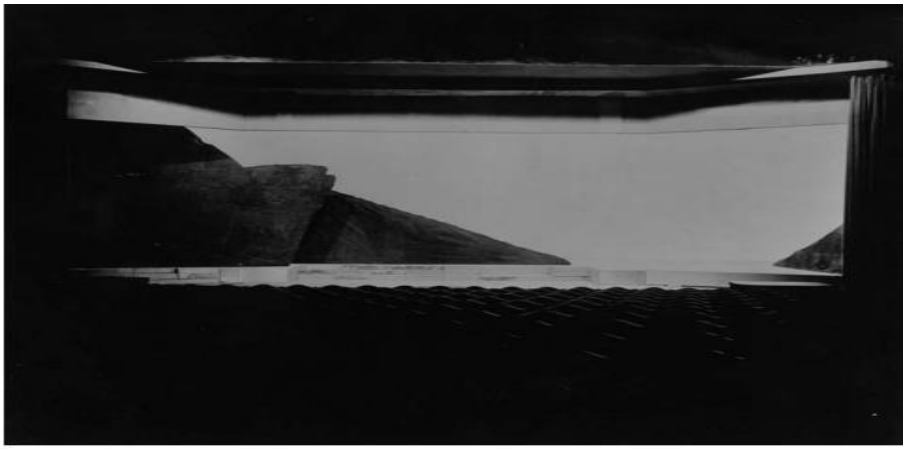


Figure 39: Van de Velde, Werkbund Theatre stage without tripartite divisions, presenting a scene from Goethe's Faust, Part I in 1914 (Kuenzli, 2012)

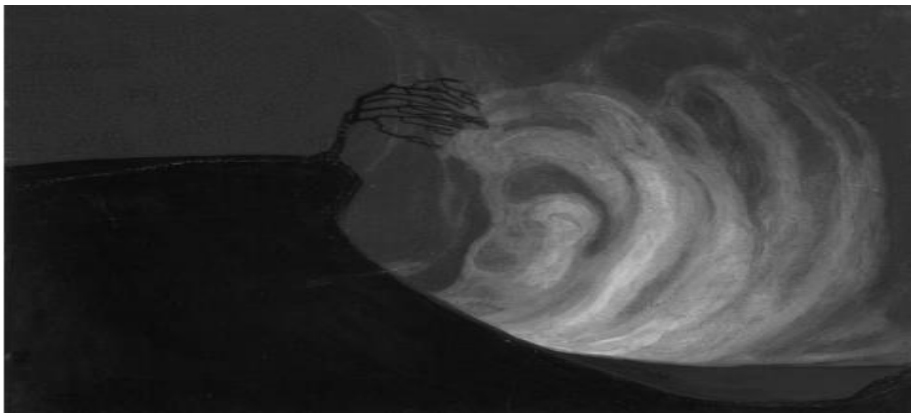


Figure 40: Van de Velde, Study of Stage Scenery for "Faust, Part I" Walpurgis Night, 1914 (Kuenzli, 2012)

To conclude, Van de Velde’s efforts on theatre and stage design can be classified into two main parts:

First, in Van de Velde's drawings for Faust stage scenery, the backlights flatten the mountain and converting it into a shadowlike vision, accordingly, the proscenium arch of the stage, instead of framing the performance, transforms into light and shadow and became part of the stage design itself and the performers and stage seemed to dissolve into each other as light and shadows. Moreover, in the auditorium, using a central light fixture on the ceiling as well as wooden tracery around which let the natural light in, and the exterior façade with eyelike windows all Indicate how Van de Velde used abstract and expressive light effects as a proper way for expression both in theatre design and his suggestions on stage scenery.

Second, although the exterior of the theatre building might seem rational and functional, the interior design, along with the abstract use of lighting, represented expressionist features and Dionysian principles which Van de Velde used as a means of expression. Thus, same as other expressionist architects, Van de Velde used the gothic style dynamism in order to express the classical idea of stasis and sense of motion.

The following table (Table 6) represents a brief summary of theatrical designs and suggested features for a new theatre space by Bruno Taut, Hans Poelzig, Hans Scharoun, and Henry van de Velde. Although these architects might have some different details in defining the theatre space, they all agree on unity of art and life. The reason is that, expressionism as an avant-garde movements had a bold positive program in bringing art out of the isolation of special auditoriums, museums and libraries; if art was no longer the depiction of 'reality' but the 'creation of new things', then there was no longer any essential difference between 'art' and 'life'

(Kleberg, 1993). This fact indicates why most of architects in association with expressionism attempted to create a theatre space in which the borderline between stage and audience would so thin.

Table 6: Suggested features for a new theatre space by Bruno Taut, Hans Poelzig, Hans Scharoun and Henry van de Velde. Source: author

Architect	Constructed project	Theater or Stage Design works/theories	Main characteristics/suggestion
Bruno Taut	Glass pavilion for Werkbund's first exhibition in Cologne (1914)	The World-Master Builder (1920)	• Unity of art and life • Bringing theatre to a lower classes • Emphasizing on the use of glass and color • Suggesting limitless theatre space
Hans Poelzig	The Grosses Schauspielhaus (1919)	Set design for the movie The Golem (1915)	• Unity of art and life • Creating architecture based on motion, emotion, ambiance, and radicalism • circular stage-auditorium arrangement inside instead of proscenium or picture-frame
Hans Scharoun	Philharmonic Hall in Berlin (1963)	Thoughts on Theatrical Space	• Unity of art and life • No borderline between audience seating and stage • A dimensionless theatre space in which light, colors and sound immerse audience
Henry van de Velde	Theater building for Werkbund's first exhibition in Cologne (1914)	Stage scenery drawings for Faust stage scenery,1914	• Unity of art and life • Removing the barriers between stage and auditorium • Using Dionysian principles • Using abstract and expressive light effects

3.3 Expressionist theatre

3.3.1 Expressionist theatre as an avant-garde movement

In the early 20th century, expressionist art, in general, offered a clear move toward the 'abstraction of reality' through distortion and fragmentation. Thus, in both drama and theatre, expressionism was expressing opposition to restrictive tradition by giving a new vision and rebirth of imaginative freedom (Grace, 1989). Imaginative freedom defines as the unrealistic and abstract feature of expressionist plays. Instead

of reproducing the details of a realistic drama, the expressionist setting creates only those simplified images that the theme of the play called for (Styan, 1981). Therefore, the atmosphere of the play, similar to other types of expressionist artworks, is often virtually ‘abstract’ and ‘un-localized’. The set design contains shadowy, unrealistic lighting, visual distortions, and mostly made of sensational colours (Styan, 1981). As a result, the expressionist plays are always intriguing. Mostly because the atmosphere of expressionist theatre is dreamlike or nightmarish (Styan, 1981); the plays are mostly defined by their strong emphasis on representing inner visions, subjective ideas, imaginations, and feelings in a symbolic, poetic, and un-naturalistic way. Thus, the expressionist theatre can be considered as an anti-naturalist tendency that has been rejected by the conventional principles in both drama and play; as one of the modernist avant-garde theatres that focused on the expression of the inner qualities and emotions rather than the superficial realistic features. These characteristics distinguish the atmosphere of the expressionist theatre from other types of plays; naturalist theatre plays were the blueprint of reality while the expressionist theatre same as other types of expressionist art were a representation of inner visions, thoughts, and dreams (Lethbridge & Mildorf, 2003).

Grace (1989) argues about expressionist theatre through three main discourses; characters, acting, and the seating design:

A) Characters in expressionist theatre plays do not developed rationally and realistically; instead they are explained as a function of instinct, feelings, and abstract ideas of mankind (Grace, 1989). The characters are mostly impersonal or nameless; they represented abstract and subjective thoughts or feelings of protagonist or some aspects of world and society. In this manner, in some cases, actors used mask to

depersonalized characters and later it used to distinguish the audience from the characters (Barker, 2018).

B) The action in expressionist plays is similar to characterization; it is unreal, episodic, lack in logic, and mostly dreamlike and illogical. What distinguishes expressionist theatre is the way that it textualizes actors. Actor's body and voice are as complex as thematic stage signs and the audience virtually encourages reading the performance rather than mimetic imitation (Kuhns, 1997). The action split into a series of small episodes or scenes that lead the scene to be self-contained (Barker, 2018).

C) Settings in expressionist theatres are either exotic or far different from everyday routine. People, places, and events, for instance, are distorted, unreal, and bizarre that are all caused by the absence of social content and also concentration on dislocated, partial, and hallucinatory perspectives (Grace, 1989). The expressionist stage productions neither represent reality nor suggested unreality (Barker, 2018). The seating tended to be abstract, subjective, and fantasy while including distortion and strange juxtaposition that express the specific ideological focus of the director or playwright, the mind of the main character, or even both (Barker, 2018). Thus, any element on the stage do not necessarily have a logical and realistic characteristic; walls might have sharp angles threatening to crush on characters, windows might light up like eyes spying, trees might have the shape of a skeleton. Accordingly, the setting became a platform for dramatic force instead of being a place for acting (Barker, 2018).

To be more engaged with the main characteristics of expressionist theatre, both drama, and stage production, August Strindberg's A Dream Play (1901) has chosen as a case study to be more explored. However, to study a theatre play, first, it is necessary to have a brief review of several aspects of analysing a theatre play. Therefore, through the following part, the key aspects of analysing a drama according to Lethbridge& Mildorf (2003) are reviewed.

3.3.2 Main aspects in analysing a theatre play

In general, analysing a drama according to Lethbridge& Mildorf (2003) are including several main aspects such as: Information flow, Overall structure, Space, Time, Characters, Types of utterance in drama, types of stage, and Dramatic sub-genres (Types of Comedy and Tragedy).

The information flow is including of amount and detail of information that convey to audience which is about the problem or the conflict of the story in which the audience will be inform about the 'who', 'what', 'where', 'when', and 'why' of the story. This information sometimes conveyed to audience directly, but there are also some cases such as epic theatre in which the transportation of information is not necessarily direct. The examples are works of German playwright Bertolt Brecht who developed this style as a reaction to realistic theatrical conditions.

The overall structure is including the structure of story and plot, three unities, Freytag's Pyramid, and Open and Closed Drama. Story is about the sequence of events in drama, while plot is about the way that these events are connected which can be linear or non-linear; the linear plot are those that have clear beginning and end, the non-linear plots in contract, are often question logic and causality and

mostly seen in contemporary and modern drama. Three unities is another aspect to analyse overall structure of drama which about conveying a sense of unity of plot, place and time; the aim is to make a plot more true to life or close to the Aristotle's concept of mimesis which is following by an idea of imitation or reflection of life through work. Another model to study structure of plot is Freytag's Pyramid which is a technique suggested by Gustav Freytag, German writer, who explants about five-act structure of plays and a particular function to each in a form of a pyramid. Open drama and closed drama refer to overall structure of play in which closed drama are usually those of traditional and naturalistic plays while open drama are mostly those of modern and contemporary plays which reject the mentioned concept of unities. The famous example of open drama is *Waiting for Godot* by Samuel Beckett.

Space is one of the most important aspects of a drama. The reason would be the fact that the stage in which the play is going to be presented on, is considered to be a space itself. The type of stage that have been changing through the history also influence on how a play is performed on stage. Type of stages has been discussed former on chapter two. The description of stage design which is about a general function of the settings is usually described in the secondary text of drama which can be precisely defined with details or it can be minimal and hardly worth stating. The visual aspects of a drama play an influential role in theatre since drama by default meant to be presented through a visual work on stage. The overall design of stage set is explained verbally at the beginning of acts or scenes and then translated into actual visualization on stage. However, theatre director can change the stage design in different way than drama. Missing information about stage setting or the play that does not contain of detailed description of setting can have a reason; these plays

mostly do not attempt to make work personal which make the play to be free of individualized theme and could be placed anywhere and influence anyone. While a more detailed stage aimed to created illusion of reality on stage; giving details about each part of the play to create a true-to life theme for audience. The overall space is including of several aspects such as word scenery, Setting and Characterization, and symbolic space. Word scenery as mentioned before is a verbal explanation of setting, the setting and characterization is used as ways of indirect characterization, and symbolic space is interrelatedness of setting and plot which is about expression of a specific world view or philosophical, moral, and ethical questions.

Time is including of three main aspects: Succession and Simultaneity, Presentation of Temporal Frames, and Story Time and Discourse Time which itself is including of Duration, Order, and Frequency.

Analysing of Characters in a drama is including of study on Major and Minor Characters, Character Complexity, character and Genre Conventions, Contrast and Correspondences, Character Constellations, Character Configurations, Techniques of Characterization. **Types of utterance** in drama is another factor in analysing a drama which is including of Monologue, Dialogue, Soliloquy, Asides, Turn Allocation, Stichomythia, Repartee, and The Significance of Wordplay in Drama. And the **Dramatic sub-genres** are categorizing dramas in comedy or tragedy. Among all these factors in analysing a theatre play, the highlighted parts on the following table are the main focus of this study (Table7).

Table 7: Analysing a theatre play. Source: author

Analyzing a Drama According to Lethbridge& Mildorf (2003)	
Main aspects	**Sub-aspects**
Information flow	• Amount and detail of information • Transmission of Information • Perspective • Dramatic Irony
Overall structure	• Story • Plot (linear or non-linear) • Three unities (unity of plot, unity of place, and unity of time) • Freytag's Pyramid • Open and Closed Drama
Space	• Word scenery • Setting and Characterization • Symbolic space
Types of stage	• Greek Classism • The middle Ages • Renaissance England • Restoration Period • Modern Times
Types of utterance in drama	• Monologue • Dialogue • Soliloquy • Asides • Turn Allocation • Stichomythia • Repartee • The Significance of Wordplay
Characters	• Major and Minor Characters • Character Complexity • Character and Genre Conventions • Contrast and Correspondences • Character Constellations • Character Configurations • Techniques of Characterization
Time	• Succession and Simultaneity • Presentation of Temporal Frames • Story Time • Discourse Time (Duration, Order, and Frequency)
Dramatic sub-genres	• Comedy • Tragedy

As a result, according to Lethbridge& Mildorf (2003) all of these factors are crucial in analysing a drama, but since the main aim of this research is defining the characteristics of a virtual space in an of a theatre building, the focus in analysing two following drama plays will be exclusively on the overall structure of space, stage design, and how the plays transformed into theatre performance and presented through a visual work on stage.

3.3.3 August Strindberg: A Dream Play (1901)

3.3.3.1 The overall atmosphere of the play

August Strindberg (1849-1912) was playing a great role in shaping the anti-naturalist tendency in theatre (Furness, 2017). It was in Germany that Strindberg's expressionist plays developed and modified; between 1913 and 1915 there were one thousand and thirty-five performances of twenty-four different Strindberg plays in Germany alone (Furness, 2017). Émile Zola (1840-1902), a French novelist and playwright, argues about the nature of Strindberg's characters especially his famous play The father (1887) in which Zola points out that these characters are too abstract and subjective that they do not even have a name (Furness, 2017). Another Strindberg's famous play To Damascus (1898-1901) is known to be the first expressionist play and the end of naturalist drama for him in which all the characters are emanations of a soul (Furness, 2017). Along with these dramatic expressionist plays A Dream Play is the noticeable one that is written by Strindberg in 1901 and first produced in 1907. This Stringberg's artistic inclination is one of his most puzzling dramatic works (Lipman-Wulf, 1974).

The story is about Indra's daughter, a goddess, who comes to the earth with the name of Agnes (Lamb of God) to experiences the human existence on earth and discovers

how hard it is to be in a form of a human being is. When the play opens, Indra, now with the human name of Agnes, arrives on earth to understand whether the condition of humans on earth is justified or not and find a proper answer for why people are suffering and full of complaint. and then she understood that only the poet, who creates the dream, is unaffected by human suffering After witnessing human suffering and tolerates suffering herself she goes back to heaven with her final perception of living on earth that "Humankind is to be pitied"(Brustein, 2001). The word scenery, Setting and characterization, and symbolic space of the play discussing through the following parts:

1. The word scenery: The scenery of the play describes through the scenes such as: Outside the castle, Inside the castle, Outside the stage door of an opera house, A solicitor’s office, Cave, Quarantine station by the seashore, Outside a ballroom by the seashore, and Inside the stage door. The final image of drama is a burning castle with a flower bud on the top that started to transfer to a huge chrysanthemum (Figure 41). However, Lipman-Wulf (1974) argues that the play is including two themes whose patterns do not equally convey.

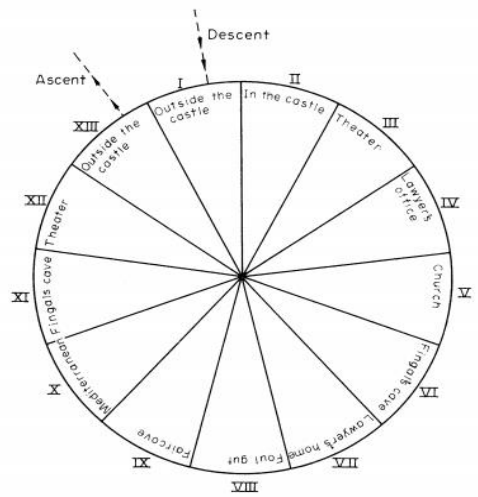


Fig. 1. Agnes' wanderings. Circular diagram.

Figure 41: Circular diagram of Agnes journey on earth which including of 10 different places (Lipman-Wulf, 1974)

The first one is the consecutive change of place, and the second is the consecutive change at a place. There is also a third theme in which Agnes journeys on earth is symbolized dreaming. The theme of the constant change of place is including Agnes' journeys to ten different places that do not indicate a return to places. As a result, her paths crossed and it could not have been circular. The second theme has explained through the scene directions that are given by Strindberg himself.

2. Setting and characterization: refers to the setting that is used to express indirect characterization and contributes to a better understanding of the characters. In this manner, the abstract and dreamlike theme of the play in each scene indicates that characters are symbolic and they are used to exemplify emotions and ideas rather than imitate ordinary people.

3. Symbolic space: express other layers of meaning in the drama and support the expression of a certain world view. As a result, time and space do not exist and the play depicts a constant theme shifting to convey a visual illusion that was Stringberg's intention (Lipman-Wulf, 1974). It is the expression of inner reality and emotional meanings; the variation of its theme is complex and counterpointed in a pattern of visual and verbal contradictions, correspondences, and repetitions (Marker et al., 2002).

Accordingly, the play, the same as abstract art and music, depends on the power of emotional suggestions (Marker et al., 2002). Same as any dream, methods of interpretation, understanding, and theoretical analyses of a dream play is varied (Miller, 2018). This fact affects the production of the play as well.

Each stage director would deal with Strindberg's unrealistic and abstract world based on his interpretations. A 21st century stage director might transform Strindberg's drama in a different way than the ones produced in the 19th century. This fact might also be the same for staging the play in various contexts included the audience with different cultural and social backgrounds (Miller, 2018).

The concept of human suffering for instance, which is the main point of the play, would be understood differently in various groups of people; what is suffering and why do we experience it? Understanding this fact is dissimilar in the western or eastern cultural context. However, according to (Miller, 2018), Strindberg seems to represent an eastern concept of suffering in which the only solution to reach happiness is by death. As a result, since the overall atmosphere of Strindberg's play, same as other expressionist art, is highly subjective, imaginary, and abstract, the interpretation and accordingly the stage productions of the play are varied. The word scenery, setting and characterization, and symbolic space all together indicated abstract, and as its name suggests, a dreamlike theme including subjective memories, experiences, and improvisations. Strindberg attempts to depict the logical form of a dream. Since the atmosphere of the play is a combination of subjective improvisations, it might be challenging to produce the play on stage; in fact, one should be a magician to precisely depict the dreamlike illusions of the play on the stage (Gussow, 1981).

Metaphorically A dream play is a theatre of the mind; the theatre in which the audience are the dreamers and witnessing the events through the eye of the main character. Indra's daughter experiencing the constant dissolution of the self since it is

a dream, and alike to any dream, everything is challenging even the dreamer's identity. Metaphorically, the overall theme of a dream play assimilates to Plato's famous allegory of the cave[11]. Strindberg's characters of the play and his audience are all inside the cave and perceive reality through its echoes, reflections, and shadows on the walls of the cave and from the outside world. In this manner, the theme is full of hallucination; each person understands it based on his subjective perception (Szalczer, 2001).

3.3.3.2 Stage productions

A Dream Play has been produced by a variety of stage directors. In each play, the artists' approach toward the depiction of the dreamlike and expressionist theme of the play is different. Susan Einhorn, an American director, for instance, produced the play at the open-stage theatre while leaving most of the play to the audience's imagination; for example, she overlooks Strindberg's final scene in which the castle burns and the bud opens into a chrysanthemum flower (Gussow, 1981).

Robert Wilson, an American avant-garde visual artist and stage director, staged a dream play in 1999 at the Stockholm City Theatre that was a visual experience the same as a film (Schroede, 2015). The imagery for the set design in Wilson's works was not representing a specific time and place and accordingly caused the play to have an international atmosphere (Figure 42). He used a photographic backdrop for the stage which was borrowed from the 1900 Paris Exposition. The images that were used as a visual expression of the play's theme were including African-American and Native American houses that linked Strindberg's play to a different world (Schroede,

[11] Plato's Cave, is an allegory presented by the Greek philosopher Plato. The story describes a group of prisoners who live inside a cave. All that these prisoners can see come from the shadows on the wall by the light of a fire. Although the shadows are not an accurate representation of reality, these people assume that the shadows are real (Wright, 1906).

2015). Wilson's approach to visual Strindberg's fantasy was illustrative rather than metaphorical. He attempts to stage the letter rather than the spirit of the text (Brustein, 2001).

Figure 42: A Dream Play Stockholm, directed by Robert Wilson, photograph by Lesley Leslie-Spinks2, 1999 (Schroede, 2015)

It might assume that the expressionist theme of a dream play makes it proper for the medium of filmmaking since the theme relies heavily on visualization. A dream play attracted many avant-garde filmmakers such as Ingmar Bergman, but even Bergman attempts to stage the play rather than on-screen (Brustein, 2001). In 1970, Ingmar Bergman used Strindberg's idea to paint a rectangular screen in the back of the stage that was used for projecting the images.

The early productions of the play under suggested conditions by Strindberg himself started in 1907 which were not fully successful according to Strindberg since he could not convince the stage directors to directly follow his ideas. What Strindberg wanted was an anti-realistic stage design in which at the same time, space, architecture, and landscape were added only by changing the backdrops. Strindberg

warned the director to avoid materializing the dream on the stage; in his production sketches and notes, he suggests directors use side wings with unrealistic paintings on them due to represent various scenes of the play (Szalczer, 2001). He insisted that while the sides are dark, the image of the castle's facade should paint on a backdrop while brightened from behind; the play according to him should start and end with this backdrop image of the castle (Szalczer, 2001).

In 1907, Strindberg using a slide projector to projects visual images on stage and create a dream-like theme for the opening of his play; he uses the sciopticon projection to produce scenic alterations by transparent screens. However, the technical disadvantages of the primitive machine did not allow him to be succeeded (Mehrens, 2006). The first production in 1907 at Swedish theatre was not successful to face with these constant scene changing challenges. As a result, the play was produced traditionally with pauses on scene shifting that disturb the dream-like atmosphere of the play (Szalczer, 2001).

In one of the earliest production directed by Victor Castegren and set design by Carl Grabow, Strindberg asked Castegren to transform the drama into a proper visual depiction, but without materializing it too much to keep the play as abstract and dreamlike as possible same as the drama itself. However, according to Strindberg, it was not successful.

To achieve Strindberg's intention, Victor Castegren used a sciopticon projector that was used for the play Faust. But after some experiments with back production, it did not successfully help them with their intention for the seating. Moreover, Carl

Grabow's stage design was including colourful but conventional pictorial and realistic scenography that was too material for the play; the changes of scenes and lighting techniques disrupted the constant flow of the play scene changing (Marker et al., 2002).

Another production was directed by Radolf Bernauer's and the stage design of Svend Gade. In contrast with Grabow's stage design which disrupted the flow of scene changing, Gade, without using a revolving stage, increased the flow of the shifting scenes by using a blue colour transparent curtain that covered the proscenium and remained on stage throughout the play; it became like a dream filter that the whole stage behind it was in darkness. He also enclosed the proscenium in an oval frame which created the fourth wall along with the transparent curtain and used significantly influential lighting techniques. The seating design invited the audience to experience a fantasy theatrical play as detached spectators who are dreamers (Marker et al., 2002) (Figure 43, 44).

Figure 43: The stage design by Carl Grabow for the world premiere of a dream play, 1907, Stockholm, Svenska theatre (Marker et al., 2002)

Figure 44: A symbolic scenography for a dream play by Svend Gade in 1916 for the second of the scenes in Fingal's Cave (Marker et al., 2002)

According to Szalczer (2001), what is breaking perspective and abstraction in visual art, in theatre, represents a detachment from Aristotelian aesthetics in dealing with time, space, action, and characters. Aristotelian aesthetics, again refers to Plato's allegory of the cave in which men’s perception of objects is only based on the shadows that these objects have made.

What Szalczer (2001) means here by Aristotelian aesthetic is the ideal, harmonious and logical imitation of action and life and the conception of art as imitation of ideal. Thus, according to (Szalczer, 2001) what Strindberg himself wanted to achieve through the earliest production of his drama was around the question of whether reality and fantasy, truth and illusion, life and theatre can distinguish or not.

3.3.4 Case study: Expressionist theatre in Iran-The Recipe of Diptera with Mushroom Sauce (2018)

Nowadays, there are plenty of Iranian plays with the label of expressionist that are staged mostly in Tehran. However, not all of them share the same characteristics as expressionist plays in general. The main point is that to precisely label a theatre

performance would be confusing since it can contain various components in both drama and stage production that contradict each other at the same time. For this reason, in Iran, the direct application of a style to a theatre performance is considered extremely challenging that need professional study concerning this medium.

As discussed formerly in chapter two, currently in Iran, theatre in the form of contemporary western-style, whether expressionist or not, is staging on theatre buildings that are mostly located in Tehran. The theatre space and arrangement of auditorium and stage, in most of them, is considered as a black box and end-stage in which proscenium theatre is a subset. However, in some cases, theatre plays are performed in open spaces of public places. *The Recipe of Diptera with Mushroom Sauce* is an open-air theatre play which was held for fifteen days in *Niavaran Cultural Centre* located in Tehran. My collaboration with this play included graphic designs and stage designing.

The play is about a nameless old man who intends to rob the grave of a famous person while claiming the person reposed with valuable objects that are the old man's portion of life. To dig a grave, the old man gets help from a young and low-intelligence boy who is also anonymous. As the story goes further, they both meet a mysterious man and a lady who start debating with the old man about his childhood memories and failures in life. In the end, it becomes clear that all these people are imaginary and made by the old man (Figure 45, 46).

Figure 45: The Recipe of Diptera with Mushroom Sauce, Niavaran cultural centre, Tehran, Iran, 2018. Photo by Reza Javidi URL-18

Figure 46: The Recipe of Diptera with Mushroom Sauce play with audience sitting around the acting place. Photo by Reza Javidi URL-18

The characters, action, and the set design share the same characteristics with expressionist theatre in which:

A) Characters are nameless and impersonal; they all represented abstract and subjective thoughts and childhood memories of the protagonist that is the old man;

B) Actions are unreal, and lack logic. Mostly it seems that all of them happen in old man's dream and imagination; they split into a series of small episodes or scenes that are illogical;

C) The setting neither represents reality nor suggested unreality.

There was no description of stage design or general function of the settings described in the secondary text of drama to apply in the seating. Since the director wanted the audience to be more engaged with the atmosphere of the play, it intended to stage the play in an open space and all the related elements of an old graveyard designed and installed in the place. Therefore, the project contained two separated seating areas for up to ninety visitors and a rectangle-shaped acting place in the middle. The stage at the middle of the site was surrounded on two sides by the audience; this form increased intimacy between actors and audience. The audience seating remained in the dark while the acting place at the middle was illuminated by the artificial lighting and candle lights that were set on the site (Figure 47).

Figure 47: The Recipe of Diptera with Mushroom Sauce, Tehran, Stage design: author, 2018. Photo by Reza Javidi URL-18

There was no constant shifting of the scenes and since the play was happening through one location, backstage including places such as the dressing room was located separately from the main stage. Two graves were designed on acting place while one of them as a void was leading to below the stage for actors' entrance and exit that accordingly led to the left side of the site. However, in several scenes,

performers enter and exit from the right and left sides of the stage. Since the story only included one night scene, the play performed during the night hours. The stage was not closed by any decorated frame. Therefore, the distance between the stage and audience decreased and maximized the intimate connection between audience and performance (Figure 48).

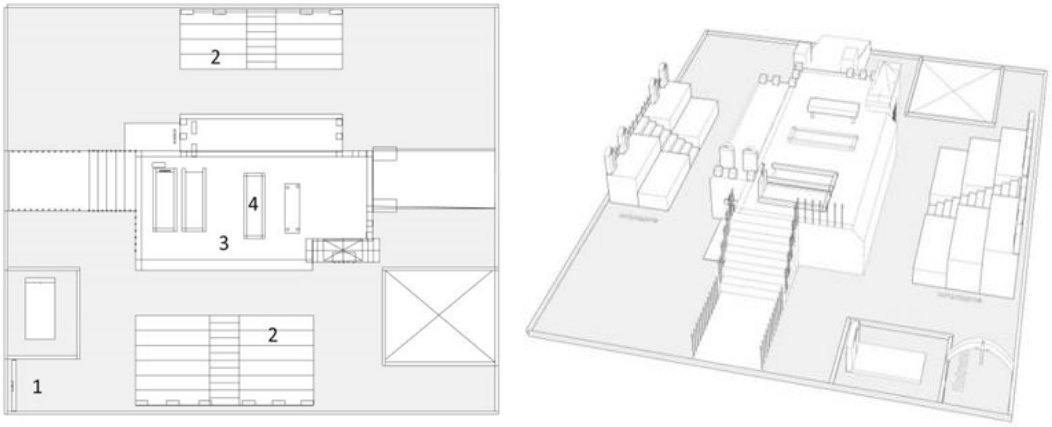


Figure 48: Stage design of the Recipe of Diptera with Mushroom Sauce including: 1. The main entrance, 2. Seating areas, 3. Acting place, and 4. The grave designed as a void. Source: author

This theatrical experience brought up an intriguing question to my mind; what if the expressionist atmosphere of theatre play, does not only limited to the scenic design? What if the space in and of a theatre building, along with the play, performers, and the setting, expresses the unique and imaginary sense of the performance and support the play? In this manner, distinctions of ‘here’ and ‘there’ no longer mean anything and audience will experience a sense of dislocation; they would be inside and outside the theatre play; the same issue that was the main concern for most of the expressionist in both theatre designs and architecture. Accordingly, the answer to these questions is intended to be more explored through the concept of virtualizing the architectural space in and of a theatre.

3.4 Findings and conclusion

Based on the literature review and analyses of the chosen case studies, key findings of this chapter can discuss through three main categories; expressionist movement, architecture, and theatre. To understand what is considered as expressionist theatre, both drama and stage production, it was necessary to first study the general background, characteristics, and source of influences to expressionism as an avant-garde movement started in Europe. How these characteristics encouraged most architects to practice their expressionist ideas through the domain of theatre architecture and stage design was another important issue explored in this chapter. As a result, defining expressionism as a movement, theatre and architecture was crucial since the preoccupations, suggested theories, and case studies in each of these discourses co-exist and complete each other:

1. Rather than representing the objective reality, expressionist movement defined through the intense subjectivity and absolute use of metaphor: All the 'isms' in art, architecture, and literature are difficult to be precisely defined since there is a general, as well as a specific application for each of them (Furness, 2017). For that reason, historians still disagree on what expressionism is and many artists themselves rejected the label (Bassie, 2008). Expressionism, as a movement that emerged and developed through the Modern era in Europe, has a strong overlap with modernism in general; this fact makes it challenging to pick expressionism at the middle of the modern period and attempt to define it individually and most importantly, very precisely. However, according to the literature review that has been done, expressionism above all, defined through emphasizing artists' self-expression, subjective creation, ecstatic passion, and a denial of conventional principles of reality, in which the objectivity of naturalists and "l'art pour l'art" (art for art sake)

aspect of symbolism according to Furness (2017) are left far behind. All these aspects of the movement were strongly influenced by the philosophy of Nietzsche regarding 'self-awareness', 'self-mastery', and 'passionate self-fulfilment' gave expressionists the inspiration to seek for their self-awareness and inner vision through their artworks rather than influence by the objectivity of the outer world. The ultimate task of expressionist art was to express the inner world, the inner experience of the artist, and the inner nature of the world and all the external aspects had to convey this message (Behr et al., 1993) and along with these attempts, the social, political, and revolutionary ideologies were co-existed. Thus, as Bürger (1984) states expressionism can be considered as an avant-garde tendency by rejecting the essence of previous movements in such a way that it attacked the institution of art, and transformed life as a whole.

2. Expressionist architecture is considered as being visionary paper format rather than pragmatic architectural project: Expressionist architecture can be defined as a reactionary tendency too detached from objective reality; according to Sharp (1993) in expressionist architecture, the word architect is a suspect term since the 'paper format' of such style allow architects to deal with any type of imaginary and individual designs. What Sharp (1993) meant by paper format in fact referred to those expressionist architectural designs which were too abstract and imaginary that remained on paper instead of being finalized through pragmatic physical designs. Although expressionism is a permanent tendency in modern architecture, according to Colquhoun (2002), the term of expressionist was used to refer to what is not functionalist and rationalist; it defines through the strong emphasizing on first rejecting Modernist principles of aesthetic as a tendency toward dynamism,

fragmentation, and distortion, and second, expressing subjective and individual experiences as a tendency toward utopian fantasy, imaginary, and mysticism. Although expressionism in architecture eventually faded at the end of 1925 by claiming that it failed to give any service to architecture, the main features that shaped expressionist design can be applied to any contemporary formal approaches that have the same tendencies. Even though the philosophical influences behind would be varied.

3. Theatre was possible domain for expressionist architects where their designs could be physically understood: Some expressionist architects, mostly the Crystal chain, attempts to define a more tangible form of design outside the realm of paper. In this manner, their attempts led them to the medium of theatre and film as possible domains where their expressionist designs could be physically realized. Theatre space and stage design whether in theatre or film provide expressionist architects a platform in which their imaginary and subjective ideas could be physically constructed (Olgren-Leblond, 2018). Expressionist architects who got interested in theatre designs are including Bruno taut, Hans Poelzig, Hans Scharoun, and Henry van de Velde. Although these architects might have some different details in defining the theatre space, they all agree on a new expression on the unity of art and life. The reason is that expressionism as an avant-garde movement had a bold positive program in bringing art out of the isolation of special auditoriums, museums, and libraries; if art was no longer the depiction of ‘reality’ but the ‘creation of new things’, then there was no longer any essential difference between ‘art’ and ‘life’ (Kleberg, 1993). This fact indicates why most architects in association with expressionism attempted to create a theatre space in which the borderline between

stage and audience would so thin. As a result, all these architects attempt to reject the conventional theatre designs and suggesting new theatre space as a sample of expression of the 'unity' of life and art. By suggesting the unity between life and art; between people and theatre, they attempt to reach a theatre space in which the borderline between audience and stage would be appeared so blurred that the audience experiences the sense of being inside the theatre performance rather than being observers.

4. Expressionist theatre both in drama and stage production is virtually subjective, abstract and un-localized: Expressionism, in general, offered a clear move toward 'abstraction of reality' in the form of distortion and fragmentation. Thus, in both drama and theatre, expressionism was expressing an opposition to restrictive tradition by giving new vision and rebirth of imaginative freedom (Grace, 1989). Based on the analyses on two expressionist dramas; A Dream Play by Strindberg, and the Iranian theatre play a The Recipe Of Diptera With Mushroom Sauce, it can be concluded that characters, action, setting, and the overall atmosphere of expressionist plays are not developed in rational and realistic manner; they are virtually subjective, abstract and un-localized while containing of shadowy, unrealistic lighting, and visual distortions in the set. As a result, the plays are mostly defined by their strong emphasis on representing objective improvisations, visions, ideas, imaginations, and feelings in a symbolic, poetic, and un-naturalistic way. This fact will not only cause artists to have different individual approaches toward the depiction of the expressionist plays in the form of stage productions, but also will enable the audience to have different perceptions toward the play and thus having different theatrical experiences.

Chapter 4

VIRCUALITY IN ARCHITECTURE: AN UN-BUILT SENSIBLE ARCHITECTURAL SPACE

Among a variety of digital technologies these days, Virtual Reality (VR) has defined new territory for architecture both in theory and practice; it has been used for nearly 40 years and has rapidly become one of the most exciting computer technologies with a strong influence on the popular imagination, attracting hundreds of researchers, spawning a booming industry (Leovaridis & Bahn, 2017), and providing a great opportunity for designers to explore their ideas without the common conventional restrictions of design and construction (Charitos & Bridges, 1997).

VR has been changed architectural visualization by enabling designers to test and evaluate their projects before they are materialized and most importantly, to create virtual spaces with a variety of functions that are not easily classified through real or unreal (Miltiadis, 2016). These virtual spaces can use as a great platform for exploring those spatial configurations that before were unimaginable to achieve (Miltiadis, 2016). In this manner, the involvement of VR technologies in architecture can be classified in two different ways:

1. Using VR tools for testing, evaluating, and also representing architectural design before the final construction. This use of VR not only help designers to evaluate projects and get solutions for unpredictable problems but in some cases, by providing an accurate representation of the projects, will enhance the sense of co-creation with

clients; those who in contrast with professional designers, do not have accurate knowledge to truly understand projects from architectural models and drawings.

2. The later involvement is considering Virtual Reality as architecture itself in which virtual environment, same as architectural environment, needs to be designed. This involvement is including creating a virtual simulation with defined space for various functions such as living, working, educating, performing, or entertaining. These functions are employed in virtual spaces that are predefined by architects and then applied by the programmers; with the use of the computer as a medium object, designers use various material, color, light, and fibers to recreate pre-defined architectural space with specific measure and proportion (Zargaran, 2008).

With main focus on the latter involvement of VR in architecture, through this chapter, conception and understanding of space and spatial experience within an immersive virtual environment, the features of such environment, and virtual theatre in both stage production and reconstruction of building is intended to be explored.

4.1 Virtual environment (VE)

VR is a simulation in which computer digital graphics are used to create an artificial realistic-looking world and this synthetic world is not static, but it responses to the user's input such as gesture (Burdea & Coiffet, 2003). Although the origin of VR technology and its involvement in various fields dated back to Ivan Sutherland's paper titled 'The Ultimate Display' written in 1965, the major VR developments occurred during 1980s (Dixon, 2006). The goal of VR is to create those environments in which users experience a computer-generated world as if it is real (Bowman & McMahan, 2007). In the medium of architecture, this fact would help

professionals to apply unrealistic elements and create delusion in reality. The virtual environment would be defined by immersion, interaction, and imagination; the users will immerse themselves in a virtual imaginary world in which they could have interaction (Burdea & Coiffet, 2003). Thus, virtual architecture means the digital representation of a designed architectural space (Zargaran, 2008). In this definition, according to Zargaran (2008), the virtual is defined as a non-physical reality which represents reality with the help of digital software. Accordingly, a virtual environment is an artificial interactive simulation which is computer-generated, but it should represent in a way that perceived as the real environment (Schnabel, 2004); it should give users the perception in which they feel being inside the environment; this environment can be the same as the constructed environment or be an imaginary one (Schnabel, 2004).

One of the first projects including VR technology was Brenda Laurel and Rachel Strickland's Placeholder in 1993 in Canada (Moneta, 2017). The project was including of 11 computers that running over 25,000 lines of codes and an enclosed space for users within the present parameters as well as HDMS for both visual and audio sensory experience; users entered the virtual simulation wearing these headsets while could interact verbally with other users. Individuals were allowed to navigate through three landscapes: a cave, a waterfall, and a series of earthen spires while hearing a spatial voice on their headsets as 'goddess', a live performer who communicate with users via a microphone and offers them navigation through the virtual world (Dixon, 2006). Laurel in her Ph.D. thesis which was later published as 'Computers as Theatre' in 1991, theorized virtual space as a new spiritual space that functions like primitive landscapes and Dionysian festivals; a virtual platform to

recreate sacred spaces that collaborate with reality. Laurel's suggested theories were applied to practice in the Placeholder project (Dixon, 2006) (Figure 49).

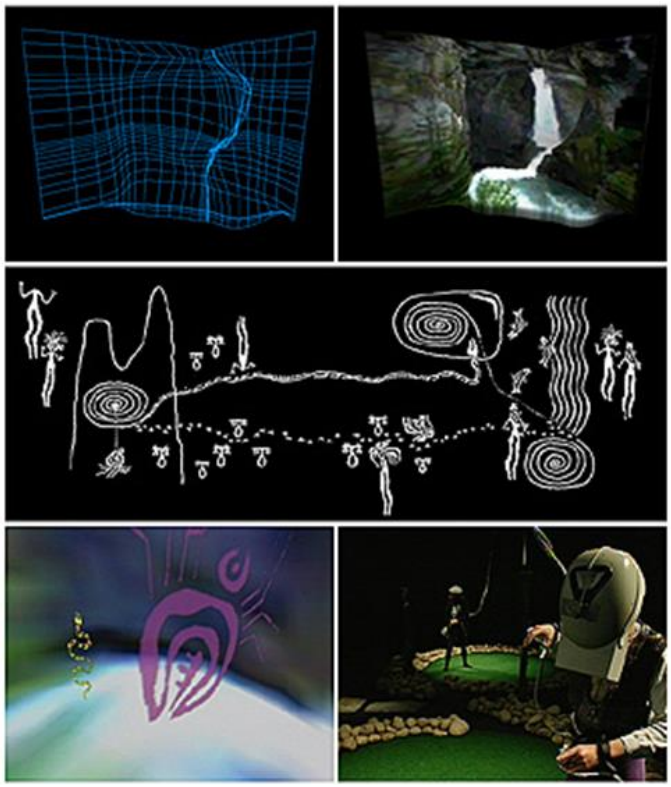


Figure 49: Placeholder by Brenda Laurel and Rachel Strickland, 1993 URL-19

Since then, VR technology used in more innovative ways; in 1995 Char Davies's Osmose by tracking breathing, balance, and interactive three dimensional sound added interactivity to the virtual project (Moneta, 2017). Her project suggested a change of immersive virtual environment into a spatial-temporal platform where can be explored through full-body interaction and immersion by using a data-suit. The project was in contract to most virtual projects that only included of HMDs in which users could navigate and explore only by their head movements (Dixon, 2006).

Nowadays, there is a range of various advanced systems and input devices that are used for the virtual purpose, such as HMDs (head-mounted displays), ODT (Omni-

directional treadmills), and special gloves. The virtual systems are including of Virtual Reality (VR) applications that let users experience the completely artificial environment, Augment Reality (AR) is defined as a combination of the real and virtual world, and Mixed Reality (MR) is the enhanced form of the augmented reality. Virtual and augmented realities have great potential for spatial research and experimentation by allowing new forms of un-built sensible architectural space (Miltiadis, 2016). Accordingly, the virtual environment can be classified into two main types:

A) Desktop virtual environment

B) Immersive virtual environment.

One of the differences between non-immersive and immersive virtual environments is the level of immersion and accordingly the sense of presence. The immersive virtual simulation aims to enhance the sense of presence through stereoscopic visualization and other resources (Paes, Arantes & Irizarry, 2017). The desktop VEs are those that the viewer is only looking at a typical computer screen, with no impression of being inside the environment while the immersive version of the virtual environment, which is the main focus of this research, creates the impression in which users with the support of various input devices such as HMDs, special gloves, suits, and earphones are fully immersive within the environment and in some cases can have actions or control over their surroundings (Miltiadis, 2016) (Figure 50).

Figure 50: Participant exploring the non-immersive environment (left) and the immersive environment (right) (Paes et al., 2017)

In this manner, users can receive various senses that enhance the feeling of being part of the virtual environment (Schnabel, 2004). Users are not only passive viewers, but also can have interaction and control with their virtual surroundings; this interaction according to Bertol (1996) is the generator of virtual representations (Bertol, 1996).

The Cave Automatic Virtual Environments (CAVEs) is one of the examples of immersive virtual environments that allow users to explore their surroundings through navigation, head movements, and hand gestures. However due to high cost, after resealing the first type of such systems, the lower-cost version began to develop which in comparison with previous types needs less advanced computational skills and thus can be accessible to a wider range of users (Paes et al., 2017).

In general, Gladden (2018) defines virtual reality technologies as a platform that is based on two main factors: immersion and interaction. Immersion according to Gladden (2018) means wholly replacing within a virtual space as it is real, and interaction defines in a way that users are not passively present in a place but can manipulate and interact with it (Gladden, 2018). Hence, all the additional VR devices used due to enhance these main factors for users; immersion and interaction.

4.2 Virtual environment (VE) vs. physical environment (PE)

According to Charitos (1996) virtual environment (VE), the same as physical environment (PE) has a spatial character in which users experiencing three-dimensional space that they virtually exist within it. In this sense, defining VE involves spatial entities such as communication, interaction with surroundings, and navigation within the environment.

For simulating a physical environment (PE) into a virtual one, all these spatial entities and subjects need to be precisely evaluated and modelled. Thus, there would be no need for any new consideration of spatial entities since designing a virtual environment as Charitos (1996) points out is imitating a physical environment and it is why VE needs to deal with architectural considerations as well. Although according to Charitos (1996) not all virtual environments deal with architectural problems, considering architectural knowledge is the main point behind designing a virtual environment since it provides better interaction between users and the virtual world. Thus, according to Charitos & Bridges (1997) in defining a virtual environment or simulating a physical environment into the virtual one, considering architectural preoccupations are essential, however, it is also necessary for both designers and programmers to explore and evaluate the limitations of VEs and differences between physical and virtual environment. Since we are living in a physical environment, the features that define this context are easy to understand, and by understanding the features of PE, and its difference with VE we can understand the nature and also limitations of the virtual environment. The limitations of VE according to Charitos & Bridges (1997), is that the virtual environment cannot have resolution and complexity of experiencing the physical environment which

means that users can not have enough feedback from the virtual space same as the physical environment.

Although defining a virtual environment would be similar to a physical environment in which for both environments designers need to deal with architectural knowledge and considerations, the spatial experience and the perception of space for those who explore these environments can be varied. Users' conscious of their position within the virtual surrounding, for instance, is different with those who explore the physical environments. The difference between spatial exploration in physical environment and virtual simulation and the definition of space in virtual environment is intended to be more explore on the following parts. The following table (Table 8) represents a summary of the involvement of VR in architecture as well as the differences between VEs and PEs.

Table8: The involvement of VR in architecture. Source: author

Virtual Reality in Architecture	
Involvement of VR in architecture	• For testing, evaluating, and also representing architectural design before the final construction • As architecture itself in which same as architectural environment, needs to be designed.
Types of Virtual Environments (VEs)	• **Desktop virtual environment:** -Users are passive viewers -No impression of being inside the environment • **Immersive virtual environment:** -Users are not passive viewers -Having interaction and control over virtual surrounding
Similarities and differences between VEs and PEs	• **Similarities:** -Both involve spatial entities such as communication, interaction with surrounding, and navigation within environment. -Both deal with architectural knowledge, issues and preoccupations • **Differences:** -VEs do not have resolution and complexity in experience -VEs do not have physical restrictions for dynamic and scale consistency -VEs are hyper-textual and multidimensional - VEs involve different spatial experience and perception of space

4.2.1 The notion of space and spatial experience in VEs

4.2.1.1 Space perception

The visual pleasure in architecture according to Roth (1993) is directly comes from our perception of it. As a result, we have to consider how eyes and mind receive the visual data of an architectural experience (Roth, 1993). According to Pallasmaa (2013), the art of architecture is the art of the eye. In this manner, the same as the visual arts, in architecture the dominance of vision is strong and designs are 'objects of momentary seductions'. Pallasmaa (2013) states that touch is "the unconsciousness of vision". The art of architecture as Pallasmaa (2013) states is an art form of the eyes. As a result, architecture is dominated by visual qualities such as proportion, composition, and harmony. In this manner, the art of architecture is considered as a silent perceptual presence that frames human experience while giving it a specific meaning (Pallasmaa, 2013). The way we perceive the surrounding space is based on the psychology of the perception; the process that makes a person conscious of his or her position within the surrounding is based on distance, size, and orientation (Hernández, Taibo, Seoane, & Jaspe, 2011). Space perception can be defined as an active process in which the entire body is involved. However according to the Cartesian perceptual model of the 'camera obscura,' the perception is only involving the mind's eye in which the surrounding space is perceived as images (Bowler, 2016). In this manner not the whole body of users, but only the mind is the main factor in perceiving the space.

While the process of perception within static and two-dimensional environments is well defined, in dynamic three-dimensional simulations such as virtual environments the process of perception is still unclear (Paes et al., 2017). How a person would

perceive space in VE require a sense of immersion in which users feel being ‘present’ inside the virtual world (Hernández et al., 2011) and for that reasons various VR devices will help users to feel the sense of immersion within the environment and allow them to look in various direction of the project or some cases, by allowing users to move within the project and have navigation; the sense of immersion of virtual space will enhance (Hernández et al., 2011). According to Henry and Furness (1993), the accurate eye height position and scale adjustment related to head position and viewpoint of users are among the issues of virtual environments that should be addressed since these factors can accordingly affect the way users perceive their surroundings.

According to Bowler (2016), perceptual spaces are including of visual space, peripheral space, Dark space, aural space, and tactile space. The visual space is the dominant of all; as its name suggests it indicates the fact that the perception of space is above all a visual phenomenon. The Peripheral space according to Pallasmaa (2014) perceived kinetically, and only to a small amount visually, in dark space, the body is surrounded by darkness in which nothing can be perceived, aural space is the acoustic field that stretches in all directions and tactile space is experienced on a certain area of spaces where sensitivity is increased which itself is including of proprioceptive and kinetic space (Bowler, 2016). Theatre performance, as Bowler (2016) states is involving the proprioceptive space and kinetic space which are both the subtypes of tactile space. Proprioception is the sense of inner-body movement while kinetic space is the sense of the body’s movement in space.

4.2.1.2 Spatial experience

Existential space, as Norberg-Schulz defines, was a starting point for Charitos (1996) to define elements and structural levels of the physical environment and to explore how these elements within the physical environment would be compared with the virtual environment. Christian Norberg-Schulz applied the phenomenological philosophies to architecture to reach an existential aspect of space. Rather than emphasizing on modernist universal space, Norberg-Schulz argues about the qualitative aspect of architectural design (VonderBrink, 2007). According to Norberg-Shulz, a place has a character which he named as 'genius loci' or 'spirit of place'. This 'genius loci' is resulting from various factors such as organization, materials, boundaries, rhythm, construction, and spatial geometry. All of these factors according to Norberg-Schulz give a specific character to the place that for each user is subjective (Smith & Guitart, 2013). Therefore, according to Norberg-Shulz (1979) "architecture must understand and, then, concretize the genius loci." For him, the modern architecture has too much focus on the physical features of the environment as an enclosed space, while each architectural environment should be related to both meaning and physical properties (Sime, 1986).

Thus, with referring to phenomenological philosophy, Norberg-Schulz (1980) defines space as an existential phenomenon which is in contrast to mathematical construction (Sime, 1986). While the architectural space is more formal and physical based on a specific function and two-dimensional map space, the existential space is the main meaning, purpose, and intention within a place; the abstract level of the place which is intangible, but has to be experienced through physical features (Norberg-Schulz, 1971). This spatial experience according to Norberg-Schulz (1971)

is based on a phenomenological point of view and accordingly, the relation between phenomena and action.

In this manner, experiencing space is defined by human existence within the environment that is manifesting through the cognitive process in each individual's perception of surrounding. Thus, it is subjective and related to each person's perception and awareness of space (Charitos, 1996).

Same as the existential space, the virtual experience is all about experiencing based on individual perception, thoughts, and perspective (Silva, 2006). According to Silva (2006) phenomenology is one of the main thoughts on the concept of space in virtual environments; phenomenology of the place is a relation between 'built-environment phenomena' and 'intangible human phenomena' (Smith & Guitart, 2013). The phenomenological thoughts are relevant to virtual environments since it is about the bodily experience within the space; in virtual design, the user's body is replacing with one's image of the body (Silva, 2006); the user is experiencing the space only through a mental journey. The only difference is that phenomenology focus on the experience within an environment, while virtual space is about the spatial experience that belongs to consciousness with no actual or external existence (Silva, 2006).

Based on Norberg-Schulz's theory of existential space and referring to the phenomenological approach, Charitos (1996) attempts to define the notion of space and spatial experience within the virtual environments. In this manner, spatial experience in virtual environments is defined as a subjective and phenomenological experience in which place is defined as space with character and with forcing on the

existential purpose of each built environment, each site becomes a place where there is an intention, meaning, and purpose behind it for users to be explored (Sime, 1986).

Through the spatial experience within the virtual environment, the given environment to users is pre-designed (Giannachi, 2004) which means that virtual experience is not an objective reality but according to Giannachi (2004) it is someone's work of art and in this sense, space for users is more or less open. In such a design, the virtual space is defined through the lack of gravitational force, consolidation, floatation, and an arranged movement; distance and limitation in moving between two parts are meaningless within a virtual space (Zargaran, 2008).

Since the spatial experience of VE is subjective, places are spaces where some certain activities happen; a path, for instance, is a space which expresses a sense of mobility and expansion, and a threshold is the centre of interaction between the elements that are in virtual space (Charitos & Bridges, 1997). According to Silva (2006) The Liquid Architecture Project of Marcos Novak (1991) which is defined within a virtual environment of cyberspace, is an example of architecture without logic, perspective, and gravity. Novak's project defined spaces that are especially for a virtual domain which does not exist in the physical world.

The project indicates the fact that architecture is now should be free of traditional physical limitations and be merged with science and technology (Silva, 2006). However, it does not mean that virtual space is intended to replace the physical ones, but it means that architectural design will no longer be attached to static conditions locally defined place (Silva, 2006)(Figure 51, 52).

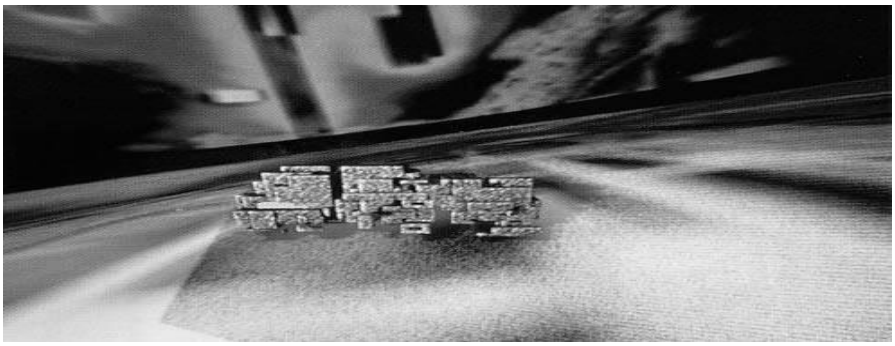


Figure 51: Visualization of a liquid architecture in cyberspace (Novak, 1991)

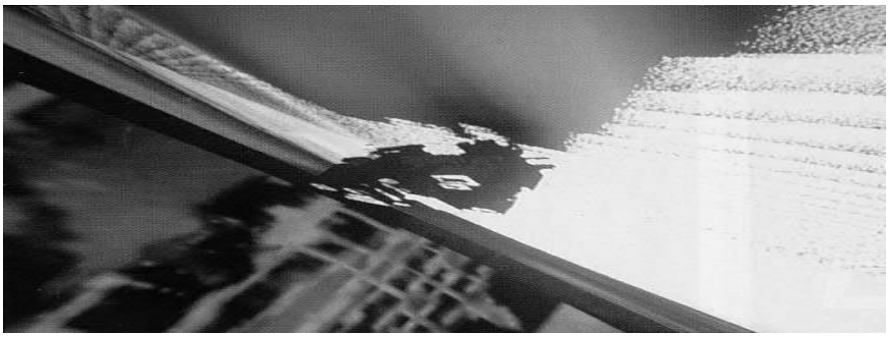


Figure 52: Every aspect of this world varies with position, time and information, and with the interests of the inhabitants (Novak, 1991)

Cyberspace will give users a new human experience in which the tangibility of the virtual environment results from the interaction between users and media; Silva (2006) argues that in computer-generated space, users emerge in a world of digital sensation that will lead to a new form of human experience; this new experience accordingly will lead to a new perception of surrounding which is different from the physical environment. It brings users more freedom of body movement through the detachment of one's mind and body (Silva, 2006).

In cyberspace, space is more fluid without the laws of force and gravity in which users no longer respond to the environment, but it is the environment that now is responding to each individual (Silva, 2006). According to Giannachi (2004) Cyberspace is a collective creation that viewers participate in the production of work

in an open way. In this manner, the creation is not limited to the moment of realization and the virtual system will provide a machine for generating events. In this context there are two types of virtual space:

a) Closed or off-line spaces;

b) Spaces those are accessible and infinitely open to interact and transform with other virtual words.

With regard to Marcos Novak (1991) theories on Liquid architecture, Silva (2006) defines three type of virtual space:

1. Platonic Ideal in which according to Plato's story of the cave, the illusion of some shadows became the reality for a group of people inside the cave;

2. The space of the consciousness which is about idea space where the limitations are only exist in each person's mind;

3. The technologically constructed information space in which the constructed information results from interaction and involvement of users in the virtual environment.

Accordingly, virtual environments are not always supposed to remodel and imitate the real physical environment with every single detail; VE can be considered as a simulated environment based on 'hyper-reality' that exists in its way with the features that are neither real nor unreal.

4.2.1.3 The notion of present

One of the important issues concerning the virtual environment is the concept of 'presence' and how it defines in terms of human experience rather than just a technological medium (Steuer, 1992). According to Biocca and Delaney (1995)

psychology is the physics of virtual reality; "Virtual worlds are constructed by the senses and only really exist in the mind of users."[12]

The goal of VR is to create the immersion in a way that users feel a sense of presence in the virtual environment as it is real (Leovaridis & Bahn, 2017). Steuer (1992) states that the virtual space should be defined as a type of human experience and the main point to define this experience is the notion of the present; to be in the place. Presence in virtual space according to Baños et al. (2000) is the subjective experience of being there even when users are physically located in another place. This sense of being inside the place results from the feeling that users exist within the space while they are a separated entity from it (Baños et al., 2000). Spatial presence is strongly related to users' experience and immersion with the virtual environment.

In this sense, spatial experience in VE is related to the feeling of being located in space or self-location and this fact again is related to the degree of immersion and engagement with the surrounding (Balakrishnan, Oprean, Martin, & Smith, 2012). However, no matter how much users have engagement with the virtual surrounding, the person will truly know that he or she is experiencing a place while being physically somewhere else (Slater & Usoh, 1993). Thus, the concept of presence is difficult to be precisely defined not only in the virtual environment, but also in everyday life. For instance, if one person is standing at a bus station while dreaming about traveling to 'somewhere else'; what would be the correct answer to the question that where are you? In the case of virtual simulation somewhere else will be virtual space (Slater & Usoh, 1993).

[12] Quoted by William Bricken in Wooley, 1992, p.21, as cited by Biocca & Delaney, 1995.

Immersive virtual environments provide experiences within a synthetic world to users and making them forget the real space that they are physically in and in this manner if users cannot perfectly be engaged with virtual content the illusion of being within a virtual space might break (Suma, Lipps, Finkelstein, Krum, & Bolas, 2012). However, scholars discuss various factors that enhance the sense of immersion and the sense of being within a virtual space. Meijer et al. (2009) argue about the importance of realism in VE in which they asked thirty-two participants to explore a virtual supermarket; one a photorealistic and the non-realistic simulation. They concluded that visual realism for virtual space can increase users' spatial cognition (Figure 53) (Meijer et al., 2009). Enhancement of the sense of realism in virtual simulation not only included realism in representing the physical features, but also the implementation of intangible aspects as one of the crucial principles in virtualizing projects. Considering intangible aspects can help users to be more engaged with the virtual environment as it is real and let them experience a place rather than an artificial simulation.

Figure 53: Non-realistic simulation of a supermarket (on the Left) vs. the photo-realistic simulation (Meijer et al., 2009)

In this manner, focusing on tangible features, considering sensations, emotions, and feeling of users and how these factors can lead to a better sense making with

surrounding can be helpful. For instance, Miltiadis (2016) states that although the presence of each user in virtual space will be non-contextual since their motion will be synchronized over the internet, the possibility of voice messaging between users can be added as a tool to enhance the sense of presence and enable users to share their spatial experience with each other. In this sense, the realistic simulation of virtual space leads to a more immersive experience and accordingly the sense of presence. However, according to Samur (2016) a recent definition of presence in virtual space is different from the sense of immersion and by increasing the degree of realism users will shift from immersion to presence which in compared to the sense of immersion involved a more sense of being in the place (Figure 54). This sense of presence is different from person to person and can be increased by a variety of technical requirements such as a wide field of view, proper resolution, low pixel persistence, enough refresh rate, global display, Optics, Optical calibration, Head tracking, and Low latency (Abrash, 2014, as cited by Samur, 2016).

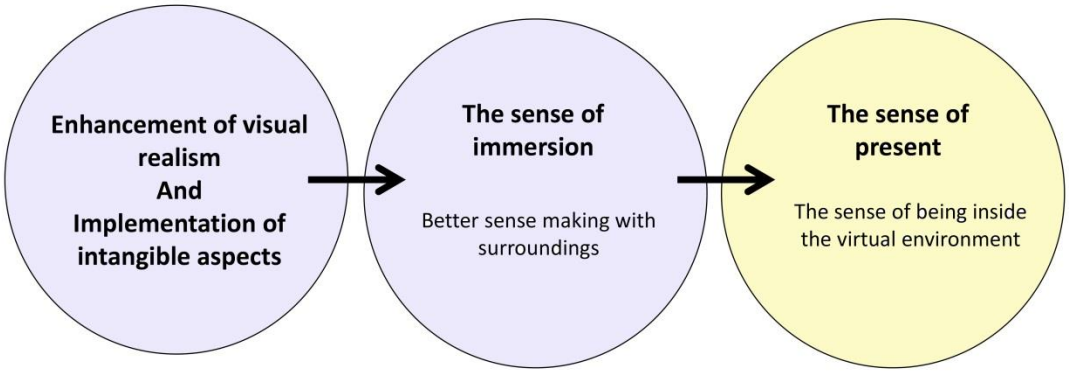


Figure 54: Enhancement of realistic features and implementation of intangible aspects will leads to a more immersive experience and accordingly the sense of presence. Source: author

According to Steuer (1992) the notion of presence can be defined as a perception of physical surroundings that is mediated by both automatic and mental processes. In

this manner, when this perception is affected by VR technology, a person will experience two separated environments; first, the physical environment in which the person is physically present, and second the simulated environment by VR. Steuer (1992) defines the second type of presence as 'Tele-presence' in which a person feels being present in a mediated environment rather than the physical one. In other words, according to Steure (1992) presence refers to the natural perception of surrounding while 'Tele-presence' is the perception of any type of mediated environment such as a virtual environment. In addition, Sheridan (1992) defines another type of presence called 'virtual present' by arguing that 'Tele-presence' is the sense of being inside a remote location via technology while 'virtual presence' is defined as a sense of presence in an immersive virtual environment (Figure 55).

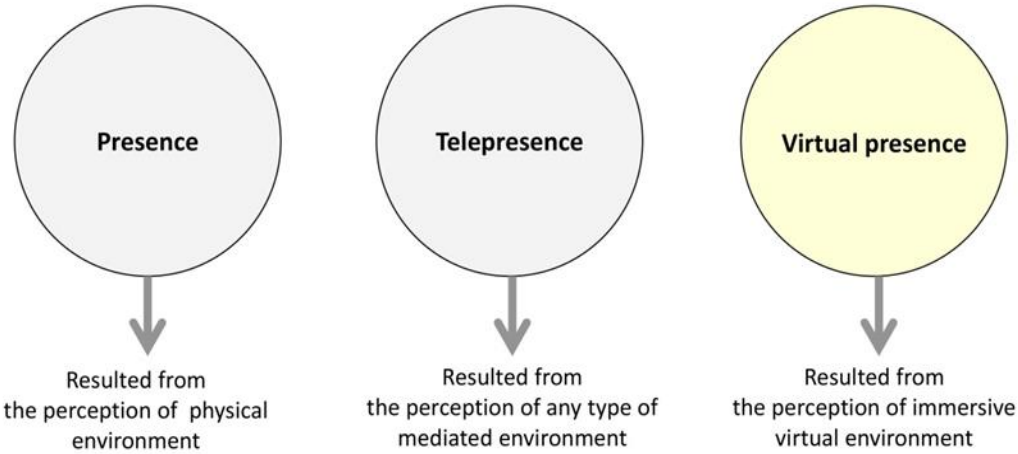


Figure 55: The notion of presence in physical environment, remote location, and an immersive virtual environment. Virtual presence is the key notion in virtual theatrical experience. Source: author

Accordingly, the notion of 'Tele-presence' in virtual space as Schloerb (1995) states is including objective and subjective perspectives. The objective 'Tele-presence' is when users can complete a specific task within the virtual environment, while the latter one is defined by users' perception of surroundings The degree of presence in

these two senses according to Samur (2016) depends on three key factors: Sensory information that users received from the environment, the ability to control the sensory environment, and the ability to manipulate the surrounding. As a result, the sense of presence in the virtual environment or as Sheridan (1992) states 'Virtual Presence' depends on the sensory information that each user receives and according to how this information can be controlled or manipulated.

4.3 Findings and conclusion

Nowadays, the rapid development of advanced digital technologies has unwrapped a new opportunity for designers; the architectural discourse which once was the discourse of form and style, now with the involvements of various digital tools such as Virtual Reality (VR) has overcome these boundaries. Architecture is now in the words of Silva (2006) characterized by the fusion of information, art, and most importantly technology. The main potential of VR technologies along with using them as a platform to evaluate projects before construction is to simulate virtual spaces for exploring those spatial configurations that before were unimaginable to achieve. In this sense, VR technologies are no longer additional tools for architecture, but they are architecture themselves. Although VR has too much potential, it does not mean that virtual space is intended to replace the physical ones; but it means that architectural theory and practice will be no longer attached to conventional static conditions that previously defined designs. Based on the studies that have been done through this chapter, the key findings can be discussed in four main discourses:

1. Same as physical environment (PE), virtual environment (VE) has a spatial character: Although the virtual environment is an artificial simulation, it should represent in a way that can be perceived the same as the physical environment

(Schnabel, 2004); it should give users the perception in which they feel being inside the environment; this environment, however, can be the same as the constructed environment or be an imaginary new one. In both simulations, virtual designing involves spatial entities such as communication, interaction, and navigation within the environment. It is through these spatial entities that users can be engaged with the environment. Thus, for simulating a physical environment (PE) into a virtual one, all these spatial entities and subjects need to be precisely evaluated and modelled. Although defining virtual environment would be similar to the physical environment in which for both environments, designers need to deal with architectural knowledge and considerations, and based on the studies that have been done through this chapter the spatial experience and the perception of space for those who explore these environments can be varied.

2. The spatial experience in immersive virtual environments is subjective and based on individual perception, thoughts, and perspective: With referring to the phenomenological philosophy of Norberg-Schulz, architectural space is perceived based on both physical and non-physical features; the non-physical features defined by Norberg-Schulz as abstract intention or meaning behind each space which he called existential space. Accordingly, experiencing the space is defined by human existence within these features of an environment that is manifesting through the cognitive process in each individual's perception of surrounding. These phenomenological thoughts are relevant to the virtual environment since it is about the bodily experience within the space while in virtual space, user's body is replacing with one's image of the body (Silva, 2006). Thus, the user experiences space only through a mental journey. The only difference is that phenomenology focus on the

actual experience within an environment, while virtual space is about the spatial experience that belongs to consciousness with no actual or external existence. In this manner, spatial experience in virtual environments is defined as a subjective and phenomenological experience. Place is defined as space with character and by considering the existential purpose of each built environment, each site becomes a place where there is an intention, and purpose for users to explore (Sime, 1986).

3. Virtual space is less or more open and free from physicality, logic, and gravity: The virtual space is defined through the lack of gravitational force, consolidation, floatation, and an arranged movement; distance and limitation in moving between two parts are meaningless within a virtual space. Within the virtual platform, space is free of physicality and accordingly, the digital simulations emerge in form of data and information; architecture in this data space is presenting a new way of reality that is the reality of cyberspace (Silva, 2006). The virtual space is defined through the lack of gravitational force, consolidation, floatation, and an arranged movement. Distance and limitation in moving between two parts are meaningless within a virtual space (Zargaran, 2008). Having o physical restrictions for dynamic, no scale consistency, being hyper-textual and multidimensional are the main features of VEs (Charitos & Bridges, 1997) and caused virtual space to be free of traditional physical limitations and merge with science and technology.

4. Virtual presence is defined as a subjective feeling of being there in an immersive virtual environment: experiencing an immersive virtual space will be manifested through the cognitive process in each individual's awareness of the surrounding. This awareness is related to the degree of immersion that users might

have within the virtual environment. According to Samur (2016) a recent definition of presence in virtual space indicates by increasing the degree of realism in virtual space users will shift from ‘immersion’ to ‘presence’. This sense of presence in comparison to the sense of immersion represents a more sense of being. The Improvement of realism in virtual simulation and implementation of intangible aspects in virtualizing projects are among the crucial principles that can help users to be more engaged with virtual environment and let them experience a more sense of immersion ad according the sense of presence. As a result, along with focusing on applying the physical features with flawless realistic details, considering sensations, emotions, and feeling of users and how these factors can lead to a better sense-making with surrounding can be helpful. For instance, the possibility of voice messaging between users can be added as a tool to enhance the sense of presence and enable users to share their spatial experience.

Chapter 5

VIRTUAL THEATER: BEING INSIDE AND OUTSIDE THE PERFORMANCE

5.1 Virtual theatre performance

Nowadays, VR technology has been used in various artistic fields including theatre; the combination of VR technology and theatrical performance has captured artists' imaginations for some time (Wu, Boulanger, Kazakevich & Taylor, 2010). Although many artists of performing art believe that watching a performance is irreplaceable, it is interesting to explore how the involvement of VR technology can enhance the audience's engagement to live performance (He et al., 2018). Most importantly, recently, the world of performing arts and accordingly, many stage productions almost came to cease as the unexpected situation occurs worldwide by the global pandemic. Thus, it is both challenging and necessary to bring performances back on stage but this time, with the aim of advanced technologies and through a new platform.

What is considered as Virtual Theatre in this research is the theatrical experience that results from the interaction between VR technology and theatre performance. Theatre is one of the oldest forms of storytelling and VR technology is among the newest approaches in presenting theatrical events; virtual theatre can be performed on a physical stage, virtual stage, and the combination of two (Geigel& Schweppe, 2004). The virtual theatrical experience can be achieved through two main methods:

1. The creation of an immersive virtual environment which let users to immerse themselves in a completely artificial simulation with the aim of virtual reality (VR) tools;
2. The combination of the physical environment and virtual simulation with the aim of Augmented Reality (AR) tools.

Both methods involve the use of display, sensors, and input devices such as head-mounted displays (HMDs), and head-up displays (HUD). The first method is completely a virtual theatrical experience with no interaction with the physical environment; this type of virtual theatre allow the audience to immerse themselves in a created reality of performance; to be face to face with performers and have a more tangible theatrical experience.

In the second method which is a collaborative experience of a real and artificial world by adding virtual layers to the physical environment, the atmosphere of performance including the stage and set design is enhanced through computer-generated perceptual information.

For instance, The Institute for the Exploration of Virtual Realities (ieVR) uses VR technologies to recreate the theatrical performances and mostly the expressionist plays of the 1920s by suggesting that VR should be used in such a way that mimic actual objects and environments. To achieve immersion through virtual simulations, the institute uses VR technology as a scenographic medium which they believed was the key concept in both theatre and VR (Dixon, 2006). The Adding Machine (1995) the expressionist play by Elmer Rice was the first virtual production by ieVR. The

play represents Mr Zero's search for happiness in a mechanized and dehumanized society which the institute used as an irony; technology which once was defined as a dehumanized force through the play, is now used and defined as an artistic medium (Dixon, 2006). The actors performed in front of a rear projection screen that displaying VR imagery that the audience could view through polarized eyeglasses. Movement and navigation were rendered in real time through the VR backgrounds and functioned live by a technician known as (virtual environment driver) that stayed offstage (Dixon, 2006).

Sophie Treadwell's expressionist play *The Machinal* (1928) which has been staged in 2000 was another example of the collaboration of real and virtual simulation on stage (Figure 56, 57).

Figure 56: Mark Reaney's VR scenography for The Machinal (2000) is operated in real time to move in relation to the actors' movements and actions (Dixon, 2006)

The project was including a central VR projection screen, and two side screens that played pre-recorded three-dimensional images of landscapes and objects while the

audience witness the performance through polarized 3D glasses. The aim was to create an immersive virtual space for the audience. However, they were located at a considerable distance from the virtual sets, screen, and performers' action; the small size of virtual screens caused the limited amount of audience experience the sense of immersion through the virtual applications (Dixon, 2006).

Figure 57: Live shadow play and a VR model electric chair combine for the climax of Machinal (2000) (Dixon, 2006)

In virtual theatre, the focus is not only on creating the virtual space but also defining the behaviour of performers on the stage. In this sense, advanced VR technologies and artificial intelligence has enabled programmers to create virtual actors who can actively participate within the virtual environment (Geigel& Schweppe, 2004). Through the stage productions by ieVR, actors were performing live in front of the audience while some part of the setting was virtually simulated, but in immersive virtual theatre, performances are mostly pre-recorded and pre-programmed which make them lifeless in compare with real theatre that including of improvisation and

spontaneity (Wu et al., 2010). Thus, immersive virtual theatre can be defined through the direct mediated interaction of avatars and objects which results in the flexibility of interaction and more potential to create novel theatrical elements that are impossible to do in real theatrical experience (Wu et al., 2010).

Sam Shpigelman who is a lecturer of performing art at San Diego State University (SDSU) suggests two methods of virtualizing theatre performance during the 2020 global pandemic:

1. In the first method suggested by Shpigelman, performers recorded the play in front of a green screen at their home, and then the recorded performance was applied on the computer simulation stage which is completed with the stage set and other performers' acts (Alvarez& Burgé, 2020).

2. The second method is including virtual avatars instead of real performers which mimic performers' movements and gestures on stage via using motion capture technology. Actors by using a motion capture suit, their movements and gestures capture and transfer through the digital avatars that can move on virtual simulation of the stage (Alvarez& Burgé, 2020).

Wu et al. (2010) for instance, discuss the theatrical performance in which the system allows actors to be predefined virtually through the performance in real-time which accordingly will be resulted in a more interactive theatrical experience; actors are isolated in a distant site and digitized by a motion capture system while being invisible to the audience. The system is including various devices in the theatrical set for real-time motion capture and gesture recognition. The audience can view the

virtual actors in an immersive three-wall CAVE; the action and gestures of virtual actors are digitized in real-time and controls by real performers in a remote site while the audience does not see. *Virtual Dervish* In Yacov Sharir and Diane Gromala's (1994) production titled *Dancing with the Virtual Dervish* who performed through the virtual environment not only could interact with other performers who were presented in cyberspace but also with a digital puppet that enabled mimicking gestures and dancing alone (Moneta, 2017) (Figure 58). The real actors can see and listen to the audience's response and other actors on the site by using networked cameras and microphones (Wu et al., 2010). For instance, in a theatre performance, similar to film and literature, the goal is to absorb the attention of participants through storytelling in such a way that the physical surrounding would be dismissed (Reaney, 1999) and it is through this strong focus on artwork that the immersion will occur.

Figure 58: Yacov Sharir navigates through the interior of a VR human body in Dancing with the Virtual Dervish, 1994 (Dixon, 2006)

It might be assumed that in architecture, space only defines as tangible, material-based, and geometric object, but in theatre, space sometimes can be defined so

abstract which according to Pallasmaa (2014) vaguely hinted features of the place or space might be required to define a platform for performance. Accordingly, instead of considering theatre space only as material-based and geometric objects, theatre space can be defined as an abstract, intangible, and limitless medium. On the other hand, as discussed former, virtual space is less or more open; having no physical restrictions for dynamic, no scale consistency, being hyper-textual and multidimensional caused virtual space to be free of traditional physical limitations and accordingly, defined as limitless, abstract, and intangible platform.

In virtualizing the theatre space, rather than limiting the production to the physical setting of the play, the immersive environment will create to represent the whole atmosphere of the play and in some cases to illustrate the mind-set of the characters (Reaney, 1999). Thus, the audience will be invited to travel through the mind of the main characters. One of the main benefits, besides the accessibility of performances to people from all over the world, is freedom in stage design since digital sets and virtual costumes require less time and afford than previous ones (Alvarez& Burgé, 2020).

Recently, virtual reality has unwrapped a whole new world for performing arts in such a way that the previous relation between space, actor, and spectator changed into a space-spectator relation. The audience would immerse through a theatre space while no longer being passive observer (Moneta, 2017). Once again, it is not intended to redefine the notion of theatre, but the space where the performance is represented.

5.2 Virtual reconstruction of theatre buildings

The involvement of VR technology made a great contribution to theatre history research and classical scholarship (Dixon, 2006) not only in performance and stage productions, but also recreating the theatre buildings.

By 1997, the following years of historical research, a team from Warwick University led by Richard Beacham reconstructed a detailed three dimensional models of ancient theatre buildings including the Theatre of Dionysus, Rome's first permanent theatre, and the Theatre of Pompey (Dixon, 2006). The projects were including VR screen-based reconstructions that could be explored by individuals from the macro scale to the micro details of theatrical and practical aspects. Rather than representing the ruins of the buildings, the virtual simulations can also be represented as the time buildings were still intact (Dixon, 2006) (Figure 59, 60). Various researchers argue that virtual reconstruction often lacks several characteristics that caused it to be less attractive to the public. One of these factors is the realism of virtual simulations. However, scholars such as Champion (2015) points out that the audience would prefer more entertaining immersion within a virtual environment rather than realism. Thus, it is not the lack of realistic texture in the virtual environment, but a lack of 'meaningful context' that leads to less engagement between users and surroundings. The meaningful contexts can be defined by increasing intangible sensations, noticing cultural beliefs, and becoming more holistically embodied and physiologically responsive within the virtual environment. In this sense, with more effective evaluation, testing, and more promising technologies, virtual reconstruction projects might let users have more interaction with virtual simulations and allow them to imaginatively inhabit within a virtual environment (champion, 2015).

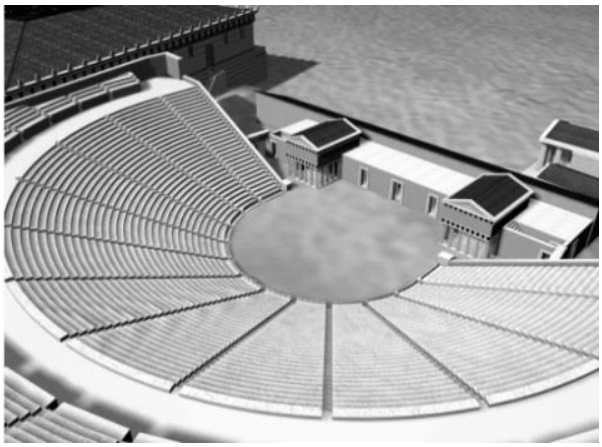


Figure 59: VR reconstruction of the theatre of Dionysus, angle 1(Dixon, 2006)

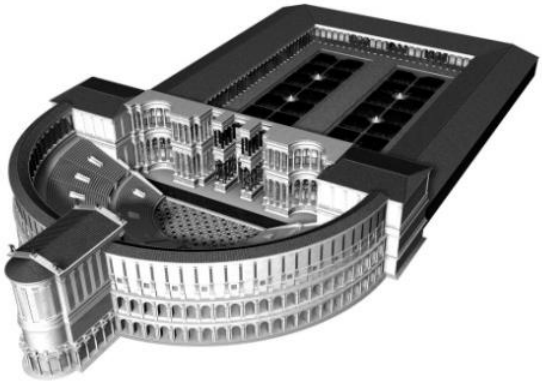


Figure 60: VR model of Rome's theatre of Pompey emphasizes its grandeur and newness at the time it was originally built, angle 2 (Dixon, 2006)

The use of VR systems in reconstructing the buildings would be difficult and challenging due to various technical and performance limitations that VR systems have. As a result, enhancing the realistic texture in the VR environment will lead to a decrease in performance and accordingly creating a less real experience (Gaitatzes et al., 2001). In this sense, it is crucial to implement both tangible and intangible aspects of a building into a virtual simulation. Rogers, Schnabel, and Moleta (2018) argue that tangible components can be collected through physical acts; from larger scales such as site plan to each detail of the project. These collected data are then represented through general specifications, photogrammetry, and laser scanning and accordingly, implementation of these data into a virtual environment would be in a

way that it does not convey users false or unrealistic information. Hence, the challenge to represent the tangible elements of a project will be only related to lack of professional skills and restrictions of technique in representing these details more realistically. On the other hand, the implementation of intangible aspects of a building which are not appearing as physical elements would be challenging. However, paying attention to these aspects is one of the crucial principles in virtualizing projects since these elements can help visitors to have more engagement with the environment and let them feel that they are experiencing a place rather than a virtual computer-based environment. In this manner considering the sensations, emotions, and feelings of users and make them have a sense of making with the surrounding environment can be helpful (Rogers, Schnabel & Moleta, 2018).

As discussed in the previous chapter, one of the important issues about virtual environments is the concept of 'presence'. Experiencing a virtual simulation means being presented physically in one place while exploring a different place. According to Tan and Rahaman (2009), there are two types of VR exploration:

• First person control in which user can control view points

• Guided tour in which user is watching predefined animation or moving images.

In both explorations, users might feel 'getting trapped' or 'Falling in a hole'. Therefore, a special mechanism needs to apply to let users move out of the hole or have free navigation in the environment (Gaitatzes et al., 2001). This fact will allow users to be more engaged with the environment, to be able to navigate within the surroundings, and accordingly to feel being in the place.

Since human perception and interpretation toward surroundings are different, the development of a virtual environment should be in a way that it allows users to freely explore a non-linear and open-ended way to have a better participative experience within a virtual site (Tan & Rahaman, 2009).

However, in a virtual simulation of a theatre space, participants as spectators might need less ability to navigate within their surroundings since the final goal in a theatrical experience is to feel a certain level of presence and accordingly, full immersion rather than navigation within the virtual space.

5.3 Virtual theatrical experience

The virtual theatre as mentioned can be including of either virtual set design or a totally virtual immersive experience. Thus, with the last consideration, the notion of presence is becoming complex (De Loor, Windelschmidt, Martinaud & Cabioch, 2010) since the active role of the audience is one of the important factors that defined theatrical experience. According to Power (2008) theatre is always in association with the notion of presence; it is through the live intimacy between actors and audience that theatrical experience takes place; the live intimacy in which the audience is witnessing the events that are not pre-recorded.

However, presence in theatre is not a single concept that can be clearly defined; it is in fact the notion that covers variety of factors such as theatres aesthetic or experiential specificity (Power, 2018). In this manner, instead of considering theatre as a present experience, we need to explore how theatre as an art form can manipulate our experience of present.

The sense of present in virtual environments according to Witmer and Singer (1998) depends on the concept of selective attention which refers to the tendency of users to focus on the selected meaningful or interesting information that the VE is giving to them. With this consideration, in virtual experience of theatre, the sense of presence can enhance by limiting or controlling each user's perception of environment which accordingly leads to more concentration on performance. In a virtual environment, the input devices such as HMDs and headphones limit users' perception and allow the programmer to have a degree of control over audience experience while narrowing the audience's concentration to the performance. As a result, limiting the audience's perspective through limitation can be a useful method to enhance the sense of presence in virtual theatrical experience (Samur, 2016). Same as contemporary Proscenium Theatre in which the stage is illuminated during the performing while the auditorium remains in the dark. In this manner, the audience has full focus on what is performing on stage in front of them and with the aim of various technologies, it is easier to create a sense of illusion in reality. Thus, by limiting users' perception of their surroundings in virtual theatre space, the focus on performance and accordingly the sense of immersion and being inside the place will increase.

Regarding the theatrical experience and the sense of presence, Power (2008) argues about the theatre play in which he questions the notion of the present in theatre; *The Far Side of the Moon*, a theatre performance by Robert Lepage which was staged in 2000. Through this play, the characters, locations, and scenes change rapidly in front of the audience which makes the stage space becomes highly fluid and gives the audience different perceptual directions. In this theatrical world, the fiction overlaps

with reality of stage and the set objects. Therefore, the audience was not witnessing an illusion, but the overlap of illusion and reality. These rapid transformations of scenes make the play to have a filmic quality, but at the same time to be more present than a film.

Accordingly, as Power (2018) states theatre manipulates physical phenomena in front of a group of people. This manipulation either within the physical space or virtual simulation leads to a sense of presence for the audience. Theatre provides us with illusions, the pleasure of which are determined by our ability to control them in our imaginations: "The real pleasure derived from knowing the scene represented was unreal and merely an imitation" (Frederick Burwick, 1991: 212). The main concern of Jean-Paul Sartre's theatrical ideals is that the main goal of theatre is to represent something that does not exist. With this consideration of theatre, whatever is taking place on stage is marked with unreality. A chair on the stage for instance, is not real; audience cannot go and sit on it or move it.[13]

5.4 Dislocation: being inside and outside the performance

5.4.1 Case study: Expressionist play-The Recipe of Diptera with Mushroom Sauce (2018)

A) Performing in a physical theatre space

As discussed formerly, *The Recipe of Diptera with Mushroom Sauce* (2018) was held in an open space in Niavaran cultural centre located in Tehran. There was no description of stage design or general function of the settings described in the secondary text of drama to apply in the set design and since the director wanted the audience to be more engaged with the expressionist atmosphere of the play, it

[13] "A chair on the stage is not a chair in the real world. Spectators cannot go and sit on it, or move it somewhere else; for them it is forbidden, it does not exist. Everything that happens on stage […] is marked with unreality" (Ubersfeld 1999: 24 as cited by Power, 2018).

intended to stage the play in an open space where all the related elements of the story were designed and installed at the site. In this manner, the project was contained two separate seating areas for up to ninety visitors, and a rectangle shaped acting place in the middle with two voids that one of them used as an exit and entrance to the stage. The stage at the middle of the site was surrounded on two sides by audience seating areas; this form increased the intimacy between actors and audience. Since the story only included of one night scene, the play performed during the night hours and the audience seating was remained in the dark while the stage at the middle was illuminated by the artificial lighting and candle lights that were set on the site.

The stage was not closed by any decorated frame to create a more intimate connection between audience and performers. However, the stage, performance, and audience seating were still separated areas. There was no constant shifting of the scenes. Therefore, the backstage including places such as the dressing room located in a separate area from the main site. Two voids were designed on acting place while one of them as a void was leading to below the stage for actors' entrance and exit to the stage that accordingly led to the left side of the site (Figure 61). However, in several scenes, performers enter and exit from the right and left sides of the stage.

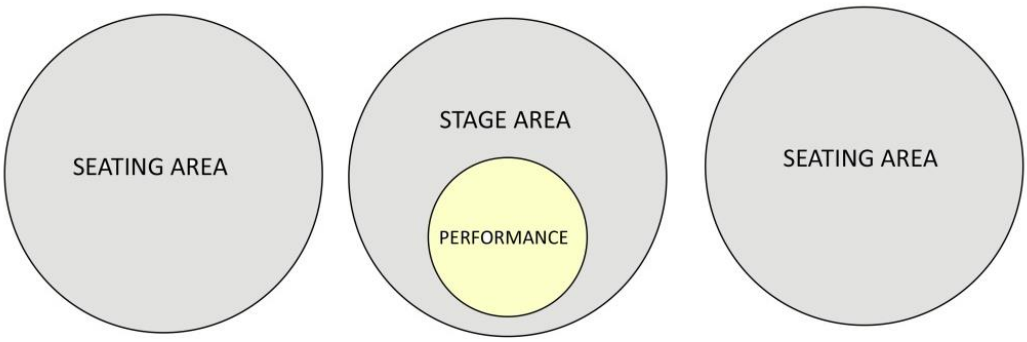


Figure 61: The diagram of space organization and stage-auditorium relation.The Recipe of Diptera with Mushroom Sauce (2018). Source: author

B) Performing in an immersive virtual space

According to the studies on characteristics of immersive virtual environments, a virtual simulation of theatre space can be considered as a noble platform for expressionist plays to be performed. In this case, the atmosphere of a theatre play will not be restricted to the stage and scenic design and even one specific country, audience from all over the world will be invited to have theatrical experience in an immersive virtual platform (Figure 62).

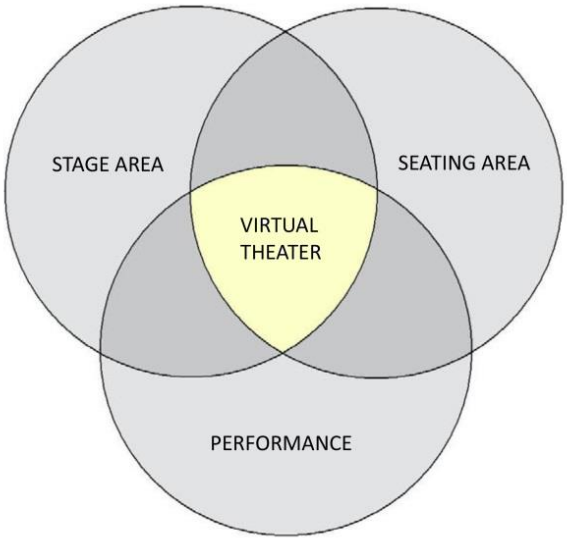


Figure 62: The diagram of space organization in virtual theatre. Source: author

Theatre space according to Bowler (2016) is always fluctuated between physical and fictional one and it is through this strong tension between physical and abstract space that theatre as an art form takes place. On one side, theatre focuses on the material ground; it is performing on a physical platform of stage in a physical space known as theatre space, on the other side, it is strongly defined through the fictional space of illusion and unreality of drama that is away from the reality of space. In this manner, same as theatre space, the theatrical experience for both audience and performers is

fluctuated between being present in the place and be aware of here and now, and being in abstract and immaterial part of performance which is other reality.

Accordingly, Bowler (2016) states the aesthetic of theatre space lays in the difference between this physical space and the fictional one; the difference between physical and fictional space defined through two main terms:

A) The stage space which is the neutral environment of physical stage in which theatre as an art form is performing.

B) The presentational space is where the scenographic elements of performance and acting transform the neutral space into the other space where fiction or illusion happens in front of audience (Figure 63).

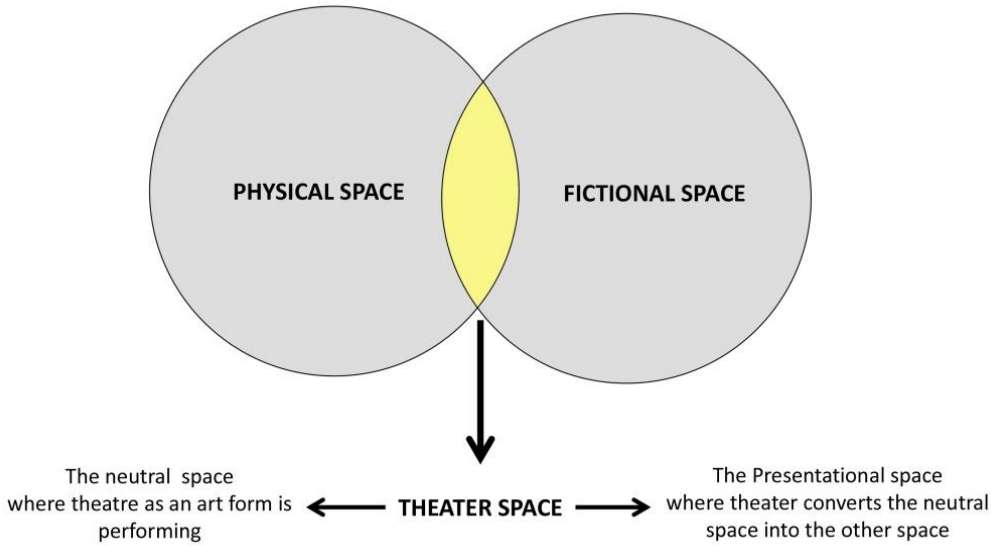


Figure 63: Theatre space fluctuated between physical and fictional one. Source: author

In The Recipe of Diptera with Mushroom Sauce (2018) since the play was performing in an open area, the fictional space was restricted to the stage as an acting

place as well as the limited areas around the stage where used for performers enter and exit to the show; it was the area where the neutral environment was converted to the presentational space and the unreality of drama. Although it was intended to enhance the sense of illusion, the play was only restricted to the specific areas on the designed space (Figure 64). In an immersive virtual environment, the fictional space and physical space as the place where theatre is performing will have more overlap with each other to the degree that the physical space will be merged with the fictional one and all the theatrical elements including acting area, audience area and the theatre itself will be united in one total space; the space of virtual theatre (Figure 65).

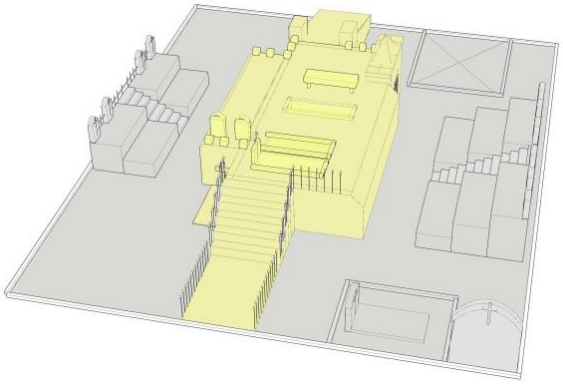


Figure 64: The organization of neutral and presentational space (the highlighted parts).The Recipe of Diptera with Mushroom Sauce, 2018. Source: author

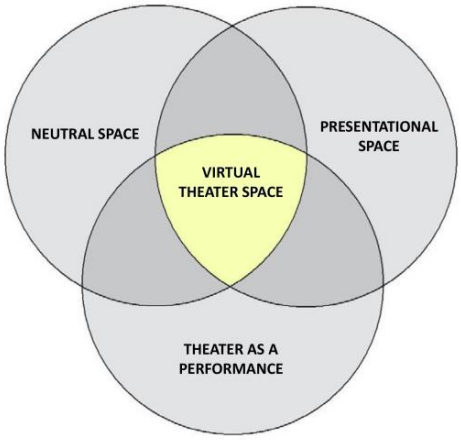


Figure 65: In virtual theatre space, the presentational space, theatre performance, and neutral space will all merge into one total space. Source: author

Accordingly, the virtual theatre space for the play The Recipe of Diptera with Mushroom Sauce (2018) can be characterized through several main aspects:

First, once again, all theatrical elements including stage area, audience area, and the performance itself will be united in one total space; the space of immersive virtual environment. Accordingly, the main concern of expressionists which was the unity between audience and performance will happen by removing the borderline between art and people. Moreover, theatre architecture will be no longer related to monumentality, materiality, and stability.

Rather than being fixed and persistent, Theatre space will be dimensionless and limitless in which the stage, auditorium, and the theatre building itself are dissolved through immersive virtual environment. This virtual theatre space will exists in its own way with its own features that are neither real nor unreal. same as expressionist architecture, in virtual space by rejecting the pervious principles of aesthetic and the tendency toward dynamism, fragmentation, and distortion, theatre space will moving from absolute space to the abstract one. In this virtual simulation of theatre space, the theatrical compositions do not follow any previous principles in geometrical propositions such as harmony, unity, and continuity and architecture will be based on motion, emotion, ambiance, and radicalism.

Second, by rejecting the fixed position of audience-stage composition, virtual theatre space will bring audience and actors in a more intimate contact than before. In words of Bruno Taut, “audience and actors will all catch up in the magic of togetherness” (Kuenzli, 2012). Actors and the method of performing as discussed before can be including of either virtual avatars or real performers. In this manner, by surpassing

the restriction of two dimensional nature of stage, theatre performance and acting will reach the spatial depth and sensation and will be in more harmony with body movement and action.

In addition, the theatrical experience in virtual space will be subjective and individual in which place is space with character and with focusing on existential purpose of each built environment, each site becomes a place where there is intention, meaning, and purpose (Sime, 1986).

Chapter 6

CONCLUSION

Many artists of performing arts strongly believe watching the performance is irreplaceable and it is only through the face to face contact between performers and audience that a theatrical experience takes place. Even with this consideration, it should be mentioned that the ultimate goal of a theatrical experience is to absorb the attention of the audience through storytelling in such a way that the whole surrounding would be dismissed. It is through this strong focus on artwork that the immersion, whether through a physical environment or virtual, will occur. In this sense, it was challenging to explore how the involvement of VR technology, as one of the current noble technologies, can enhance the audience's engagement to theatre performance exclusively those that are expressionist since the atmosphere of these plays same as other types of expressionist art offered a clear move toward the 'abstraction of reality' through distortion and fragmentation in both drama and theatre. Thus, expressionist performance was expressing opposition to restrictive tradition by giving a new vision and rebirth of imaginative freedom. Therefore, the atmosphere of the plays is often virtually abstract and un-localized. This shift from absolute space to create the pure abstraction is also noticeable throughout the developments of theatre space from ancient Greek and Roman to the present time in which the space and the stage-audience composition led to be in more harmony with time, movement, and action of the performance.

Recently, virtual reality has given a new opportunity to the world of performing arts to such a degree that previous relation between space, actor, and spectator converted into a space-spectator relation. The audience can immerse through a theatre space while no longer being passive observers (Moneta, 2017). What is considered as Virtual Theatre in this research is the theatrical experience that results from the interaction of VR technology and theatre performance. In this manner, the theatre space is defined as the immersive virtual environment that lets users immerse themselves in a completely artificial simulation with no interaction with the physical environment. This type of virtual space gives the audience a chance to immerse themselves in a created reality of performance. To be virtually face to face with performers and the atmosphere of the play, and have a more tangible theatrical experience. Accordingly, instead of considering theatre space only as material based and geometric object, theatre space defined as an abstract, intangible, and limitless medium which is less or more open; having no physical restrictions, no scale consistency, being hyper-textual and multidimensional caused virtual space to be free of traditional physical limitations and accordingly, defined as limitless, abstract, and intangible platform which was the main intention of expressionists in both architecture and theatre.

As discussed formerly, experiencing a virtual space means to be presented physically in one place while exploring a different place. This exploration is similar to mental navigation. However, in a virtual simulation of a theatre space, participants as spectators might need less ability to navigate within their surroundings since the goal in a theatrical experience is to feel a certain level of presence and accordingly full immersion rather than navigation within the virtual space. Being present and the

sense of immersion in virtual environments with referring to Witmer and Singer (1998), depends on the notion of selective attention that defines as the tendency to have a focus on the selected meaningful or interesting information that virtual simulation is sharing. Therefore, in virtual theatre space, the sense of presence can enhance by limiting or controlling each user's perception of the environment that leads to more concentration on performance. The input devices such as HMDs and headphones can limit the audience's perception and allow programmers to have a degree of control over audience by narrowing their concentration to the performance. As a result, controlling the audience's perspective through limitation is a useful method to enhance the sense of presence in a virtual theatrical space.

As Bowler (2016) states the aesthetic of theatre space lies in the difference between the physical space and the fictional one. The physical space as The Stage Space is the neutral environment in which theatre as an art form is performing, and the fictional space as The Presentational Space is where the scenographic elements of performance transform the neutral space into the other space where fiction or illusion happens. In The Recipe of Diptera with Mushroom Sauce (2018), since the play was performing in an open area, the fictional space was restricted to the stage and the limited areas around the stage. It was the area where the neutral environment was converted to the presentational space and the unreality of drama. Although it was intended to enhance the sense of illusion, the expressionist atmosphere of the play was only restricted to the specific areas on the designed space, but in an immersive virtual space, rather than limiting the expressionist atmosphere of production to the physical setting, the immersive environment represents the whole atmosphere of the play.

Therefore, besides the accessibility of performance to people from all over the world and more freedom in stage and costume design, the fictional and physical space have more overlap with each other to the degree that the physical space merged with the fictional one and all the theatrical elements including acting area, audience area, and the theatre itself united in one total art; *The Art of Virtual Theatre*.

REFERENCES

Alvarez, C., Georgia, B. (2020, August 5). Creating a Virtual Theatre Experience. Retrieved from http://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=78110

Aronson, A. (1981). Theatres of the Future. *Theatre Journal,* 33(4), 489-503.

Bahr, H. (1916). *Expressionismus.* Delphin-verlag.

Balakrishnan, B., Oprean, D., Martin, B., & Smith, M. (2012, November). Virtual reality: factors determining spatial presence comprehension and memory. In *Proceedings of the 12th International Conference on Construction Applications of Virtual Reality* (pp. 451-459).

Banham, R. (1980). *Theory and Design in the First Machine Age*. MIT press.

Barker, C. (2018, November 14). *Expressionist Theatre*. Retrieved from https://www.britannica.com/art/theater-building

Barron, M. (2009). *Auditorium Acoustics and Architectural Design*. Routledge.

Baños, R. M., Botella, C., Garcia-Palacios, A., Villa, H., Perpiñá, C., & Alcaniz, M. (2000). Presence and reality judgment in virtual environments: a unitary construct?. *Cyber Psychology & Behaviour,* 3(3), 327-335.

Bassie, A. (2008). *Expressionism*. Retrieved from https://ebookcentral.proquest.com

Behr, S., Fanning, D., & Jarman, D. (1993). *Expressionism reassessed.* Manchester University Press.

Bertol, D. (1996). *Designing Digital Space: An Architect's Guide to Virtual Reality*. John Wiley & Sons.

Beyzaie, N. (2005, May). A Glaze on the History of Performance in Iran-from Beginning to 1978.

Bletter, R. H. (1983). Expressionism and the New Objectivity. *Art Journal,* 43(2), 108-120.

Biocca, F., & Delaney, B. (1995). Immersive Virtual Reality Technology. *Communication in the Age of Virtual Reality*, 15, 32.

Bletter, R. H. (1975). Paul Scheerbart's Architectural Fantasies. *The Journal of the Society of Architectural Historians*, 34(2), 83-97.

Bletter, R. H. (1981). The interpretation of the glass dream-expressionist architecture and the history of the crystal metaphor. *The Journal of the Society of Architectural Historians*, 40(1), 20-43.

Brouwers, J. (2018, September 15).*The Roman Theatre in Spoleto.* Retrieved from https://www.ancientworldmagazine.com/articles/roman-theatre-spoleto/

Brustein, R. (2001, January 15). *Dreaming a Dream Play*. Retrieved from https://newrepublic.com/article/95710/dreaming-dream-play

Bocinski, J. (2016, March 28). *An Artistic Movement and an Art Term*. Retrieved from https://blogs.chapman.edu/collections/2016/03/28/expressoinism/.

Bowler, L. M. (2016). *Theatre Architecture as Embodied Space: A Phenomenology of Theatre Buildings in Performance* (Doctoral dissertation, Universitätsbibliothek der Ludwig-Maximilians-Universität).

Boland Jr, R. J., Collopy, F., Lyytinen, K., & Yoo, Y. (2008). Managing as designing: lessons for organization leaders from the design practice of Frank O. Gehry. *Design issues*, 24(1), 10-25.

Bowman, D. A., Hodges, L. F., Allison, D., & Wineman, J. (1999). The educational value of an information-rich virtual environment. *Presence: Teleoperators & Virtual Environments*, 8(3), 317-331.

Burdea, G. C., & Coiffet, P. (2003). *Virtual Reality Technology*. John Wiley & Sons.

Burwick, F. (2010). *Illusion and the Drama: Critical Theory of the Enlightenment and Romantic Era*. Penn State Press.

Bürger, P. (1984). *Theory of the Avant-garde* (Vol. 4). Manchester University Press.

Bürger, P. (2010). Avant-garde and neo-avant-garde: An attempt to answer certain critics of theory of the avant-garde. *New Literary History*, 41(4), 695-715,929. Retrieved from https://search.proquest.com/docview/868329589?accountid=15792

Calinescu, M. (1987). Five Faces of Modernity: Modernism, Avant-garde, Decadence, kitsch, Postmodernism.

Carlson, M. (1989). *Places of performance: The semiotics of theatre architecture*. Cornell University Press.

Charitos, D. (1996, February). Defining Existential Space in Virtual Environments. *In Proceedings of Virtual Reality Worlds (*Vol. 96).

Chelkowski, P. J. (1977). Ta'ziyeh: Indigenous Avant-Garde Theatre of Iran. *Performing Arts Journal*, 2(1), 31-40.

Chelkowski, Peter (2010). "Identification and Analysis of the Scenic Space in Traditional Iranian Theatre". Eternal Performance: Ta'ziyeh and Other Shiite Rituals. India: Seagull. pp. 92–105.

Chelkowski, Peter (2003). *Time Out of Memory: Ta'Zieh, the Total Drama*. Asia Society. Retrieved from https://asiasociety.org/time-out-memory-taziyeh-total-drama

Charitos, D., & Bridges, A. H. (1997). On Architectural Design of Virtual Environments.

Champion, E. (2015). Virtual Heritage, an Introduction. *In The Egyptian Oracle Project; Ancient Ceremony in Augmented Reality*. Bloomsbury.

Clarke, J. R. (1974). Expressionism in Film and Architecture: Hans Poelzig's Sets for Paul Wegener's the Golem. *Art Journal*, 34(2), 115-124.

Crockett, D. (1999). *German Post-Expressionism: The Art of the Great Disorder 1918Ð1924*. Penn State Press.

Cole, W. (1955). Some Contemporary Trends in Theatre Architecture. *Educational Theatre Journal*, 16-21.

Colquhoun, A. (2002). *Modern Architecture*. OUP Oxford.

De Loor, P., Windelschmidt, C., Martinaud, K., & Cabioch, V. (2010, April). Connecting Theatre and Virtual Reality with Cognitive Sciences.

Dixon, S. (2006). A History of Virtual Reality in Performance. *International Journal of Performance Arts & Digital Media*, 2(1).

Dickey, R. (2019). Cultural prosthetics: mediating bodies, technology, and space.

Ehn, P. (1998). Manifesto for a Digital Bauhaus. *Digital Creativity*, 9(4), 207-217.

Ernst, E. (1974). *The Kabuki Theatre*. University of Hawaii press.

Eve, M. (2004). C. Walter Hodges: A Life Illustrating History. *Children's Literature in Education*, 35(2), 171-198.

Esslin, M. (1977). Max Reinhardt:" High Priest of Theatricality". *The Drama Review*: TDR, 3-24.

Ferrari, R. (2012). Architecture and/in Theatre from the Bauhaus to Hong Kong: Mathias Woo's Looking for Mies. *New Theatre Quarterly*, 28(1), 3-19.

Friedman, J. J. (1953). Psychology of the Audience in Relation to the Architecture of the Theatre. *The Psychoanalytic Quarterly*, 22(4), 561-570.

Furness, R. S. (2017). *Expressionism*. Routledge.

Gaitatzes, A., Christopoulos, D., & Roussou, M. (2001). Reviving the Past: Cultural Heritage Meets Virtual Reality. *In Proceedings of the 2001 conference on Virtual reality, archaeology, and cultural heritage* (pp. 103-110).

Gaffary, F. (1984). Evolution of rituals and theatre in Iran. *Iranian Studies*, 17(4), 361-389.

Ghasemzadeh, B., & Toofan, S. (2014). The role of cultural gathering spaces in the promotion of citizen quality of life case study: Tehran City Theatre. *Geographica Pannonica*, 18(1), 18-25.

Geigel, J., & Schweppe, M. (2004, October). Theatrical Storytelling in a Virtual Space. *In Proceedings of the 1st ACM workshop on Story representation, mechanism and context* (pp. 39-46).

Gladden, M. E. (2018). A Phenomenological Framework of Architectural Paradigms for the User-Centred Design of Virtual Environments. *Multimodal Technologies and Interaction*, 2(4), 80.

Giedion, S. (1967). *Space, Time and Architecture: The Growth of a New Tradition*. Harvard University Press.

Giannachi, G. (2004). *Virtual Theatres: An Introduction*. Routledge.

Grace, S. E. (1989). *Regression and Apocalypse: Studies in North American Literary Expressionism*. Retrieved from https://ebookcentral.proquest.com

Gutschow, K. K. (2006). From Object to Installation in Bruno Taut's Exhibit Pavilions. *Journal of Architectural Education*, 59(4), 63-70.

Gussow, M. (1981, March 7).*Theatre: Strindberg's 'A Dream Play'*. Retrieved from https://www.nytimes.com/1981/03/07/theater/theater-strindberg-s-a-dream-play.html

Ham, R. (2014). *Theatres: Planning Guidance for Design and Adaptation.* Elsevier.

Hannah, D. (2008). *Event-space: Theatre Architecture and The Historical Avant-garde.* New York University.

Henry, D., & Furness, T. (1993, September). Spatial Perception in Virtual Environments: Evaluating an Architectural Application. *In Proceedings of IEEE virtual reality annual international symposium* (pp. 33-40). IEEE.

Hernández, L., Taibo, J., Seoane, A., & Jaspe, A. (2011). Space Perception in Architectural Visualization through Immersive Virtual Reality. *Revista de EGA*, (18).

He, L., Li, H., Xue, T., Sun, D., Zhu, S., & Ding, G. (2018, November). Am I in the Theatre? Usability study of live performance based virtual reality. *In Proceedings of the 24th ACM Symposium on Virtual Reality Software and Technology* (pp. 1-11).

Hildy, F.J. (2018, November). Theatre Design. *Britannica.* Retrieved from https://www.britannica.com/art/theatre-design

Hults, K. R. (2001). Walt Whitman: The Optimism of an Evolutionary Pantheist.

Kazemimojaveri, E. (2016). A Short Introduction to Iranian Drama. *Mimesis Journal. Scritture della performance,* (5, 1), 64-78.

Kleberg, L. (1993). *Theatre as Action: Soviet Russian Avant-garde Aesthetics.* Macmillan International Higher Education.

Koss, J. (2003). Bauhaus Theatre of Human Dolls. The Art Bulletin, 85(4), 724-745.

Kuenzli, K. M. (2012). Architecture, Individualism, and Nation: Henry van de Velde's 1914 Werkbund Theater Building. *The Art Bulletin*, 94(2), 251-273.

Kuhns, D. F. (1997). *German Expressionist Theatre: The Actor and the Stage. Cambridge* University Press.

Lash, S. (2006). Life (Vitalism). *Theory, Culture & Society*, 23(2-3), 323-329.

Lazgee, S. H. (1994). Post-revolutionary Iranian Theatre: *Three Representative plays in translation with critical commentary* (Doctoral dissertation, University of Leeds).

Lethbridge, S., & Mildorf, J. (2003). Basics of English studies: An introductory course for students of literary studies in English. *Freiburg University, Freiburg im Breisgau.*

Leovaridis, C., & Bahn, M. (2017). Aspects Regarding Virtual Reality as Innovation in Creative Industries. *Revista Romana De Sociologie,* 28(3), 157-172. Retrieved from https://search.proquest.com/docview/1929048823?accountid=15792

Lipman-Wulf, B. (1974). Thematic Structure of Strindberg's'a Dream Play'. *Leonardo,* 7(4), 319-323.

Mackintosh, I. (2003). *Architecture, Actor and Audience.* Routledge.

Marker, F. J., Frederick, J., & Marker, L. L. (2002). *Strindberg and Modernist Theatre: Post-inferno Drama on the Stage.* Cambridge University Press.

McLeod, S. A. (2018, May 21). Carl Jung. Simply Psychology. Retrieved from https://www.simplypsychology.org/carl-jung.html

McReynolds, D. (2008). Restoring the Teatro Olimpico: Palladio's contested legacy. *Memoirs of the American Academy in Rome*, 53, 153-212.

Mehrens, P. (2006). Birgitta Steene, Ingmar Bergman: A Reference Guide: Amsterdam University Press. Amsterdam 2005. *Samlaren: tidskrift för svensk litteraturvetenskaplig forskning*, 127, 595-599.

Meijer, F., Geudeke, B. L., & Van den Broek, E. L. (2009). Navigating through Virtual Environments: Visual Realism Improves Spatial Cognition. *Cyber Psychology & Behaviour,* 12(5), 517-521.

Miller, M. C. (2018). Interpreting Dreams: Directing an Immersive Adaptation of Strindberg's A Dream Play.

Miller, T. (2017). Expressionist Utopia: Bruno Taut, Glass Architecture, and the Dissolution of Cities. *Filozofski vestnik*, 38(1).

Miltiadis, C. (2016). Project anywhere: An interface for virtual architecture. *International Journal of Architectural Computing*, 14(4), 386-397.

Mohammadi, S. M. (2013). Compositional features of the theatre planning in Tehran: Vahdat (formerly Roudaki) theatre hall–the main and only opera house of the capital city. *Science and World*, 66.

Moneta, A. (2017, August 18). *How virtual reality is changing the way we experience stage shows.* Retrieved from https://theconversation.com/how-virtual-reality-is-changing-the-way-we-experience-stage-shows-81542

Mullin, D. C. (1970). *The Development of the Playhouse: a Survey of Theatre Architecture from the Renaissance to the Present.* Univ of California Press.

Nikolic, S. (2014). The Bauhaus Theatre-Oskar Schlemmer's Design-In Motion Concept. *SAJ*, 6, 43-62.

Norberg-Schulz, C. (1971). *Existence, Space & Architecture.* New York: Praeger.

Norberg-Schulz, C. (1979). Genius Loci: Towards a Phenomenology of Architecture. Historic Cities: *Issues in Urban Conservation*, 8, 31.

Novak, M. (1991). Liquid Architectures in Cyberspace. *In Cyberspace: First Steps* (pp. 225-254).

Olgren-Leblond, K. (2008). *Reading Expressionist Architecture: German Modernism and 'Paper Architecture,'1914*–1920. University of Southern California.

Paga, J. (2016). The Greek Theatre. *A Companion to Greek Architecture*, 360.

Pallasmaa, J. (2013). Mental and Existential Ecology. *In Rethinking Aesthetics* (pp. 214-230). Routledge.

Pallasmaa, J. (2014). Space, Place and Atmosphere. Emotion and Peripherical Perception in Architectural Experience. *Lebenswelt. Aesthetics and Philosophy of Experience.*, (4).

Palmer, S. (2013). *Light: Readings in Theatre Practice.* Palgrave Macmillan.

Paes, D., Arantes, E., & Irizarry, J. (2017). Immersive environment for improving the understanding of architectural 3D models: Comparing user spatial perception between immersive and traditional virtual reality systems. *Automation in Construction*, 84, 292-303.

Power, C. (2008). Presence in Play: A Critique of Theories of Presence in the Theatre. BRILL.

Pruden, S. (2018). “Absolutely Palpable Utopias”: The Expressionist Ideas Behind Bruno Taut’s GEHAG Housing Estates. *Mount Royal Undergraduate Humanities Review* (MRUHR), 5.

Pye, V. C. (2014). Shakespeare's Globe: theatre architecture and the performance of authenticity. *Shakespeare*, 10(4), 411-427.

Reaney, M. (1999). Virtual Reality and the Theatre: Immersion in Virtual Worlds. *Digital Creativity*, 10(3), 183-188.

Roth, L. M. (1993). *Understanding Architecture: Its Elements. History, And Meaning*. Routledge.

Rogers, J., Schnabel, M. A., & Moleta, T. J. (2018, October). Future Virtual Heritage-Techniques. *In 2018 3rd Digital Heritage International Congress (DigitalHERITAGE) held jointly with 2018 24th International Conference on Virtual Systems & Multimedia* (VSMM 2018) (pp. 1-4). IEEE.

Rufford, J. (2015). *Theatre and Architecture.* Macmillan International Higher Education.

Samur, S. X. (2016). Comparing Stage Presence and Virtual Reality Presence. *Revista Brasileira de Estudos da Presença*, 6(2), 242-265.

Scott, A. C. (1999). *The Kabuki Theatre of Japan*. Courier Corporation.

Schloerb, D. W. (1995). A Quantitative Measure of Tele-presence. *Presence: Teleoperators & Virtual Environments*, 4(1), 64-80.

Schnabel, M. A. (2004). Architectural Design in Virtual Environments: exploring cognition and communication in immersive virtual environments.

Schroede, Jonathan. (2015). *Photographic Elements of Strindberg's A Dream Play*. Retrieved from https://www.academia.edu/13361287/Photographic_Elements_of_Strindbergs_A_Dream_Play

Sear, F. (2006). *Roman Theatres: An Architectural Study*. Oxford University Press.

Selz, P. (1974). *German Expressionist Painting* (Vol. 272). Univ of California Press.

Sharp, D. (2002). *Twentieth Century Architecture: A Visual History*. Images Publishing.

Sheridan, T. B. (1992). Musings on Telepresence and Virtual Presence. *Presence: Teleoperators & Virtual Environments*, 1(1), 120-126.

Sheppard, A. (2016). The Return of Expressionism and the Architecture of Luigi Moretti. *McGill University Online.*

Sharp, D. (1993). *Expressionist Architecture Today. Expressionism reassessed*, 80-90.

Silva, C. A. (2006, July). Liquid architectures: Marcos Novak's territory of information. *In Tenth International Conference on Information Visualisation* (IV'06) (pp. 693-698). IEEE.

Sime, J. D. (1986). Creating places or designing spaces?. *Journal of Environmental Psychology*, 6(1), 49-63.

Slater, M., & Usoh, M. (1993, September). Presence in Immersive Virtual Environments. *In Proceedings of IEEE Virtual Reality Annual International Symposium* (pp. 90-96). IEEE.

Smith, R. L. (2005). Abstract Expressionism and Imaginative Curriculum. *JCT*, 21(3), 109.

Smith, K., & Guitart, M. (Eds.). (2013). *Introducing Architectural Theory: Debating a Discipline*. Routledge.

Styan, J. L. (1981). *Modern Drama in Theory and Practice: Expressionism and Epic Theatre*. III. University Press.

Steuer, J. (1992). Defining Virtual Reality: Dimensions Determining Telepresence. *Journal of Communication*, 42(4), 73-93.

Suma, E. A., Lipps, Z., Finkelstein, S., Krum, D. M., & Bolas, M. (2012). Impossible spaces: Maximizing natural walking in virtual environments with self-overlapping architecture. IEEE *Transactions on Visualization and Computer Graphics*, 18(4), 555-564.

Szalczer, E. (2001). Nature's dream play: Modes of vision and August Strindberg's re-definition of the theatre. *Theatre Journal*, 53(1), 33-52.

Talajooy, S. (2011). Indigenous Performing Traditions in Post-Revolutionary Iranian Theater. *Iranian Studies*, 44(4), 497-519.

Tan, B. K., & Rahaman, H. (2009). Virtual heritage: Reality and criticism.

Temizer, S. (2003). *Reading Architectural Space Through a Staged Event* (Doctoral dissertation, METU).

Tierney, T. (2007). Formulating abstraction: conceptual art and the architectural object. *Leonardo*, 40(1), 51-57.

VonderBrink, D. T. (2007). *Architectural Phenomenology: Towards a Design Methodology of Person and Place* (Doctoral dissertation, Miami University).

Wermester, C. (1999). Expressionism, or: Art seen from Within. *Critique d'art. Actualité internationale de la littérature critique sur l'art contemporain,* (13).

Wiles, D. (2003). *A Short History of Western Performance Space*. Cambridge University Press.

Witmer, B. G., & Singer, M. J. (1998). Measuring Presence in Virtual Environments: A Presence Questionnaire. *Presence,* 7(3), 225-240.

Wright, J. H. (1906). The Origin of Plato's Cave. Harvard Studies in *Classical Philology*, 17, 131-142.

Wu, Q., Boulanger, P., Kazakevich, M., & Taylor, R. (2010, October). A Real-Time Performance System for Virtual Theatre. *In Proceedings of the 2010 ACM workshop on Surreal Media and Virtual Cloning* (pp. 3-8).

Zargaran, P. (2008). Virtual Space Understanding and the Virtual Understanding of the Space; Adaptability of Concept of Virtual Architecture to Architectural Theories. Retrieved from https://www.academia.edu/10320069/Virtual_space_understanding_and_the_virtual_understanding_of_the_space_adaptability_of_concept_of_virtual_architecture_to_architectural_theories

URL1: A cidade branca. (2013, April 23). A CIDADE BRANCA. Retrieved from https://acidadebranca.tumblr.com/post/48684227120/the-teatro-olimpico-1580-1585-was-designed-for

URL 2: A51 Toronto, O. (n.d.). Actors theatre of Louisville. Retrieved February 03, 2021, from http://theatreprojects.com/en/project/view/197/actors-theatre-of-louisville

URL 3: A51 Toronto, O. (n.d.). University of Southern Indiana performance centre. Retrieved from http://theatreprojects.com/en/project/view/545/university-of-southern-indiana-performance-center

URL 4: A51 Toronto, O. (n.d.). Whitney Museum of American Art, Susan and John Hess Family Theatre and gallery. Retrieved from http://theatreprojects.com/en/project/view/331/whitney-museum-of-american-art

URL 5: A51 Toronto, O. (n.d.). American Airlines Theatre. Retrieved from http://theatreprojects.com/en/project/view/16/american-airlines-theatre

URL 6: State, B. (n.d.). Theatre. Retrieved from https://theater.buffalostate.edu/spaces

URL 7: Iranian oral STORYTELLING: The translation project. (n.d.). Retrieved from http://www.thetranslationproject.org/news/oral-storytelling-in-iran/

URL 8: Tekyeh DOWLAT. (2021, February 01). Retrieved from https://en.wikipedia.org/wiki/Tekyeh_Dowlat#/media/File:Tekiyeh_Dowlat_by_Kamalolmolk.jpg

URL 9: Mehrazan. (n.d.). Tehran City Theatre. Retrieved from http://iranianarchitecture.net/en/projects/item/52-tehran-city-theater-amirali-sardar-afkhami.html

URL 10: Mehrazan. (n.d.). Vahdat Hall. Retrieved from http://caoi.ir/en/projects/item/297-roudaki-hall-vahdat-hall-in-tehran-by-eugene-aftandilian.html

URL 11: The sea of ice. (2021, January 02). Retrieved from https://en.wikipedia.org/wiki/The_Sea_of_Ice

URL 12: Monument to the march dead. (2020, December 04). Retrieved from https://en.wikipedia.org/wiki/Monument_to_the_March_Dead

URL 13: Chilehaus. (2020, September 21). Retrieved from https://en.wikipedia.org/wiki/Chilehaus

URL 14: Goetheanum. (2020, August 17). Retrieved February 04, 2021, from https://en.wikipedia.org/wiki/Goetheanum

URL 15: Frearson, A. (2015, May 07). Frank Gehry's paper bag business school opens in Sydney. Retrieved from https://www.dezeen.com/2015/02/03/frank-gehry-paper-bag-dr-chau-chak-wing-uts-business-school-sydney-opens/

URL 16: Behind August Sander's Portraits. (n.d.). Retrieved February 05, 2021, from https://www.hauserwirth.com/ursula/26194-behind-august-sanders-portraits

URL 17: Kroll, A. (2019, January 14). AD classics: Berlin PHILHARMONIC / HANS SCHAROUN. Retrieved from https://www.archdaily.com/108538/ad-classics-berlin-philharmonic-hans-scharoun

URL 18: N S U N | Http://www.nsun.net. (n.d.). The recipe of Diptera with mushroom sauce .Retrieved from https://www.tiwall.com/p/dobalanbagharch

URL 19: Ssfriendship. (2015, March 19). "Placeholder" – virtual reality and perception. Retrieved from https://ucsdvis159.wordpress.com/2015/03/19/placeholder-virtual-reality-and-perception/