

Zaha Hadid Strategy Of Design

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Abstract

The deconstructivist thoughts of the early 1980s architecture were carried out by architects who believe in change, possibility, and limitlessness. Their rebellion to what is conventional has fundamentally contributed in formulating the 21st century architecture where one of the key differences between them and others is the methodology of design. This paper addresses Zaha Hadid's strategy as a significant pioneer in this movement who has large followership around the world from among architects and designers. A qualitative study is conducted using content analysis for her accessible texts and videos as a reliable source of data. Hadid's sequential procedures of design imply that she perceives architecture as an art which could be sufficiently employed to fulfill the requirements of a good architecture and clientele.

Keywords: Zaha Hadid, design strategy, content analysis, deconstructivism

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1.0 INTRODUCTION

Designing project is a sophisticated task as well as a big responsibility over an architect who is expected to carry out a successful paradigm which reflects on functional, social, cultural, economic, sustainable, and aesthetic interests. This responsibility increases in an era characterized by variability and every day's new inventions and challenges which in its role makes it difficult for an architect to keep pace with them especially what is related to fulfill space requirements and make it characterized by flexibility and adaptability. Architect is even required to produce architecture that reflects the dynamic soul of his/her time. This recalls Mies van der Rohe words that architecture is the "will of an epoch translated into space: living, changing, new" (Gold, 1984, p. 376). Therefore, it would be helpful to study design strategy for one of the most successful architects of 21st century who is largely contributed to conceive a new kind of architecture, space, and design. It is expected this study would be helpful for Malaysian architectural students who are interested in Hadid designs to generate a new paradigm of a contemporary tropical architecture.

In *De Architectura*, one of the earliest ten surviving Roman books by Vitruvius since first century CE, Vitruvius insisted on the importance of the presence of three elements in the architectural design to ensure its success; these are durability, utility, and beauty with previous consideration for function over aesthetic (Zhou, 2011). This concept of considering priorities in design process was maintained by De Stijl, Bauhaus style, and even the precedents of modern architecture in the Twentieth Century. Similarly, Le Corbusier announced his trend as a functionalist in 1921 after a long and deep study to the philosophy of architecture to conclude that "house is a machine for living", in addition to Mies van der Rohe, Walter Gropius, Alvar Aalto and other modernist architects who insisted that form follows function (Kornberger & Clegg, 2004, p. 1101).

Since a strategy is a plan or process that an architect follows to achieve the architectural design task, this paper addresses the strategy used by Derrida's architects as an example for process of designing deconstructivist architecture. Mark Wigley (1996) has explained Derrida's philosophy of deconstruction as a strategy of questioning the convention and an approach for critical thinking; re-reading for what is conceived to be logical and rational. It creates new meaning through mutually functioning concepts and reversal of logic of both traditional constructions and architectural convention (Durmus and Gur, 2011). According to Derrida's philosophy, the application of deconstructivist theory in architecture is the incomplete presence of both deconstruction and architecture in one building. Peter Eisenman has translated Derrida's thought of deconstruction into four architectural theoretic concepts of rethinking which could be used to produce deconstructivist architecture (Patin, 1993). To do so, an architect should reconceive the building as a text consists of opposed binary metaphors like structure/decoration or exterior/interior and try to re-read them using his imaginary vision. Then, it is the step of applying reversal of usual hierarchy for the opposite binary metaphors such as interior then exterior which leads to create new design. After that, architect should observe the in-between to find compromising solutions for the problems which resulted from interpreting the reversal of Derrida's opposition metaphors in architecture. Finally, it is the interiority where Eisenman tried to explore a possible space from forms' displacement with applying some of Derrida's concept such as absent and present. However, Derrida's architects do not follow a concrete method to solve problem but imagining solutions parallel by conceiving a design problem; they come with solution in the early stage of a design (Durmus and Gur, 2011). It is important to mention that all of the previous stages are conceived in text or writing before translating them into architectural designs.

This strategy has faced intense criticism due to its philosophical perspective in architecture which Derrida considered it as a continuous dislocation of structure that cannot be defined in its nature; it stands on unjustified deconstruct, destroy all the logical principles of architecture

(Wigley, 1996). It could also be understood through Heidegger quotation "there is no safe place to begin"; deconstruction "makes the institution tremble." (Wigley, 1996; p. 267). Deconstructivism is drawn from "helter-skelter" in verbal study of his book *The Truth in Painting* (1978) (Kosinski, 2010, p.152). Examples of Derrida's theory application in architecture are some works designed by Peter Eisenman, Denial Libeskind, and Bernard Tschumi. Eisenman describes deconstructivism as an extension beyond man-made values to the comprehension of architecture which is 'the intersection of the 'meaning-free', 'the arbitrary' and the timeless in the artificial' (Eisenman, 1984; p.166). The complex meaning of deconstructivism from viewpoint of Derrida's architects could be observed through Eisenman article *The End of the Classical: The End of the Beginning, the End of the End*. Similarly, Libeskind in the Jewish Museum, Berlin has designed unjustified tight passages, unsteady axes and dead-end stairway as an application to Derrida's philosophy (Van der Straeten & Masschelein, 2003). There are many other ways through which architects adapt deconstructivism.

Theoretically, Durmus and Gur (2011) have discussed the methodology of deconstruction in architecture as inventive leaps of the past to be included in history courses. However, this approach is only applied by the deconstructivist architects who believe in Derrida's philosophy of deconstruction but not the other deconstructivist architects such as Zaha Hadid and Frank O.Gehry. This paper would focus in Zaha Hadid because she is considered one of the most imaginative architect among her peers based on the number of projects she has designed (950 projects), the number of prizes she has won (93 prizes), and the richness of various concepts she innovates (Zaha Hadid Architects, n.d.). She is also considered a role model for many architects and architectural students in Arab world, China, Europe and other countries around the world (Aref, 2011; Platt, 2012; Yentob, 2013). However, there is no clear strategy on the steps Hadid follows to design architectural projects. This has generated a misconception about Hadid's and her colleagues' designs that they are merely artistic work, fashion, formal whim which were designed arbitrarily without taking any considerations or attentions (Salingaro and Masden, 2007).

A review in the recent articles related to deconstructivism has concluded to that Zaha Hadid's- the 2004 Pritzker Prize winner- strategy of design has not been addressed yet. There are many articles written about Hadid but they are merely a description of one project either about its interior design or its exterior form. It is only Wong (2010) who has systematically represented the considerations of four free-form architects in process of design and that includes Frank Gehry, Zaha Hadid, Daniel Libeskind, Thom Mayne. Therefore, this paper examines her sequential procedures in designing architectural project as well as her noteworthy considerations in each step. In addition, it discusses the similarity between Hadid's strategy and Derrida's. The study employed a content analysis for Hadid's discourse to derive out her method in designing projects.

■2.0 METHODOLOGY

In order to know the accurate sequential process that an architect follows to achieve design mission, some insights need to be taken directly from him/ her. This study has derived Hadid steps of design through conducting a content analysis for her discourse; this included some secondary sources. Data collection covers all of Hadid's accessible interviews in videos and texts from books, magazines, articles, and the internet. This method has been used to find out other themes related to Hadid's architecture such as her techniques in design and form's patterns through her works. Such methodology was applied by others such as Kellett (1990) who studied the architecture of Le Corbusier and Wong who addressed the factors and considerations of four deconstructivist architects in design. The content analysis is selected as a research method because it is a systematic way to get reliable and valid text data (Pole and Lampard, 2002). It is also a rich source for primary data where there is no doubt about them (Punch, 1998). Moreover, it is considered as a flexible technique for analysing and interpreting data (Cavanagh, 1997).

The first application of content analysis as a research method could be traced to 18th century (Rosengren, 1981). It could be categorized as a qualitative or a quantitative method which depends on the nature of the analytical steps (Morgan, 1993). However, this study has employed the qualitative content analysis explained by Groat and Wang (2002) in *Architectural Research Method*. This method is about examining discourse through counting terms and classifying them into key themes represented in the main findings of the study (Weber, 1990). It started by collecting Hadid interviews and highlighting all related information to be coded and categorized under proficient number of themes such as Hadid's form patterns, techniques, and her steps in designs in which this paper has taken it as its mission. Then comes the step of clustering all of Hadid's words and phrases which represent similar meanings under one theme. After that, variables have been determined and partitioned with noticing the relationship between them such as noting the effect of each step in her strategy on project's form. The final step is to include details into general and collect them into an adequate text; a concise description for this procedure is illustrated in figure 1.

■3.0 HADID STRATEGY OF DESIGN

When noticing the complex presentation of Hadid's works from the early 1980s to mid-1990s, anyone might face a difficulty to understand her way of thinking and the way of design. But only through doing a content analysis of her interviews, one could derive a precious primary data that leads to draw her strategy of design. Hadid considers design as an operation involving concept, rationality, and approaches that inspect as well as arrange the intricacies of modern life patterns (Hadid, 2011; Didero, 2012). Design process from her perspective is a continuous procedure of self-investigation in design through its entire stages (New Yooxer, 2010). The sequential steps of Hadid's strategy of design are arranged according to her statements and declarations. It takes this way of processes arrangement; however, it often happens that in one of the last three stages a modification might be done to meet project's requirements affecting the general design of the project; as explained in Figure 2. Hadid strategy could be summarized into five stages; they are personal investigation, form notion, form creation; circulation and functions, and finally interior design. Each stage may affect the final conceivable form of the project where Hadid is exceptional.

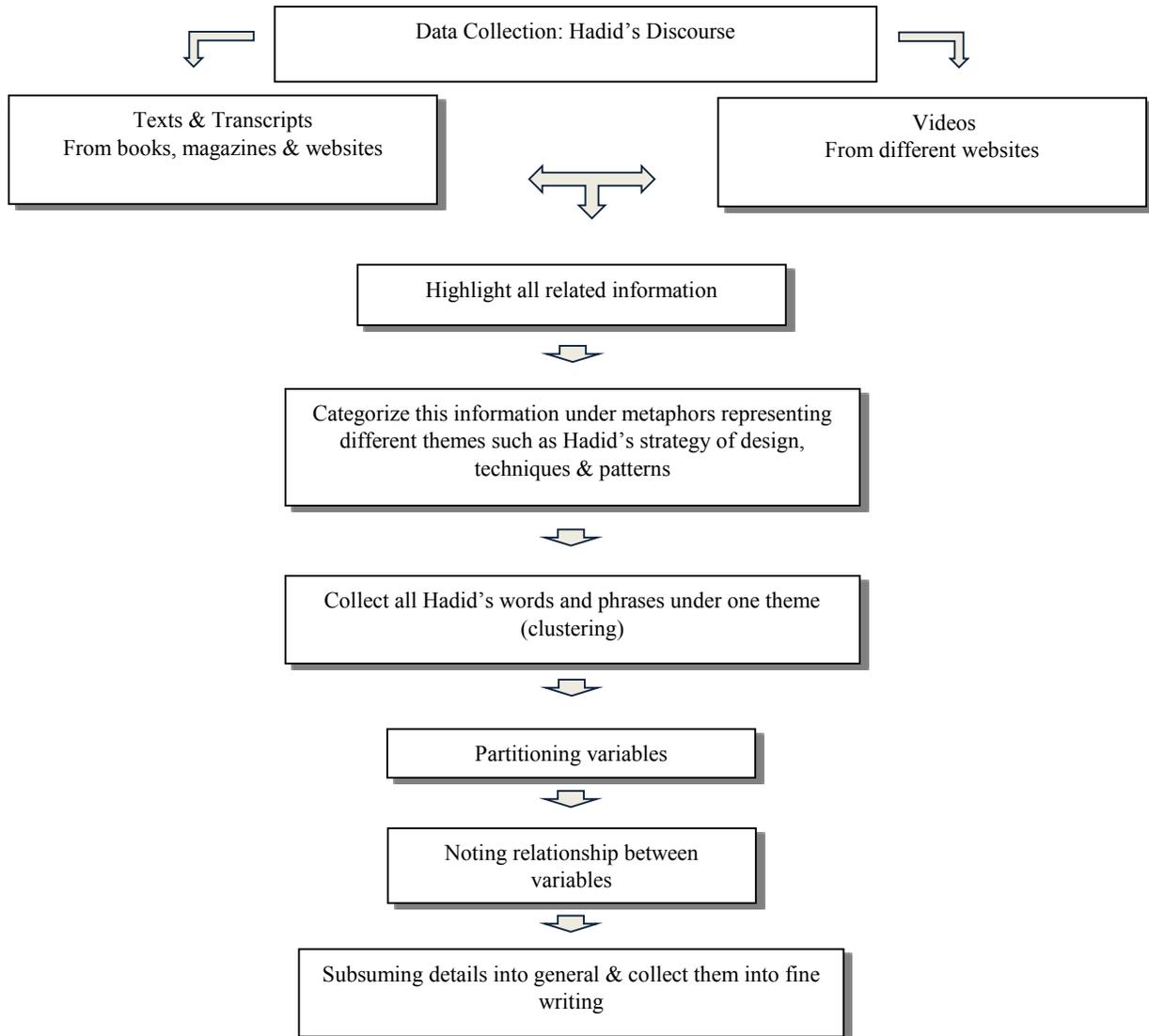


Figure 1 Content Analysis for Zaha Hadid's Interviews

3.1 Personal Investigation And The Journey

Rigorous research is the first step done by Hadid in project's site, nature, environment, neighborhoods, function, urbanism, architecture, the political and the social events which shape city's history (Designboom, 2007). Furthermore, she even studies people's ambition about the future of their area (Hadid, 2005). The purpose of this stage is to have a comprehensive knowledge about project's nature and parameters which contributed in generating an efficient and interactive model with the conditions of the surroundings. These variables also underlie the variety and differences of her designs because every site affords something exceptional to a project (NewYooxer, 2010). Hadid referred the success of her projects to the demanding research in all of project's aspects. When her office won the competition for designing Japan National Stadium in 2012, she declared that the design winning is a result of the 'three decades of research into Japanese architecture and urbanism' (Frearson, 2012, para.3). Therefore, long term site and project investigation is considered as the first key step in her unique and unfamiliar journey with design.

3.2 Form Notion

'My ideas come from observation: of the site, of nature, of people moving in the city' (NewYooxer, 2010, para. 2)

After an intensive self-research on everything related to the site and project, form notion comes up to her which is often related to site's variables. She designs many alternatives and models for one project but only that smart option is going to be displayed; the one which has the best notion and will serve the project from many aspects (Designboom, 2007). Through doing a content analysis of projects' form notions

described by Hadid, it is concluded that Hadid's inspiration of ideas could be confined into five areas that are site, art, nature, architecture, computing programs. The roots of each one are addressed accompanied with mentioning the underlying intellectual and social drivers of innovation.

3.2.1 Site

In addition to what is previously mentioned in phase 3.1, site's landscaping, topography, skyline, location within city, circulation, orientation, and land form, all of these could be a rich environment for inspiring ideas. They are also stimulating design clues to make a project an integral part of the site. An example of a project that Hadid inspired its configuration from the external lines of the site form is Regium Waterfront, multi-functional building in Reggio, Italy where some of the form's determinants are exploiting the land for built as much as possible and making the largest area of the building overlooking the sea.

3.2.2 Nature

Hadid's deep meditation and observation in nature especially what is related to project's site helps her largely to elicit ideas (Association of Novi Sad Architects, 2011). All of us enjoy nature, however; Hadid diligently searches for the sources of things' beauty and aesthetics prompted by her curiosity. She refers the splendid scenery of the mountains to the difference of their forms that offers a light manipulation falling on them (Hattenstone, 2003). She works with this inference as a technique to create new forms by manipulating masses' shapes under daylight. Recently, Hadid has inspired from the coherence and beauty of organic forms in nature, their systems as well as their adaptation with environment and applied them in her designs (Hadid, 2011); a significant percentage of her projects fall under this type. Examples for the natural forms Hadid inspired from to generate some projects' designs are topographic contours, dunes, sedimentology, sea creatures, and living organisms.

3.2.3 Art

In the fourth and fifth years for Hadid at Architectural Association, students were allowed to choose their desiring trend where she had taken art as an inspiring medium and as a starting point for her radical thoughts (Gopnik, 2011). Hadid early works till mid 1990s were influenced by suprematism established by Kasimir Malevich; the art of geometrical abstraction which cannot be understood easily. Applying such thoughts resulted on liberating architecture from its entrenched rules and creating new, abstract forms. On the other side, as a Muslim Arab, Hadid well-known curvy lines which have the same cruise of Arabic calligraphy and the ornament floral patterns of Islamic art, have qualified her to produce her especial architectural imprint; that is fluid space and architecture (Aref, 2011; Yentob, 2013). Her trip to China has significantly left its effects in her designs where she learned Chinese' traditional painting and their way of painting layers space into infinity giving the sense of endless freedom. Moreover, she learned the way architecture and gardens harmonically intervene with nature which qualified and developed her skills of landscaping (Hadid, 2011). She also has inspired from the artistic works of the suprematist sculptor Naum Gabo and the painter lászlo Moholy-Nagy in both designing fluid architecture and furniture (Hadid, 2006).

3.2.4 Architecture

As the thoughts of constructivist architecture were inspired from the abstract artistic movements of the early 1920s, few of Hadid early works were visibly influenced by some works of the Russian constructivist architect Yakov Chernikhov. She did not influenced his way of imitating machine's design but his way of creating dynamic and energetic forms. Hadid declared that her works is developed out of some early modernist architects such as Frank Lloyd Wright, Oscar Niemeyer, and Mies van der Rohe from whom she learned how to break free from the ground by elevating the building (Hadid, 2006). She also referred to the effective role of Chinese traditional Architecture in her conceptual vision of conceiving architecture as a natural part of the surrounding by using the technique of embedded-ness or fitness. Travelling to many countries around the world has played main role in enhancing her imagination as well as her design's abilities through experiencing different kinds of international architecture which interprets the familiarity of her architecture at the global level.

3.2.5 Digital Design Programs

In addition to being a tool for designing architectural plans, digital architectural design programs are lately used by Hadid as inspiring tools for generating unique forms. The recent advancement in computing sector has facilitated many things for architects such as conceiving and generating complex forms and qualifying them to become real projects. Parametric design system is the architectural program established and used intensively by Zaha Hadid architects for design. It helps architects to be more responsive to the complexities of contemporary life and environment (Schumacher, 2010). In addition, it gives the architect the freedom of creating new forms because it has the feature of liberating form by making it supple and malleable resulted in producing numerous alternatives for one project. The form in this program is a result of an interactive operation between two factors: the first one is the comprehensive data of the project and the second is the aesthetic sense of the architect creating architecture characterized by adaptivity, communication, and dynamism (Schumacher, 2009). Example of this type for inspiring ideas is Sunrise Tower in Kuala Lumpur, Malaysia (2009).

When Hadid is settled with the form notion, she starts to embody it in her design with applying some techniques creating new configuration for a project which requires a sense of imagination. She encouraged her students to get through the unknown place; place of invention, imagination and discoveries (AbitareWeb, 2011). It is to forget the barriers created by convention and society and stop accepting conceiving things as they are. Hadid claimed that architecture is similar to science in its need to lab research to get and discover the cures (Hadid, 2005). She also declared that if some things had not been excavated and uncovered, it will not be discovered, it will stay buried (Belogolovsky, 2008). Such a critical thinking by Hadid is an attempt to receive the architecture from new angle that reflects the nature of this era and our life. Going into this adventurous journey has qualified her to be one of the best women architects in the world, if not the best one ever (Giovannini, 1996; Yentob, 2013)

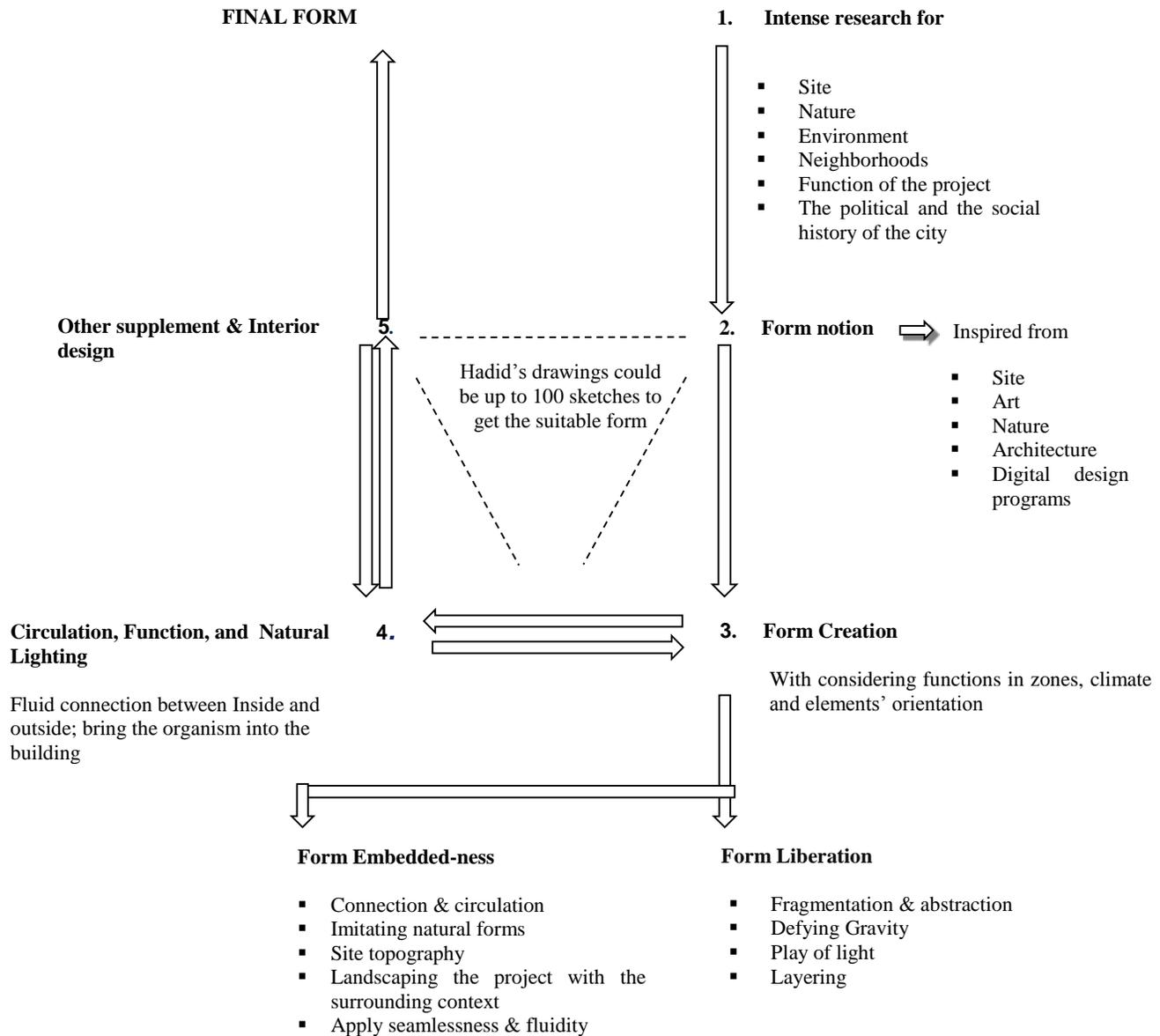


Figure 2 Zaha Hadid Strategy of Design

3.3 Form Creation

In this stage, the project's form notion started to develop and take a new way of ingenious embodiment where the formation depends on 'the focus, the technique, the project' (NewYooxer, 2010, para. 2). Form Creation is a matter of her urgent research represented in many sketches which might be up to 100 sketches in the same form research in order to embed the form with the context (Designboom, 2007). It is an interactive operation between two stages acting together which are form's liberation and embedded-ness. Each stage is an application for Hadid's techniques on form; AbdUllah *et al.* (2013) have studied the six techniques used by Hadid to generate forms, in addition to addressing the different ways of applying each technique. In this stage, Hadid also takes into account the distribution of functions in zones, climate, sun direction, and elements' orientation within the new design.

3.3.1 Form Liberation

This is the most exciting and challenging juncture of her journey to the unknown place where is the element of uncertainty and re-examination of what is conventional. Hadid emphasizes that without being involved in this phase, there would be no changes or progress (AbitareWeb, 2011). She liberates architecture through applying herself-developed techniques on both form and space that are fragmentation and abstraction; defying gravity; play of light; and layering.

In terms of fragmentation, Hadid tries to break a block into bits and reorganize them in a new porous compositional form (Meades, 2008). However, abstraction is about mimicking things but she re-conceives them in an abstract way which has not been envisaged yet such as Maritime Terminal in Salerno, Italy (2000-12) which mimics the robust shell of the oyster (Iqbal, 2013). Hadid questioned the idea of the

ground by defying gravity and this technique was applied in many different ways such as curving ground, elevating it on inclined columns, designing overstated cantilever, and manipulating project's mass. Play of light technique is to manipulate building masses and surfaces under the daylight so there is no need to use colours or many cladding materials but playing with light and shadow elements with only using one material (Glancey, 2006). The last inspiring technique of liberating form is layering whereby Hadid generates creative spaces through manipulating the architectural plans of the main foyer of the different levels. These techniques played major role in classifying her under deconstructivist architects who contributed in establishing this style.

3.3.2 *Embedding Form with the Context*

It is the stage where the rationality comes again to the process of design in which Hadid tries diligently to landscape the project within the surrounding context. Both this phase and functions' distribution are critical issues that largely betting on the success and continuation of the project especially after the dramatic deconstruction for architectural convention in the liberation stage. Embedded-ness is the endeavour of implanting the project into the context with all possible relationships through deriving features from the context, therefore, the project become a harmonic part of the existing natural scene (Belogolovsky, 2008). It occurs through applying some technical ways such as imitating natural forms, dealing with the site topography and landscaping the surrounding context. Additionally, Hadid applies other ways for landscaping projects; for instance, gardening open-interior spaces, landscaping the roof, and elevating ground offering a continuation for the surrounding landscape to project's interior spaces (AbdUllah et al., 2013).

Applying such techniques is the underlying reason for gaining her designs the characteristics of engagement, integration and adaption with the surrounding breaking the division resulted from the repetition of 20th century architecture (Hadid, 2011). Hadid attempts to qualify the project to meet all the requirements of successful project. She carefully studies movement circulation to offer a seamless connection and flow between program and site (Hadid, 2005). In addition to considering building's orientation as an important factor regarding lighting, view, and the entrance. Hadid in design processes generally gives so much efforts and attention to this juncture because it is a key phase for the success of the project (Hadid, 2005).

3.4 *Circulation Movement And Function*

In this phase, Hadid gives more attention to designing the functional spaces in details with considering the utility of each corner in the project and users convenience. The function of architecture from her viewpoint is not only a shelter but it should also provide a place with the elements of excitement, calmness, and motivation for creation and thinking (Gopnik, 2011). It is the architecture that has influence 'on the street life' drawing people to experience it (Hattenstone, 2010). It should reflect the soul of this era where every day adds new things in all sectors and people always want to see what is new and unique. Architecture should make them feel well and enthusiastic; it affects their way of perceiving life and conducting duties (Association of Novi Sad Architects, 2011). Therefore, Hadid way of conceiving architecture has created new kind of architecture which keep pace with the fast developments in the various sciences. She studies the circulation movement as if she moves personally inside the building generating fluid and porous spaces that play a main role of socializing the project through creating continuous connected spaces in both vertical and horizontal directions. To create such space, she applies the technique of layering to portray the way of circulation movement and space form which is generally accompanied with appropriate distribution for project's functions. She tries to do every part in details through letting herself imagine moving throughout spaces, resting her body on a sofa and observing every corner in the space (Bedell, 2003). The circulation, the fluid movement of visitors or users, is an important factor considered by Hadid in design. It may sometimes contribute to form the space as well as the external configuration of the project; like what we see in Maxxi museum in Rome, Italy in which the interior space was designed like a river delta. Her studious way of designing circulation keeps visitors move automatically and smoothly through fluid spaces passing all desired places without any distribution or misleading that makes the building efficiently performs the function it is built for (Futagawa, 2010). Designing spaces also affect the form because Hadid in many of her designs tries to make the interior space continues to the exterior form creating continuity and transparency between inside and outside; example of that is seen in Darat King Abdullah in Amman, Jordan (2008). After studying circulation and function, Hadid and her architects start design the natural lighting with giving a considerable attention to the sustainability aspects. They are keen to generate sustainable architecture featured by efficient ventilation, utmost use of solar energy, rainwater recycling, and utilizing environmental materials (D'Apuzzo, 2011). In regard to natural lighting, she usually designs large expanses of glasses, ribbons, or applies skin-penetration in a way that offers natural, studious light and goes seamlessly with the notion of project form. This could be seen in her latest projects such as the design for proposed museum of Vilnius (2007) and Maldives Luxury Resort (2007).

3.5 *Interior Design And Other Supplements*

It is well-known that if Zaha Hadid architects are in charge of designing a project, they also take the mission of designing the interior spaces in order to show a cohesion and complete picture of the work and its notion. They apply form design techniques in the interior design such as in products and furniture; therefore, visitors could see clearly a seamless unity goes through whole parts of the project (NBM&CW Magazine, 2006). The last stage of design is to see what to do with the other supplements such as materials, electrical lighting, and infrastructure. Through studying her strategy of design, it is concluded that Hadid architectural form is a result of an interaction between many contributing factors which play main role in conceiving a successful architecture.

Through studying Hadid's strategy of design, one could recognize that Hadid innovativeness in creating what is novel is concentrating in triple fundamental phases; they are form liberation, form embedded-ness, and interiority as illustrated in Figure 3. Form liberation step is about inventing un-preconceived, abstract forms, in contrary to embedded-ness phase where Hadid tries to integrate the new form of a project with the surrounding context. However, interiority is a bout designing spaces characterized by porosity, fluidity, and seamless. The three phases are all about architectural and spatial form generating where Hadid is well-known and unique.

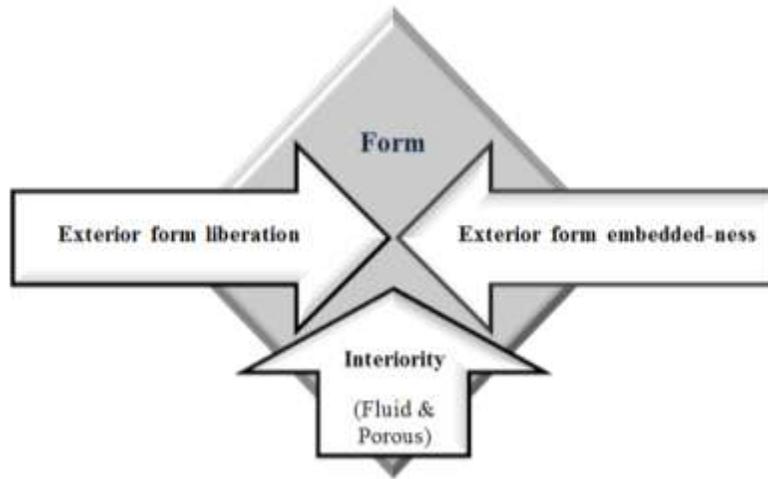


Figure 3 Zaha Hadid's innovativeness phases

■4.0 STRATEGY SIMILARITY BETWEEN HADID AND DERRIDA

Although Hadid is not from those architects who applied Derrida's theory in their work, there are some common thoughts between her strategy of design and Derrida's deconstructivist theory. The similarities underlie the desire of breaking what is logical and inherited. It is well known that Hadid gives precedence in design for form rather than function which meets Derrida's concept of reversing hierarchies. Another analogy is Hadid's breaking free from the ground and denying gravity factor in her work which corresponds with Derrida's absent and present concept. However there is a vast difference between them in the perceptual vision for the meaning of architecture where architecture from Hadid's standpoint has meaning and value. She also has added to what architecture supposed to provide some new values such as pleasure and stimulation for thinking and inventing. However, Derrida conceived architecture as Mark Wigley stated "The Deconstruction of Architecture; The Haunt of Architecture; The Deconstruction of Architecture; The Haunt of Architecture; Haunt of Deconstruction; Derrida's Architecture" which gives a brief summary of the architecture meaning from Derrida's viewpoint (Wigley, 1996; p.266).

■5.0 CONCLUSION

In designing her architecture, Zaha Hadid applies innovation, defying convention and social connection. She considers the form over all the other factors where the process starts with form rather than function and ends with form represented in interior design. It is suggested that Hadid perceives architecture as an art that could be employed efficiently to meet the needs of users and the requirements of a successful architecture. Her way of design is a result of having an inclusive overview in all of project's parameters with respecting to rationality aspects. It is a continuous and interactive research on form, function, society, culture and novelty. Her way of design not only affects the eager generation of creativity from young architects but it also changes the general conception of perceiving architecture and space taking its place in history of architecture.

This study might help to erase the misconception about her designs as an arbitrary artistic works of a pure coincidence and that is through noting her interest to fulfill the requirements of function, adaptability, sustainability, urban and social connection. The well-known disadvantage of her design is the high cost of execution because of its complex nature which mostly does not financially serve the client. Architecture is like any other human products such as car which need to be continuously developed to efficiently be used and to afford entertainment and comfort. Hadid always insist that architectural history is taught to let architects think forward not backward; it shows the lessons for what had been experienced as well as invented and it is the time to try what has not been experienced yet.

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