Contribution of Films in Interior Design Multidisciplinary Approach: A Case Study on Ghost in The Shell

Sarah Rahman[1], Nor Hazirah Hasri[2], Syazwani Abdul Kadir[3], Nurul Nabilah Aris[4]

{sarahrahman@uitm.edu.my[1], norhazirah@uitm.com.my[2], syazwani179@uitm.edu.my[3], nabilaharis@uitm.edu.my[4]}

Centre of Studies for Interior Architecture, Faculty of Architecture, Planning, and Surveying, UiTM, Puncak Alam, Selangor, Malaysia

Abstract. The creation of temporary spaces for film and the practice of interior design for permanent spaces are in many ways intersect as both have the power to reformulate the space and make it habitable for its user. The interaction has shaped many interior design schools to take the film as a multidisciplinary subject as it could conveniently contribute to theoretical studies and creative thinking skills. The circumstance led this paper to find its rationale. Can films be used as design references for interior design education? Are scenography design for film and interior design projects use a similar design process to execute its narrative? This study explores the similarities of the design development process between the two disciplines. Using literature research, analysis studies, and case studies of the film, The Ghost in the Shell, this paper explores the similarities of design development focusing on theory and realism.

Keywords: Design Process, Film, Scenography Design, Ghost in the Shell, Theory, Realism

1 Introduction

The interaction between films and interior design has taught each other new ways of seeing and producing. The significant historical relationship between film and interior design has often been discussed and referred to in many design discourses in both academic and commercial research. Scenic design processes drawn from film, such as storyboards, have been widely used and cited in design and architecture.[1] The reason is that design is subjective, and film can communicate the visions and bring viewers through realistic visuals and habitable spaces that do not exist. Winton, 2018 states that interior designers should consider every aspect of one's work, not just the aesthetic of the space but also the sense of sound and feel to the user. In comparison, a production designer must communicate the feeling within the mediated space of a film screen. Both disciplines bring the user or viewers to experience the tangible and intangible space by the act of moving through it. Although the permanence of its space is in contrast, the outcome questions the similarities in its design processes. Are scenography design for film and interior design projects use a similar design process to execute its narrative? Can films be used as design references for interior design education? This paper aims to justify the rationale of film linked to interior design multidisciplinary education. The study explores the similarities of

design processes between the two disciplines - focusing on applying theory and realism in the design development stage- and discusses its contribution in the multidisciplinary approach as a 'discovering' process in interior design education.

2 Literature Review

2.1 Multidisciplinary Learning Approach

The adoption of a multidisciplinary approach within design education believes to be the process of obtaining knowledge where films could be used as a 'discovering' procedure to the architectural design studio. [3] McEwen, 2009 states that the definition of multidisciplinary is *"juxtaposition of various disciplines, sometimes with no apparent connection between them"* and describes that the multidisciplinary approach as a collaboration between two or more disciplines working on a common problem without changing its direction.[4] As the design is subjective, there is no fixed blueprint for learning design, as states by Kavousi,2014 that "*design learning is not prescriptive when it comes to learning design there is no recipe*"[5]. Many international and local design schools have embedded this approach after Finland proves its advantages by bringing down the boundaries between disciplines to allow and support creativity and ingenuity in higher academic and commercial. Aalto University in Finland has established the *Design Factory* as an experimental platform for multidisciplinary education and innovation. The platform aims to enable the business and engineering industries to create conversations, connections and creativity across the traditional segregation of industry, academia, research, and hands-on practice.[6] In 2006, supported by the Higher Education Funding Council for England (HEFCE) and the National Endowment for Science, Technology and the Arts (NESTA), the Design Council in the United Kingdom created a *Multi-disciplinary Design Network* to facilitate the sharing of knowledge and best practice across universities. The suggested method believes in improving the curriculum design and assessing the impact of the new programs. The council listed 18 universities involved in this design network, including the Royal College of Art, London, and Central Saint Martin's College of Art, London; the two universities ranked the first and second World QS Top University under Art & Design.[7]

Universiti Teknologi MARA (UiTM), Malaysia, on the other hand, began to implement *Wisdom Wednesday in its syllabus. It* aims to foster creativity, curiosity, and critical thinking and develop a diverse understanding of knowledge to promote students' adaptability and resilience through the extracurricular elective course.[8] It offers a list of multidisciplinary elective courses identified by the faculty or campus to all students from various academic programs. The approach is expected students to explore different learning processes from other disciplines apart from the core subject of an academic program. As the scheme plan is compulsory for every program offered in this university, it clearly shows the importance of a multidisciplinary approach in the current design education paradigm. These theoretical approaches that expose broader observation of receiving knowledge need to be practice and recognize through education to avoid a non-attractive area of concern, even though the multidisciplinary process often exists in the early project's development process.
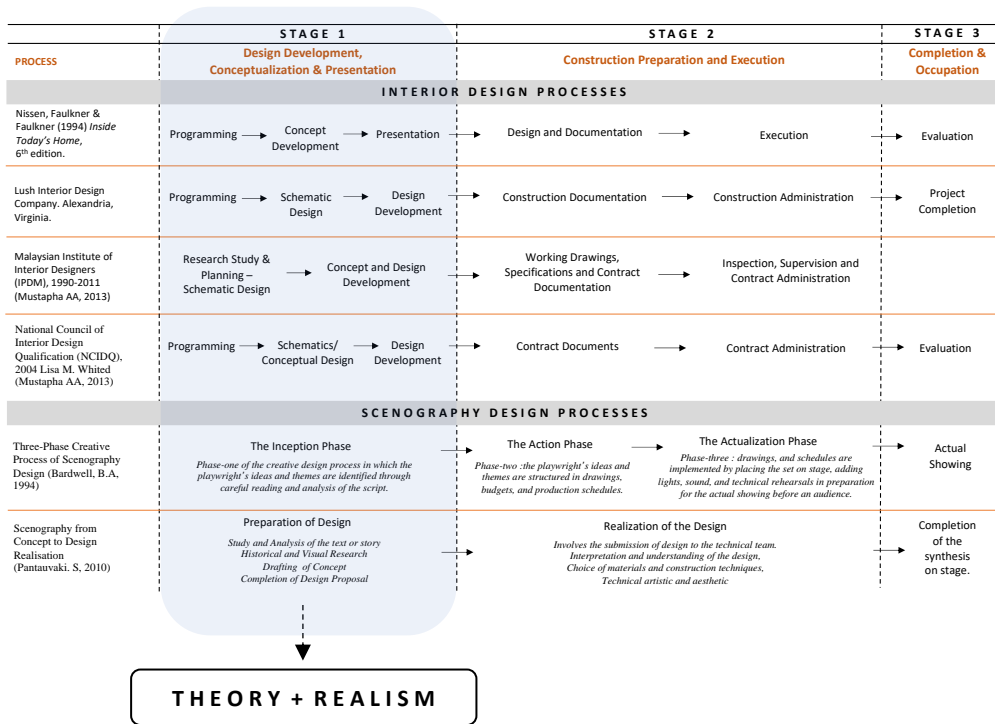
2.2 Films and Interior Design.

Many practitioners involved in film storytelling acknowledge that the attribution of 'atmosphere' plays a vital role in filmmaking.[9] Besides other art disciplines such as costume design and literature, the interior architectural components believe to be the main attributes in creating the atmosphere alive. According to Arnold Hauser, 1999, the distinction between cinema and other arts is that the limits of space and time are fluid. Space has a quasi-instantaneous time frame, which to some extent acquires a spatial element aspect, so that space loses its static nature, its calm passivity, and becomes dynamic; it appears as if before our eyes.[10] An interior design composition is a form of expressive 'decorative storytelling' where the 'atmosphere' is concerned with supporting the action, reflecting the personality, and influencing the viewers psychologically in films. Without the interior objects, one may find difficulties in conveying its narrative to its audience.

According to Georgiadou in her study, "cinema functions – and this is commonly acknowledged-, as a vehicle for ideological, social and aesthetic perspectives, and transfer the films creator's ideas using real objects to construct the meaning of the movie" [11]. The interior architecture elements such as colour schemes, lighting, furniture selection, interior arrangement, and ambience are the real objects that contribute to making the scenes alive. It plays an important subject not just to present a particular time, style, or culture but also conveys one character's physical condition and emotion. Barnwell states that 'An effective prop, for instance, can stand for the film as a whole by distilling the period, character and narrative'.[12] The material used on the construction and the colour scheme from the selected historical era contribute to persuading the audience to believe in the realism of the settings. The authenticity and realism in a film is an important aspect to discuss, and this is where the interior components exist to play the role.

2.3 Similarities in Design Process

The similarities in the design process of scenography design and interior design proposal are that they both use an abstraction of concept to visualize the atmosphere. Both disciplines use similar design processes to achieve a conceptual habitable space. The process starts from development of concept, to schematic design proposal, to the preparation of construction documentation, and on-site installation process. The Malaysian Institute of Interior Designers (IPDM), a professional bodies for interior designer in Malaysia indicate the flow of scope of work for interior design practice begin with a research study and planning to concept and design development before proceed to the working drawings, specification and contract documentation.[13] As stated by Piotrowski (2008, 1-10), although design flair in interior designer is vital, technical skills and requirement of projects should not disregard.[14] In scenography design disciplines, Pantouvaki (2010, 67-75) states the two phases of scenography from concept to design realisation which is the preparation of design phase and the realisation of the design phase.[15] While, Bardwell (1994) on the other hand, shared the three-phase creative process of scenography design which is Inception Phase, Action Phase and Actualization phase. Both processes move parallelly and present a similar description although the terms used are unalike. Table 1 shows the similarities of the two disciplines and its description in their practice extract from the Malaysian Institute of Interior Designers (IPDM), National Council of Interior Design Qualification (NCIDQ), Lush Interior Design Company, and Ray Faulkner.

Table 1. Interior Design and Scenography Design Processes

PROCESS	STAGE 1 Design Development, Conceptualization & Presentation	STAGE 2 Construction Preparation and Execution	STAGE 3 Completion & Occupation
INTERIOR DESIGN PROCESSES			
Nissen, Faulkner & Faulkner (1994) *Inside Today's Home*, 6th edition.	Programming → Concept Development → Presentation	Design and Documentation → Execution	Evaluation
Lush Interior Design Company. Alexandria, Virginia.	Programming → Schematic Design → Design Development	Construction Documentation → Construction Administration	Project Completion
Malaysian Institute of Interior Designers (IPDM), 1990-2011 (Mustapha AA, 2013)	Research Study & Planning – Schematic Design → Concept and Design Development	Working Drawings, Specifications and Contract Documentation → Inspection, Supervision and Contract Administration	
National Council of Interior Design Qualification (NCIDQ), 2004 Lisa M. Whited (Mustapha AA, 2013)	Programming → Schematics/ Conceptual Design → Design Development	Contract Documents → Contract Administration	Evaluation
SCENOGRAPHY DESIGN PROCESSES			
Three-Phase Creative Process of Scenography Design (Bardwell, B.A, 1994)	The Inception Phase *Phase-one of the creative design process in which the playwright's ideas and themes are identified through careful reading and analysis of the script.*	The Action Phase *Phase-two :the playwright's ideas and themes are structured in drawings, budgets, and production schedules.* → The Actualization Phase *Phase-three : drawings, and schedules are implemented by placing the set on stage, adding lights, sound, and technical rehearsals in preparation for the actual showing before an audience.*	Actual Showing
Scenography from Concept to Design Realisation (Pantauvaki. S, 2010)	Preparation of Design *Study and Analysis of the text or story Historical and Visual Research Drafting of Concept Completion of Design Proposal*	Realization of the Design *Involves the submission of design to the technical team. Interpretation and understanding of the design, Choice of materials and construction techniques, Technical artistic and aesthetic*	Completion of the synthesis on stage.

THEORY + REALISM

Similar to the creative process in scenography design, the conceptual design development in stage 1 is set to proceed to the construction preparation and execution phase in stage 2. According to Patouvaki, this is when a collaborative process between the artistic and technical team is required.[15] The technical collaborators such as contractors, carpenters, mechanical and electrical team, contribute to the aesthetic result and the quality of the project as well.[15] The apparent contrast between the two disciplines is that each disciplines have a different end user at the completion stage. While the set design in film is created temporarily to support the presentation of film scenes, interior design project on the other hand form a practical spatial experience for longer human inhabitation. The technical application in construction, and the contract and project management practice in stage 2 may differ from each disciplines. However, in stage 2, similarities of the conceptual design development can be seen where both disciplines take theory and realism into its context.

2.4 Theory and Realism

The application of theory, practicality, and accuracy that are embedded in films appear to be similar to interior design studies in the design schematic processes. In many art disciplines, a theorical approach based on concept, belief, hypothesis, metaphor, philosophy or narrative are used as a subject matter in the design development. The approach guides the schematic design processes to give a direction to its identity, style, character, and develop an aesthetic strategy. In interior design and scenography design disciplines, the theory often supports by research and

analysis study such as mapping the location, people, history, and culture to create a solid relationship to its concept, and more importantly to create a realistic approach to its context. Realism is used to support this strategy. The objective of adding the realism elements in interior design such as practicality, functionality, ergonomics and anthropometric is to take user to a practical spatial experience and to fulfil users' practical needs. While in film, the realism approach is embedded to take audience into a realistic and believable illusion, although the theory or hypothesis are yet to be existed.
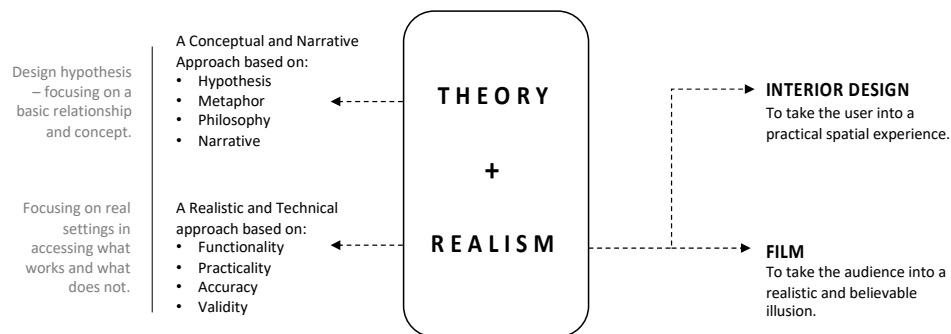
Figure 1. Application of Theory and Realism in Film and Interior Design conceptual development stage.

Robert Hadad in his study about research and methodology for Interior Designers states that every design is a hypothesis and a practical experiment.[16] The design hypothesis can be made more explicit by theory development; focusing on the basic relationship and concepts and by design evaluation; focusing on real settings in accessing what works and what does not.[16] In science fiction films, the interior setting is often based on the hypothesis, theory, philosophies, history, or postulation that is embedded into the plot. To persuade viewers to believe the realism of its narrative, the interpretation of its concept through interior setting often merges with elements of realism, a functional spaces that are both practical and ergonomics to fulfil the user's needs. Accuracy is also a crucial aspect to apply in the film set design as it supports the realism of its narrative. In the historical film genre, Barnwell explains that the material used in the construction of the sets and the colour scheme from the selected historical era in the plot are used to persuade the audience to believe in the realism of the settings.[12] An in-depth research and historical observation study need to be practiced to ensure the accuracy of an object to be applied in the film even though the entire narrative are based on design hypothesis. The application of theory and realism in the design processes direct the project to form a complete realistic outcome before proceeding to the construction and installation stage.

2.5 Contribution of films to Interior Design education

Science fiction films which often give viewers alternative realities explores various philosophical, hypothesis, and themes. By observing and understanding the film's theory, the critical visual exposure could bring students to an intangible space to be experienced. Furthermore, a good film set that is sensitive to its context and involves an in-depth observation

study and adoption of theory could bring students to a new perspective in designing their project. According to Geraint D'arcy, 2019, Barnwell embedded theory to the raw materials of filmmaking to create compelling designs for the viewers to appreciate and sparks an analysis and criticism to the film scholars. The critical approaches towards TV and films available could be used more thoroughly as a critical academic material where it can develop thoughtful, well-considered designs.[17] As films show a complete theoretical interior setting without disregard its functionality, practicality, and, accuracy, the film could act as a platform to answer 'what to consider when designing a project rather than to instruct 'how to design the proposing project.

As 'accuracy' plays a vital role in films, historical films for instance that embedded a thorough historical studies relating the architecture, product, culture and time, films could be use a an 'architectural visit' to the past. Many studies have proven that field trips help students to boost their creativity and thinking skills. Many researchers strongly suggest schools provide more field trips for art students as an opportunity to visit real-life examples of the topics they are studying.[18] As science fiction films project a visualization of theorical and realistic spaces that often yet to be existed, it could act as 'field trip' for students to 'site visit' the virtual theoretical interpretation of interior design projects. Film could act as 'discovering' platform to spark a critical design discourse among students and support conceptual design research for complex interior design project.

3 Methodology

As far as the methodology is concern. This paper is a concept paper that aims to explore the contribution of films through an analysis from related books, article journals, reports, and case studies. A comparison study was done to look at the similarities of design process, mainly theory and realism adaptation in interior design and scenography disciplines. The film Ghost in the Shell is then selected as a case study to investigate the application of its theory and realism in conveying its narrative. A detailed analysis studies of Ghost in The Shell focusing on set design, products and conceptual aesthetic is done to support the studies. By the end of this paper, a conclusion on the contribution of films towards interior design education is discussed.

4 Case Study: Ghost in The Shell

4.1 Application of Theory

The first analysis is focused on the application of theory in the film. Ghost in the Shell is a cyber-punk-based anime directed by Mamoru Oshii. The anime was first published in 1995, then was reproduced in a science fiction action film directed by Rupert Sanders in 2017. The movie portrayed the "influence and power of computers" by arguing how power and influence might expend over time, and portrayed their imagination of a future where humans have integrated with machines. Body parts or organs are modified with weaponry and advanced functions; eyes are replaced with powerful computer-generated sensors; brains are upgraded with external storage technology. The movie is created based on the question of how much artificial enhancement and modification can a person undergo and remain fundamentally

human. The creation of the movie involves a critical thinking analysis where the experts involved play a big role in visualizing their interpretation of a future, to design the scenes, objects, costume, and ambiance that yet to have existed.

Masamune Shirow, the Japanese Mangga artist, who involved in the creation of the original Ghost in the Shell explored identity, consciousness, ethics, politics, and privacy at the point when mankind and information technology begin to merge.[19] The conceptual challenges offer complex development of ideas where scenes are created based on the future hypothesis. In this case, the setting inspired by the multi-national future city inspired by Hong Kong. Rupert Sanders reveals the process of creating the city involves tracing the photos of Hong Kong. An observational study of Hong Kong is practiced and applied as a form of realism and this support to the statements of Barnwell where realism and authentic are crucial to establish the one scene.[12]

Fig. 1. The visual of future Hong Kong in The Ghost in the Shell Film[18]

While having Hong Kong as a subject matter, the film combines the prediction of a future by using a theory where the Great Power faction is formed. The setting is based on a theory – 'In this future universe, at least two new world wars have rocked the planet, and Earth's four great powers are the United States, Great Britain, China, and Japan, who together have formed a Great Power faction.'[19] The anticipation is that is not going to be a future with separate cultures. Thus, the film portrays the predictions by presenting different nationalities and races in the film which can be seen on the streets. Elements of traditional Hong Kong-influenced can be seen throughout the film scenes even though advanced technology has been embedded to take control. The interpretation of the set designer in both Ghost in The Shell 1995 and Ghost in the Shell produced in 2013 exposed the explicit combination of past and future - using the technological advance invention to present the future, and by remaining the essence of culture to present the past. It also depicts the sensitivity of the producer towards one culture and its context where the characteristic of language, costumes, and cultural practice remain in the visual despite the influence and power of computer. The film depicts that in creating one narrative – in this case, the prediction of a future -, especially for a science fiction film, a hypothesis needs to be made based on the analysis of different components from a different context. Similar to the common interior design projects, a project proposal is often created based on an issue that

evolves in the past, present, or prediction of the future. In finding the solution, one should support its strategy by inserting the theories, metaphors, or analysis into its concept.

This application of theory also relates to the practice of interior design education where sensitivity towards the site context, the people, and its culture is crucial to be adapted to the new design. The process of 'site mapping' in interior design education which often happens during the site analysis phase aims to explore the appreciation towards surrounding including the natural elements the site could offer. The film projects a strong application of its theory and presents the realism in its concept by bringing the viewers to an ethical example of how new design should be adapt without changing or removing the sense of ownership. *The Art of Ghost in The Shell* explains that in constructing the future, after the world of Ghost in the Shell has been conceptualized, the task was to take the design and turn them into a believable reality. The process of making these theoretical scenes alive is by implementing the application of realism to the process.

4.2 Application of Realism:

Realism or the perception of realism is important to discuss in the making of film. DeMelo, 2017 states 'To be realistic is an expression often used when describing the success of an illusion'.[22] This explains that the creation of objects or scene in the film need to be practical and functional to make the user believes to the realism of the scheme though the film is based on a fictional theory. Shoji Kawamori, the mechanical designer behind the Ghost in the Shell explains in his interview that focusing on fulfilling the functional needs as well as express the theme would make the design in the film different from the artworks of designers around the world.[23] Jan Roelfs, the production designer for the science fiction film Ghost in the Shell shares the process of designing the apartment for the main character; Major Mira Kilian, where the furniture, material, as well as atmosphere follows the character's personality and basic needs. The fact that Major Mira Kilian is a human-like robot with a human ghost in her robot shells, the designers first need to understand the characteristic of its user. The conversation between the director and Roelf's in the table below shows that the understanding of individual was the first practice to design a suitable atmosphere and ambiance.

Table 1. Conversation of Rupert Sanders and Jan Roelfs in the process of designing Major Mira Kilian apartment.

"she's living and part of machine too," says Sanders, "so she wanted to feel machines around her. It's almost like she's in a hard drive and there's hundreds of other towers of hard drives [outside the window]. So she's very much in the machine".
*Roelfs took his cues for the Major's home from the script itself. "if she is lonely, why would she live in a cluttered room?" he says. **"the Major's physical needs are few; she doesn't eat the way humans do, bathe or sleep, and she has no old memories, and so no keepsakes or mementos. It's better to focus on the shape of that room. The measurements, the perspective. Its's much stronger."** The resulting design was made from textured concrete.*

A well-designed interior should include a great understanding of its user to fulfil her needs in a aesthetical and functional manner. Despite producing a fictional space, the film Ghost in the Shell go through the actual process of designing a permanent space. The design process was then focus on the objects and furniture that suit the human-like robot where bed is not a space to sleep but rather as a place to recharge and receiving information. Thus, a translucent silicon tubes were used as a bedding to show viewers the characteristic of the character - not human. As Major Mira's physical needs are very few; she doesn't eat like human do, bath or sleep, the designer applied a minimalist concept for her apartment.

Fig. 3. Major Mira Kilian's apartment in The Ghost in the Shell Film

Peter Suderman explains that the way the film blends with the environmental detailing is one of the reason the film is consistently stunning.[24] New Port City, a fictional Asian City where the film is set, is based on Hong Kong setting with a mix of tech and modern mega-architecture. Thus, the accuracy of the elements of Hong Kong are important to present its location. Figure 4 shows the city scape of future machine-integrated city where Hong Kong-influence detailing such as the local signages, well known brands, as well as the Maneki Neko (beckoning cat) which is a common symbol of good luck in Chinese and Japanese culture were seen in the film set. The film projects a sense of appreciation towards the site context by remaining the essence of its culture and the sense of ownership and belonging to its people.

Fig. 4. Hong Kong-influence street detailing with the Maneki Neko (beckoning cat) sculpture which is a common symbol of good luck in Chinese and Japanese culture.[19]

The design process implemented show similarities to most interior and architectural design's design practice where the functionality and practicality should meet the aesthetical design which often practice in many design schools. This also linked to the famous architecture principle Louis Sullivan's axiom "form follows functions" where the purpose or function of a building or object should be a starting point for its design rather than its aesthetic.

5   Conclusion

Films according to study is a valuables resources for many disciplines such as philosophy, cultural studies, literature, academic writing etc as it enables students to develop conceptual connection between theories, conceptual frameworks and real-world example. By observing the methodology practiced by the film, the study can conclude that the application of theory and realism is similar to the interior design development process. The application of theory and realism that are embedded in films appear to be relevant to interior studies and could act as a visual reference in students' research. As it is theoretically similar, this paper suggests adopting a multidisciplinary film approach in interior design education to explore distinct learning processes for interior design students.

6   Future Studies

As this study proves that the creation of film practices the application of theory and realism, and simultaneously could contribute to exposing students to critical thinking skills, further studies aim to prove the ideology by implementing the multi-disciplinary approach in interior design projects is proposed. The future study aims to apply film in interior design studios to confirm such an approach in developing critical thinking skills among interior design students.

References

[1] Fryatt A, Kemp R, Ritchard P, Rogers C, Carlin D. From Intimacy to Infinity:: exploring the role of interior in 3 short films. idea journal. 2009 Jul 20;9(1):150-61.

[2] Schneiderman D, Campos A, editors. Interiors beyond architecture. Routledge; 2018 Jan 19.

[3] Georgiadou Z. Cinema and architectural design education. artciencia. com, Revista de Arte, Ciência e Comunicação. 2016.

[4] McEwen L, Jennings R, Duck R, Roberts H. Students' experiences of interdisciplinary Masters' courses. The Interdisciplinary teaching & learning group, HEAcademy Subject Centre for (LLAS), University of Southampton, Southampton. 2009 May.

[5] Kavousi S, Miller PA. The community of practice: Teaching pedagogy in the architecture foundation design lab. EDULEARN14 Proceedings. 2014:2548-57.

[6] Council D. Multi-disciplinary design education in the UK. Vol. November. 2010.

[7] QS World University Rankings by Subject 2021: Art & Design [Internet]. Top Universities.https://www.topuniversities.com/university-rankings/university-subject-rankings/2021/art-design

[8] Universiti Teknologi Mara. *Pekeliling Garis Panduan Pelaksanaan Wisdom Wednesday,2018*

[9] Whitehead J. Creating an interior mise-en-scene: the relationship between interior design, production design and film. Film and Furniture. 2019 May 27.

[10] Hauser A. Naturalism, Impressionism, the Film Age. Routledge; 1999.

[11] Georgiadou Z. Cinema and architectural design education. artciencia. com, Revista de Arte, Ciência e Comunicação. 2016.

[12] Barnwell J. Production design: architects of the screen. Wallflower Press; 2004.

[13] Mustapha AA, Mohammad MF, Noorhani NM, Abidin ZZ. Establishment the scope of work for interior designers. Procedia-Social and Behavioral Sciences. 2013 Dec 3;105:875-84.

[14] Noorhani NM, Mustapha AA. Interior Design Practice: Project Management Competency Framework. Built Environment. 2021;18(1):98-105.

[15] Pantouvaki S. Visualising theatre: scenography from concept to design to realisation. InMapping Minds 2010 Apr 8 (pp. 67-75). Brill.

[16] Haddad R. Research and methodology for interior designers. Procedia-Social and Behavioral Sciences. 2014 Mar 19;122:283-91.

[17] D'Arcy G. Critical Approaches to TV and Film Set Design. Routledge; 2018 Sep 25.

[18] Mahgoub Y, Alawad A. The impact of field trips on students' creative thinking and practices in arts education. Journal of American Science. 2014;10(1):46-50.

[19] Titan Books. The art of ghost in the shell. London, England: Titan Books; 2017.

[20] Barnwell J. Production design: architects of the screen. Wallflower Press; 2004.

[21] Titan Books. The art of ghost in the shell. London, England: Titan Books; 2017.

[22] DeMelo RL. The general principles of reality a. Robert DeMelo; 2007.

[23] Meet the animation genius behind Ghost in the Shell [Internet]. Lwlies.com. 2019 [cited 2021 Jun 10]. Available from: https://lwlies.com/articles/meet-the-animation-genius-behind-ghost-in-the-shell/

[24] Suderman P. The original Ghost in the Shell is iconic anime, and a rich philosophical text [Internet]. Vox. 2017 [cited 2021 Jun 10]. Available from: https://www.vox.com/2017/4/4/15138682/ghost-in-the-shell-anime-philosophy

[25] Titan Books. The art of ghost in the shell. London, England: Titan Books; 2017.

[26] Haddad R. Research and methodology for interior designers. Procedia-Social and Behavioral Sciences. 2014 Mar 19;122:283-91.