THE PETRONAS TWIN TOWERS AND THE KUALA LUMPUR CITY CENTRE FROM THE PERSPECTIVE OF CRITICAL REGIONALISM

ISMAEEL OTUOZE AUDU

A thesis submitted in fulfilment of the requirements for the award of the degree of Master of Architecture

Faculty of Built Environment Universiti Teknologi Malaysia To my beloved parents

ACKNOWLEDGEMENTS

I would like to extend my profound gratitude to my supervisor, Dr. Gurupiah Mursib, who worked effortlessly to see that I finished my work with good quality, for the knowledge she impacted on me and for her kindness. I am also thankful to Assoc. Prof. Mohammad Jaffar and Dr. Muktar Mai for the light they showed me in my thesis.

I am also thankful to my colleagues at the research lab for their support, advice and their assistance at various occasions. To Dodo Yakub, Juliet, Jibril, Idris, Lesa, my uncles Saidu and Abdulrahman, and my many other friends unfortunately it is impossible to mention all their names because of the limited space. Their views and tips were useful indeed. A very special thanks to my sisters, brother and my family members, I am indeed grateful.

ABSTRACT

Critical regionalism is a post modern theory conceived as an architecture of resistance to bring back humanistic agenda to architecture to create a contemporary regional identity, an aspect which modernism neglected. This thesis cites an already established strategy of critical regionalism which is a combination of the visions of the progenitors of the theory. This thesis groups these strategies into place-making and place-form making concepts, and distinguishes them through the meanings which they manifest through experience of place and physical form of place respectively. The purpose of this research was to use place-making and place-form making concepts to examine how the mega development of Petronas Twin Towers and Kuala Lumpur City Centre (KLCC) established meaning in the built-form using place making and place-form making concepts. Human agenda in architecture is manifested by shared meanings and experience of place that stimulate human response which are achievable through place making and place-form making methods. The thesis explored a descriptive and interpretative research methodology while simultaneously using critical regionalism as a theoretical lens to critically analyze the mega development of KLCC. The thesis strove to expand knowledge on critical regionalism through place making and place form making methods that stimulate human response and build a contemporary regional identity. Mega developments which are places for recreation, symbols of pride and community identity, like KLCC, should be developed with the intention and art of place making and place form making methods to stimulate human response. The thesis contribution to Malaysian context lies in the expansion of knowledge of critical regionalism because it is a concept that has not been established yet in Malaysia.

ABSTRAK

Kritikan regionalisma adalah teori pasca moden yang mengandungi senibina rintangan yang bertujuan mewujudkan semula agenda kemanusiaan di dalam seni bina untuk menghasilkan identiti regional yang kontemporari, iaitu aspek yang diabaikan di dalam modernisma. Tesis ini merujuk kepada satu strategi yang telah diiktiraf dalam regionalisme kritikal yang merupakan gabungan visi teori leluhur. Tesis ini menghimpunkan strategi ini kepada konsep 'pembuatan-tempat' (placemaking) dan 'bentuk-tempat' (place-form), perbezaan di antara mereka adalah melalui pandangan mereka terhadap pengalaman tempat dan bentuk fizikal tempat masing-masing. Tujuan kajian ini adalah, menggunakan konsep 'pembuatan-tempat' dan 'bentuk-tempat' untuk mengkaji bagaimana pembangunan mega menara berkembar Petronas dan pusat bandar Kuala Lumpur menghasilkan identiti regional kontemporari dengan merangsang tindak balas manusia. Agenda manusia di dalam senibina adalah dipaparkan oleh makna perkongsian dan pengalaman sesuatu tempat yang merangsang tindak balas manusia yang dicapai melalui kaedah 'pembuatantempat' dan 'bentuk-tempat'. Metodologi kajian ini adalah deskriptif dan bersifat penafsiran. Pada masa yang sama menggunakan kritikal regionalisma sebagai pandangan teori untuk menganalisa secara kritikal terhadap pembangunan besar KLCC. Kajian ini berusaha mengembangkan pengetahuan terhadap kritikal regionalisma melalui kaedah 'pembuatan-tempat' dan 'bentuk-tempat' merangsang tindak balas manusia dan membina identiti wilayah yang kontemporari. Pembangunan mega yang merupakan tempat berekreasi, simbol kemegahan dan identiti masyarakat, seperti KLCC, patut dibangunkan dengan kaedah seni 'pembuatan-tempat' dan 'bentuk-tempat' untuk merangsang tindak balas manusia. Sumbangan tesis kepada konteks Malaysia terletak dalam pengembangan pengetahuan regionalisme kritikal kerana ianya adalah satu konsep yang belum ditubuhkan lagi di Malaysia.

TABLE OF CONTENTS

CHAPTER		PAGE	
	DEC	LARATION	ii
	DED	ICATION	iii
	ACK	NOWLEDGEMENTS	iv
	ABS	ГКАСТ	v
	ABS	ГКАК	vi
	TAB	LE OF CONTENTS	vii
	LIST	OF TABLES	xii
	LIST	OF FIGURES	xiv
	ABB	REVATIONS	xix
1	INTE	1	
	1.1	Overview	1
	1.2	Issues: World Civilization and Mega Projects	3
	1.3	Research Problems	4
	1.4	Aims	5
	1.5	Objectives	5
	1.6	Research Questions	6
	1.7	Significance of the Study	6
	1.8	Research Methodology	7
	1.9	Descriptive Research and Research Design	8
	1.10	Research Design and Framework	9
	1.11	Limitations of the Study	12
	1.12	Chapter Organization	12

2	CRIT	TICAL 1	REGIONALISM AS THEORETICAL	16		
	FRA	FRAMEWORK				
	2.1	Introd	uction	16		
	2.2	Critiq	ues of Critical Regionalism	17		
	2.3	Critica	al Regionalism's Contemporary Regional			
		Identi	ty by Alexander Tzonis, Liane Lefaivre			
		and K	enneth Frampton	20		
	2.4	Critica	al Stance on 20 th Century Development and			
		Conte	mporary Regional Identity	22		
		2.4.1	Against Homogenization	22		
		2.4.2	Resistance from Unauthenticated Architectur	e 24		
			2.4.2.1Scenography	24		
		2.4.3	Paradox Clash of Values	26		
			2.4.3.1 Craft vs. Machine	26		
			2.4.3.2 Culture vs. Civilization	28		
		2.4.4	Devoid Humanity	28		
	2.5	Critica	al Regionalism Proposals to Return to Humani	ty		
		for Co	ontemporary Regional Identity	30		
		2.5.1	Ecological Sustainability	30		
		2.5.2	Optimization of Technology	31		
		2.5.3	World Culture	31		
3	STRA	ATEGII	ES TO RETURN TO HUMANITY FOR			
	5110		ΓEMPORARY REGIONAL IDENTITY	33		
	3.1		lating Human Response through Place			
			ng and Place Form Making	33		
	3.2		Form Making	35		
		3.2.1	Regional Place-Form	36		
		3.2.2		38		
			Defamiliarization	41		
			Visual vs. Tactile	43		
			Climatic and Environmental	45		

		3.2.6	Genius Loci	4/
	3.3	Place	Making	48
		3.3.1	Phenomenology	50
		3.3.2	Contextual	51
		3.3.3	Humanity and Community	53
			3.3.3.1 Sense of Place	55
			3.3.3.2 Pedestrian Pathways	56
			3.3.3.3 Community Design	56
		3.3.4	Cultural Sustainable Development	57
	3.4	Conclu	usion	59
4	HERI	TAGE	OF MALAYSIAN TRADITIONAL	
	BUIL	DING I	FORMS AND TRANSITION INTO	
	MOD	ERN A	RCHITECTURE	60
	4.1	Malay	Traditional Architecture	61
		4.1.2	Malay House	61
		4.1.3	Mosque	63
	4.2	Chines	se Traditional Architecture	66
		4.2.1	Courtyard House	66
		4.2.2	Chinese Temples	66
		4.2.3	Chinese Shop Houses	67
	4.3	British	Colonial Architecture	69
		4.3.1	Neo Classical Architecture	69
		4.3.2	Anglo Straits Style	70
	4.4	Malay	sian Transformation and the Issue of Corporate	
		Signat	ure High-Rise Buildings	71
		4.4.1	High-Rise Buildings and Office Buildings	73
		4.4.2	Industrial and Commercial	74
		4.4.3	Regionalism Thinking in High-Rise Buildings	74
	4.5	Summ	ary	75
5	PTT A	AND KI	LCC – FORM AND HISTORY	78
	5.1	Before	Conception	78
		5.1.2	Site Location	79

		5.1.3 Urban Design	80
	5.2	Projects	82
		5.2.1 Petronas Twin Towers	82
		5.2.2 Concept	83
		5.2.3 Plan Form	84
		5.2.4 Structural Form	85
		5.2.5 Global Map	86
		5.2.6 Local Map	87
		5.2.7 Award and Recognition	88
	5.3	Suria KLCC	88
	5.4	KLCC Park	89
	5.5	Mosque (Masjid Asy-Syakirin)	90
	5.6	Convention Centre	92
	5.7	Summary	95
6	ANAI	LYSIS OF PETRONAS TWIN TOWERS AND	
	KUAI	LA LUMPUR CITY CENTRE	96
	6.1	Introduction	96
	6.2	Regional Place Form in PTT & KLCC	97
	6.3	Architectonics – Attributes, Responses and Qualities	
		in PTT & KLCC	100
	6.4	Defamiliarization Qualities, Attributes, Characteristics	
		in PTT & KLCC	107
	6.5	Visual vs. Tactile Attributes, Responses and Qualities	
		in PTT and KLCC	109
	6.6	Climatic and Environmental Responses	
		in PTT &KLCC	110
	6.7	'Genius Loci' Qualities, Attributes and Characteristics	
		In PTT & KLCC	112
	6.8	'Place Making' Qualities, Attributes and	
		Characteristics in PTT & KLCC	116
	6.9	Phenomenology Qualities, Attributes and	
		Characteristics in PTT & KLCC	122
	6.10	Contextual Responses in PTT & KLCC	125

	6.11	Cultural Sustainability Attributes, Responses and	
		Characteristics in PTT & KLCC	127
	6.12	'Humanity and Community' Responses, Attributes	
		and Characteristics in PTT and KLCC	127
		6.12.1 Sense of Place	128
		6.12.2 Pedestrian Network	129
		6.12.3 Community Design	130
	6.13	Conclusion	132
7	FIND	DINGS AND DISCUSSIONS	134
	7.1	How PTT & KLCC Contributed in Creating	
		Contemporary Regional Identity	134
	7.2	Critical Regionalism within PTT & KLCC	136
		7.2.1 Petronas Twin Towers	136
		7.2.2 KLCC Park	137
		7.2.3 Mosque	137
		7.2.4 Convention Centre	139
	7.3	Conclusion	139
	7.4	Recommendations and Further Studies	140
	Bibli	ography	141

LIST OF TABLES

TABLE NO.	TITLE	PAGE
1.1	Descriptive Research done in PTT and KLCC	11
3.1	Critical Regionalism Strategies Grouped into the	
	Broader Framework of Place Making and Place	
	Form Making	34
4.1	Variations of Malay House	62
4.2	Building Elements from Malay, Chinese and Colonial	
	Traditional Architecture	76
5.1	Legend of Master Plan KLCC	81
6.1	Summary of Chapter 6	133

LIST OF FIGURES

FIGURE NO	. TITLE	PAGE	
1.1	Model Review of Descriptive and Theoretical Research		
	in the Context of the Overall Research Model of Socio-		
	physical Phenomena	7	
1.2	Research Design Framework	10	
1.3	Diagrams Showing Stages of Research and Chapter		
	Organisation	13-15	
2.1	Casa De Piedra (Stone House) at Tavole	18	
2.2	(a) Skyline Hong Kong	24	
	(b) Skyline Manhattan	24	
2.3	Malasian Pavillion at the Shangai World Expo	26	
3.1	(a) Vidhan State Assembly by Charles Correa	37	
3.2	(b) Penang shop houses in George Town	38	
3.3	Lloyds Building London by Richard Rogers	40	
3.4	Chee Tong Temple, Singapore	42	
3.5	Saynatsalo Town Hall by Alvar Aalto	45	
3.6	Plaza Atrium KL by Ken Yeang	46	
3.7	Finish Pavillion by Alvar Aalto	48	
3.8	Summer house, Muuratsalo, Finland 1953	51	
3.9	New Acropolis Museum Greece by Bernard Tschumi	53	
3.10	The Pathway to Acropolis by Dimitris Pikionis	54	
3.11	Jean-Marie Tjibaou Cultural Centre, New Caledonia		
	by Renzo Piano	58	
4.1	(a) Courtyard House Melaka	62	
	(b) Minangkabau Roof House Negeri Sembilan	62	
	(c) Kelantan House	63	

	(d) Limas Riau House Johor	63
	(e) Gajah Menyusu Pulau Pinang	63
	(f) Roof House Perak	63
4.2	(a) Masjid Kampung Laut in Kelantan	64
	(b) The Tengkera Mosque Melaka	64
	(c) Kapitan Kling Mosque Penang	65
4.3	Kwan Ying Temple Penang	67
4.4	(a) Early Shop houses in Penang	68
	(b) Early Eclectic Style	68
	(c) Art-Deco Style	68
	(d) Early Modern Style	68
4.5	Colonial bungalows by Coleman	70
4.6	Hybrid Bungalow Malaya	71
4.7	Chartered Bank 1964	72
4.8	Komtar Tower Penang	73
4.9	Sabah Foundation Building	74
4.10	Bank Bumiputera KL by Kumpulan Architects	75
5.1	Aerial View of Selangor Turf Club 1989	79
5.2	Master Plan of KLCC	81
5.3	Conceptualization of PTT Plan	83
5.4	(a) Concept and Structure of PTT	85
	(b) Level 76 Floor Plan of PTT	85
5.5	(a) Sectional View of PTT	86
	(b) Front Elevation of PTT	86
5.6	Skyscraper comparison with PTT	87
5.7	Suria KLCC	88
5.8	KLCC Park View from Sky Bridge	89
5.9	(a) Spatial Layout of Mosque	91
	(b) Front Elevation of Mosque	92
5.10	(a) Ground Floor of Convention Centre	94
	(b) Front view of Convention Centre	95
6.1	(a) Songket Detailing at Foyer of PTT	97
	(b) Traditional Songket Fabric Woven in Silk or Cotton	
	Yarns	98

	(c) Conception of Plan Form of PTT	98
	(d) Traditional Five Foot Walkway at Convention Centre	99
	(e) Verandah at Mosque (Masjid Asy Syakirin)	100
6.2	(a) PTT Stainless Steel Cladding	101
	(b) Tectonic Virtues of Spires	102
	(c) Sky Bridge of PTT	102
	(d) Structural Mode and Ribbon like Joints Formed from	
	Cladding with Stainless Steel Glass and Aluminium	
	Bull Nose and Tear Drop Sunshades of PTT	104
	(e) Tectonic Phenomenology	105
	(f) Mushroom Columns in Mosque	106
	(g) The Dome of Mosque	106
6.3	(a) KL Railway Station with PTT at the Background	107
	(b) Marble Floor Inspired by Popular Pandan Weaving	108
6.4	(a)(b)(c) The Different Ranges of Sun Reflection on the	
	Stainless Steel Cladding	108
	(d) PTT at Night	110
6.5	(a) The PTT Extensively Dresses with Tinted Glass	
	Curtain Walls and Protected with Sun Shading Devices	111
	(b) Inside the Mosque (Masjid Asy Syakirin KL)	111
	(c) Verandah Outside Mosque	111
	(d) Long Corridor at the Convention Centre	112
6.6	(a) Nearby Structures around the PTT are built towards	
	the towers	115
	(b)(c)(d) Different Views of PTT	114-115
	(e) Skyline of Golden Triangle	115
6.7	Aspects of the Process of Place Attachment that Fostered	
	Sense of Place in JP, JTAR and JMI	118
6.8	(a) Lake Symphony	121
	(b) Children's Swimming Pool	121
6.9	(a) PTT at Night	123
	(b) PTT in the Evening	123
	(c) A View of the PTT Main Entrance Facing the Forecou	ırt 123
	(d) Front View from the Sky Bridge	124

	(e) Rear View from the Sky Bridge	124
	(f) The Sky Bridge	125
6.10	KLCC Convention Centre	126
6.11	An Aerial View of the Park	128
6.12	(a) Arcades at West Side of PTT	129
	(b) 5-Foot Walk Way at Convention Centre	130
	(c) Pedestrian Pathway and Jogging Track at KLCC Park	130
6.17	Green Landscaping and Water Fountain of the KLCC Park	132

xvii

LIST OF ABBREVATIONS

JMI - Jalan Masjid India

JP - Jalan Petaling

JTAR - Jalan Tunku Abdulrahman KLCC - Kuala Lumpur City Center

PTT - Petronas Twin Towers

CHAPTER 1

INTRODUCTION

1.1 Overview

The surge of construction booms at an extreme pace and the infatuation with the machine age aesthetic provided by modern movement starting from the American mid west through central Europe to countries just coming through independence, resulted in the spread of architectural expression around the world that failed to respond to its context and setting. This in turn produced meaningless and placeless architecture marked by mediocre civilizations. Questions of representation and architectural language sprung up about the status of modern architecture and apologies were made. Critical regionalism represents a genre of architecture that provides solution to placelessness, homogeneity, world culture, dehumanization of architecture and environment; all of which encapsulated modernism. This new regionalism started in the late 1940's till present as an awareness of, to an effort to counter the issues mentioned above ¹.

The thesis reviews the emergence of critical regionalism as a strategy to counter the problems brought by modern and postmodern architecture. It shows the development of architect's works as regional development in a globalized world.

¹ Eggener, Keith (2002). Placing Resistance: A Critique of Critical Regionalism. *Journal of Architectural Education*. May 55/4. 228-237.

The thesis reviews a framework of the strategies of critical regionalism and uses this framework to analyse the development of Kuala Lumpur City Centre.

The thesis would reveal how a contemporary regional identity of a region was constructed through embracing the forces of globalization and mediating the values of a region. The thesis begins by suggesting that a new identity was born out of the consequence of building the Petronas Twin Towers (PTT) and place-making developed through the modes of production of Kuala Lumpur City Centre (KLCC). Foreign influences brings out diversity, prevents narrowness of ideas and nostalgia which is associated with sentiments and deep sense of emotions.

The thesis chose the PTT and the whole of KLCC development for analysis not as much as it is an icon, a symbol of Malaysian pride, a contemporary regional identity but also because it is a quintessential example of a cultural object in a social context; and its potential applicability to many megalopolitan situations around the world. With this it serves as a critique to architectural modernity's social injustice for creating images and buildings that represents and suits the lifestyle of the elites.

The need to analyze the KLCC project from the framework of critical regionalism stems from the fact that critical regionalism as a genre of architecture is located at the interstices of humanities, with the aim of rehumanizing architecture and the built environment, its critique of social injustices and the need to establish human community.

Nature forms extended totalities of places and together with the man-made structure constitute an identity. The experience of a place is revealed in a building, site and self². This research would therefore analyse the experience of PTT, the Masjid Asy-Syakirin (mosque), the Conventional Centre and the KLCC Park holistically, as buildings and site respectively for place-identities; and analyse them within the theoretical view of place-form and place-making concepts of critical regionalism. Through this approach the thesis would contribute to the understanding

_

² Norton, Derek M. (1994). Architecture and the Crisis of Place. *Graduate School of Architecture, Virginia Tech/Washington Alexandria Architecture Consortium.* Pg 6.

of PTT as a contemporary regional identity and its contribution towards placemaking of Kuala Lumpur City Centre through the framework of critical regionalism.

1.2 Issues: World Civilization and Mega Projects

It would seem that as we approach the second quarter of the 21st century the two primary issues facing modernity and humanity are environmental identity and experiential crisis. The two are related, one cannot be resolved without reducing the effects of the other. Everywhere we go we find the same bad movie, the same projected images, the same kind of design of places and spaces. Universalization of architectural expression through the standardized production of building component created meaningless architecture – an architecture without an identity and character; because of this a nation loses its genius loci (spirit of place), its self-consciousness of its own individuality (personality).

With the vast amount of iconic structures that pervades our city, what we see before our eyes are mediocre civilizations. Nowadays we are unable to differentiate which city or place we are situated in; Modern technology, through the internet and media, has prevented us from direct experience with places which is fundamental to understanding architecture at a deeper level.

Modern tourism through technology proved that the experience of different places is a major human interest but this idea becomes lost without its character as pollution, traffic congestion and noise has overcome this perception of thinking. We seem to constantly overlook a poor setting in a different way unlike when making decisions about an outfit or a car, maybe it is because the ramifications are not as subtle as a sense of place; yet the accumulation of bad place experience have been proven to be significant problem in places where universal civilization had dominated, humans begin to lose their ties with history. The character of a building is as important as its functionality.

Nowadays architects, designers and planners alike tend to put priority in design for cars around buildings than how pedestrians find their ways around buildings. Regions and cities are designed to favour highways for cars while industrialization has created skyscrapers which have resulted in social effects on people³. The paper can also find justification from the examples cited by the progenitors of this genre of architecture; where they cited many examples from Europe and parts of Asia but none from Malaysia.

1.3 Research Problem

The PTT and KLCC mega development was a product of Wawasan 2020 (Vision 2020); a programme launched in 1991 by the former Prime Minister Tun Dr. Mahathir Mohamad. It was a vision and target to transform Malaysia into a developed nation⁴. Therefore in order to put Malaysia on the map the Malaysian government saw the building industry as the engine of the economy⁵. Therefore, the PTT and KLCC would be constructed as part of this vision. Mega projects are perceived as massive buildings or infrastructure of a scale and cost implication as vast as hardly comprehensible to the common man. In 1991, the PTT and KLCC was the new mega project to be conceived as the image of the city and country. The PTT in particular was to be designed as a landmark and monument for national aspiration; from this perspective there is always a tendency to produce an internationalized image to satisfy the clientele's vision⁶.

From the review of existing literature on PTT and KLCC by Cesar Pelli & Micheal Crosbie (2001), Galal Abada (2004) et al., there was no comprehensive study on KLCC and available studies only laid emphasis on the construction process of PTT, the concept of its form, material aesthetics, the structure, cultural symbolism,

³ Jane, Jacobs (1989). The Death and Life of Great American Cities. *Toronto: Random House Inc*, pg 389.

⁶ Hin Tan. Ibid, pg 30.

_

⁴ Hin Tan (2000). Mega Projects: Urban Visions. In Ngiom and Lillian Tay, *80 years of Architecture in Malaysia*. Kuala Lumpur: PAM Publications, pg 30

⁵ Endut, E. H (1993). Traditional Malaysian Built Forms: A Study of the Origins, Main Building Types, Development of Building Forms, Design Principles and the Application of Traditional Concepts in Modern Buildings. *Dissertation Degree of Doctor of Philosophy*, Sheffield University.

services and design constraints during construction. Therefore there has been no comprehensive study on the PTT and KLCC in terms of its potential for humanism by addressing components that foster place making experiences (traditional or international). On the other hand critical regionalism is located at the interstices of humanism therefore it is suitable for analysing human projects like the PTT and KLCC. Gurupiah Mursib in her thesis 'Regionalism Thinking in the Discourse of Malaysia' (2007) outlined already established strategies by the progenitors of critical regionalism. This thesis groups these strategies into place making and place form making to analyse the mega development of KLCC and PTT and sees them as techniques that are able to heighten the awareness of buildings to stimulate human response and create a contemporary regional identity.

1.4 Aims

The main aim of this research is to use the strategies of critical regionalism outlined by Gurupiah Mursib, 2007 to critically analyse the mega development of Kuala Lumpur City Centre. Critical regionalism is a post modern theory driven by many ideologies that attempts to create a contemporary regional identity by focusing on contextual forces, aesthetic potentials of buildings structural and constructive modes and those consciousness-raising techniques that stimulate human responses. These issues make critical regionalism a diverse field which Gurupiah Mursib, 2007 articulates in her thesis. This thesis uses this strategy as a tool for studying the mega development of Kuala Lumpur City Centre and proposes this strategy for future developments.

1.5 Objectives

The objective of this thesis is:

i. To examine how the mega development of PTT and KLCC contributed in creating a contemporary regional identity.

- ii. To use the theory of critical regionalism to examine the existence of meaning and human response through:
 - Place making
 - Place-form Making

1.6 Research Questions

The following statements are questions the thesis intends to answer at the end of the study.

- i. What is the critical stance of critical regionalism in terms of mega development?
- ii. What and how does humanism affect place-making and place-form making?
- iii. Can the KLCC development demonstrate different approaches to the task of place-making and place-form making?
- iv. Can the strategies of critical regionalism serve as a solution to the development of critical regionalism?

1.7 Significance of the Study

The following explains the rationale and implications of undertaking this research

- The significance of reviewing the strategies of critical regionalism in this study would serve as a framework to study other architects works and mega developments.
- ii. Through this framework it attempts to counter the current tendency of modern architecture's idiosyncrasy of deriving its legitimacy from art, other than architecture and humanities.

- iii. This discourse shows the significance of the KLCC project as a potential paradigm for future mega developments.
- iv. Finally, the thesis hopes to serve as a cornerstone for understanding contemporary regional developments of other places and communities.

1.8 Research Methodology

In the adaptation of a research model of socio-physical environment by Amran Hamzah and Dann et al, by Gurupiah Mursib, 2007 in her thesis, she established four methods for research in a socio-physical phenomena, they are: empirical model, descriptive model, model theory and analytical model.

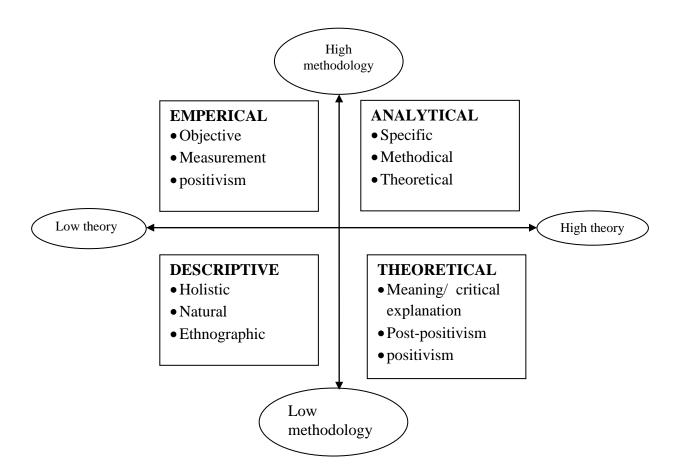


Figure 1.1: Model review of descriptive and theoretical research in the context of the overall research model of socio-physical phenomena. (Adopted from Amran Hamzah and Dann et. Al, 1997)

- (i) **Empirical model:** It is concerned about the methodology rather than theory in understanding of positivism, review of an already measured phenomenon, and the use of empirical facts that exist independently from the observer. This model is widely used in experimental research within a controlled laboratory.
- (ii) **Descriptive model:** It emphasizes naturalism approach between the observer and the subject, and this can be achieved in the form of descriptive naturalism which concedes to low theory. The model is mostly used in the ethnographic study of cultures in the natural environment such as villages.
- (iii) **Theory Model:** Combines the descriptive techniques with platform theory. This method is widely used in the ethno methodology study, the combination of ethnography with a platform based on a specific theory.
- (iv) Analytic Theory: It is the most scientific and excellent approach in terms of theory and methodology. This model is widely used in social science research to explain the phenomenon specialized in the analytical methods and supported by a foundation of knowledge based concept that is excellent.

1.9 Descriptive Research and Research Theory

This thesis combined the methods of descriptive research and research theory because it is suites the purpose of the study – placeness of PTT & KLCC and gives the research a step by step method for data collection. Descriptive research gives the opportunity to transform lived experience into written textual expressions – the essence of which is a reflexive reliving and reflective appropriation of something meaningful. The aim is to objectify personal lived experience in order to determine the meanings embodied in the study area. At the same time the relevance of combining it with a research theory is to work with a known framework to underpin thesis arguments.

Descriptive documentary is used at the literature review stage to review the theory of critical regionalism, to elaborate on the issues and strategies and to cite some architects works as regional development in a globalized world. The aim is to undercover meaning and increase knowledge; in order to do so, critical regionalism serves as an outlook tower for the descriptive research.

Descriptive research design usually involves observing, explaining and describing a phenomenon in a natural setting without influencing the behaviour in anyway. Descriptive research design is a unique way of establishing a hypothesis. Valerie Janesick (1994) in her book "The Dance of Qualitative Research Design" laments that whether you want to frame your work in terms of 'Validity', 'Reliability' and 'Credibility', what is important is the richness of information and the researcher remain passionate about uncovering meaning. She writes that it involves describing and explaining, and how a given description fits into a given explanation; substance is vital and 'knowing' becomes the desirable end.

1.10 Research Design and Framework

Research design and framework refers to the schemata for data acquisition, a hypothetical structure which shows a direction for the thesis. The figure 1.10 below further explicates this procedure. It consists of 4 main branches which include objectives, research methods, findings and data collection. The objective moves the thesis to the literature review; the literature review explains the evolution, conception and progenitors of critical regionalism. Through the literature the thesis would be able to establish a gap, make a hypothesis, narrate a framework and analyze the problem. The second wing consists of the research methodology which involves a combination of descriptive and research theory. The descriptive method involves a phenomenological approach which involves literal observation and describing. On the other hand the research theory serves as a lens for analysis which helps us to explain reason, support or reject and compare findings. The third wing is data collection which involves primary and secondary data collection. Primary data involves first hand information collected through field work while secondary data

involves data collected from literature to establish the intentions of the architects and stakeholders.

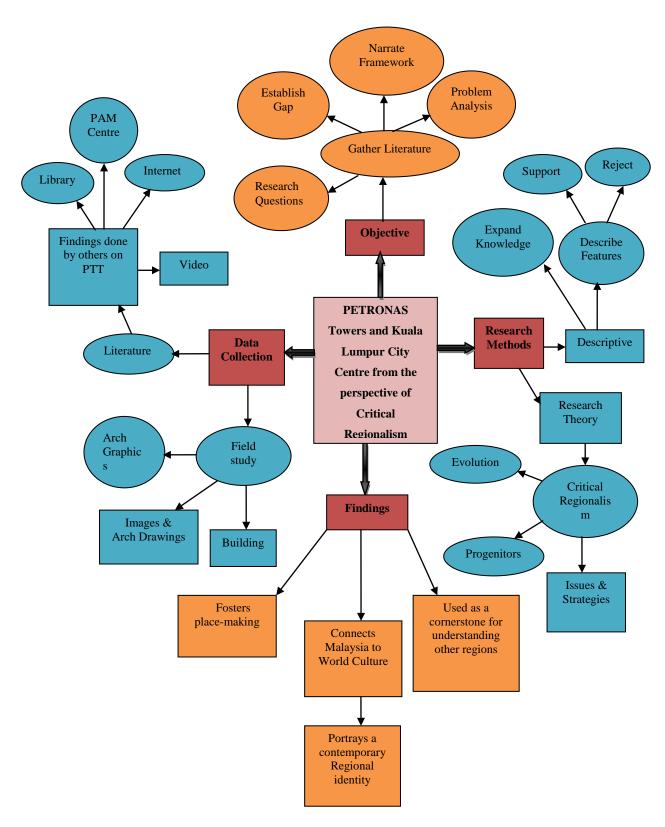


Figure 1.2: Research Design Framework (Adapted from Gurupiah Mursib). (Source: Authors).

Table 1.1 explains the field work done using descriptive research methodology in PTT and KLCC. The first column, the objective (what the thesis wants to know), begins with a question of inquiry that guides the field work - to enable the thesis choose the appropriate methodology shown in the third column. In the second column, the area of the study is chosen according to the rationale shown in the last column, to capture the meaning of the experience exhibited in the built environment. The fourth column is the time period needed to undertake the study.

Table 1.1: Descriptive research done in PTT and KLCC. (Source: Authors).

Objective	Area	Method	Time	Rationale
To examine the social ideology of organizing tours to sky bridge	Sky bridge	Observation, interpretation and taking of photographs	30 mins	To interpret personal lived - experience derived from walking inside the sky bridge
To interpret response to craftsmanship	Entrance lobby	Observation through photography and comparison with parent source	undetermined	To determine regional aspects in the design of PTT
To interpret the influence of sunlight on stainless steel cladding of PTT	Outside the towers	Observation through photography	•Sunrise •Midday •Sunset	To establish the different scenery created by the sunlight on the visual appearance of the towers
To examine the different routes people take to the PTT & KLCC	 Basement of PTT Highway of Jalan Ampang & Jalan Pinang 	Observing the channels through which visitors pass through while moving around KLCC site.	undetermined	To determine the accessibility of KLCC
To examine the visibility of PTT from different vantage positions around the city	 Jalan Tun Razak Ampang road North Klang expressway 	Driving and observation through photography	undetermined	To establish the effect of the topography of KL on the way people view the PTT

To observe the skyline of PTT and Golden Triangle	Golden Triangle	Using pictures taken by the architect – Cesar Pelli	undetermined	To identify the skyline identity
To examine the inspiration behind the architecture of Masjid Asy syakirin	Masjid Asy Syakirin	Comparison with Traditional Malay mosques and finding the parent source	undetermined	To establish the style of architecture
To examine the expression of civic design in PTT & KLCC	PTT & KLCC	Observation & interpretation of activities associated in the buildings	undetermined	To determine the social ideology the designs engenders
To examine regional and global design expressions in the designs of PTT & KLCC	PTT & KLCC	Observation & interpretation	undetermined	To determine the qualities of sense of place in the design

1.11 Limitations of the Study

This research is restricted to the setting of KLCC involving the PTT, the mosque (Masjid Asy-Syakirin), the convention centre and the park. It uses the strategies of critical regionalism cited by Gurupiah Mursib in her thesis as a framework for analysing the mega development of KLCC. The strategies would be further grouped into two headings: Place-Making and Place-Form making principles. Thus this thesis is therefore limited to the setting of PTT and KLCC and does not include the regional identity of Malaysian architecture.

1.12 Chapter Organization

The study is presented in 8 chapters. Chapter one discusses the issues, problems, objectives, methodology, significance and scope. Chapter two develops

the framework for understanding the concept of critical regionalism. It discusses the issues that raised regionalism thinking in the context of modern and post modern architecture. Chapter three reviews strategies developed by Gurupiah Mursib 2008 for critical regionalism. Chapter four introduces the three projects for analysis; it begins with the history behind the development of the KLCC project, and then gives an insight into the design of each project by looking at the plan and structural form. Chapter five discusses on the history of Malaysian traditional architecture and its transition into modern architecture. Chapter six uses the strategies mentioned in chapter for analyzing the KLCC projects. Chapter seven closes the study with results, discussion and conclusion.

CHAPTER 1 Thesis Introduction

- Overview
- Issues
- Research Problem
- Aims
- Objectives
- Research Questions
- Significance of the study
- Research Methodology
- Research Design and Framework
- Scope and Limitations
- Chapter organization

CHAPTER 2

Critical Regionalism as Theoretical Framework

- Proponents and their Concepts
- Critiques of the Theory

Critical Stance of 20th Century Developments

- Phenomenology
- Architecture Unauthenticated
- Paradox Clash of Values
- Devoid Humanity

Critical Regionalism Proposals to Return to Humanity for contemporary Regional Identity

- Ecological Sustainability
- Optimization of Technology
- World Culture



CHAPTER 3

Strategies to Return to Humanity for Contemporary Regional Identity

Stimulating Human Response through Place Making and Place Form Making Methods

Place-Form Making

- Regional Place-Form
- Architectonics
- Climatic and Environmental
- Defamiliarization
- Genius Loci

Place-Making

- Phenomenology
- Contextual
- Humanity and Community
- Cultural Sustainability

CHAPTER 4

Heritage of Malaysian Traditional

Architecture and Transition into Modern Architecture

Malay Traditional Architecture

- Malay House
- Mosque

Chinese Traditional Architecture

- Courtyard House
- Temples
- Shop House

British Colonial Architecture

- Neo Classical
- Anglo Straits

Malaysian Transformation and Issue of Corporate Signature High-Rise Buildings

- High-Rise Buildings
- Industrial/ Commercial
- Regional thinking in High-Rise buildings

Summary

CHAPTER 5 PTT & KLCC

Developments – History and Architecture

History

Before conception, Urban design, Site location

Projects

Petronas Twin Towers

KLCC Park

Masjid Asy Syakirin

Convention Centre

Design of Projects

Concept

Plan Form

Structural Form

CHAPTER 6

Critical Analysis of PTT & KLCC

Regional Place Form

- PTT
- Convention Centre
- Mosque

Architectonics

- PTT
- Mosque

Defamiliarization

• PTT

Visual vs. Tactile

• PTT

Climatic and Environmental

- PTT
- Convention Centre
- Mosque

Genius Loci

• PTT

Place Making

- PTT
- KLCC Park
- Mosque
- Convention Centre

Phenomenology

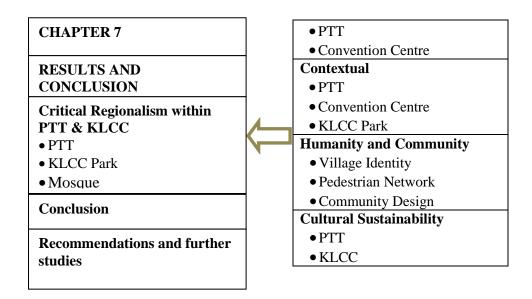


Figure 1.3: Diagrams showing stages of Research and chapter organisation (Source: Authors).

BIBLIOGRAPHY

- Aalto, Alvar (1935). Rationalism and Man, lecture at Swedish Craft Society, Stockholm, May 9, 1935; pp. 48-51.
- Ahmad Nizam (2000). New Directions. In Ngiom and Lillian Tay, 80 years of Architecture in Malaysia. Kuala Lumpur: PAM Publication.
- Albrecht, Johann (1984). Towards a Theory of Participation in Architecture An Examination of Humanistic Planning Theories. *Journal of Architectural Education*, pg 24-31.
- Alfonzo, Mariela A (2005). To Walk or Not to Walk? The Hierarchy of Walking Needs. *Environment and Behaviour* 37.6 (2005): 808-36. Print.
- Allen, Barbara, (2005). On Performative Regionalism, In V. Canizaro (Ed.2007) Architectural Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition, Princeton Press, NJ.
- Amran Hamzah (1997). The Sustainability of Small-Scale Tourism in Malaysia. Thesis degree for award of Doctor of Philosophy. School of Environmental Sciences, University of East Anglia, Norwich.
- Antaov, Anli (1998). Environmental aesthetics. *Journal of Planning Literature*. 13(2), 239-257.
- Anthony Too (2000). Shophouse Typology. In Ngiom and Lillian Tay, 80 years of Architecture in Malaysia. Kuala Lumpur: PAM Publication.
- Assi, E (2008). Sense of Place. Proceedings on the 16th International Council for Monuments and Sites, Quebec Canada.

- Baker, Philippa (ed.). Architecture and Polyphony: Building in the Islamic World Today. The Aga Khan Award for Architecture, the Ninth Award Cycle. London: Thames and Hudson; Geneva: The Aga Khan Award for Architecture, 2004.
- Bentley, Ian et al. 1985. Responsive Environments. London: Architectural Press.
- Beinart, J., Lewcock, R., Kasi, P. and Wardi, Pand (1986). The Golden Triangle Area Study. In Design for High-Intensity Development. Margaret Bentley Sevcenko (Ed). Cambridge, Massachusetts: The Aga khan Program for Islamic Architecture.
- Berkebile, Bob and Mc Lennan, Jason (2004). Biomimicry in Architecture: Integrating Technology with Nature.
- Borbein, Adolf Heinrich (1982). Tectonic: The History of a Concept of Archeology. Archive for the History of a Term, Vol. 26, no. 1.
- Calthorpe, Peter (1993). The Next American Metropolis: Ecology, Community, and the American Dream. New York: Princeton Architectural Press.
- Canizaro, Vincent B. (2007). Architecture Regionalism: Collective Writings on Place, identity, Modernity and Tradition.
- Cassidy, Timothy J. (2000). Critical Regionalism A reflexive Perspective from the Brandywine Valley.
- Cassidy, Tim (2007). Becoming Regional Over Time: Towards a Reflexive Regionalism. In V.B. Canizaro (Ed.2007) *Architectural Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition*, Princeton Press, NJ.
- Chiesura, Anna (2004). The Role of Urban Parks for the Sustainable City. *Landscape* and *Urban Planning* 68, 129-138.

- Colmenares, Pinky C. (2007). Experience Architecture: The Making of Century City. *Manila Bulletin: The Nation's Leading Newspaper*. Thursday, 22 November, 2007.
- Colquhoun, Alan (2007). The Concept of Regionalism, in Baydar Nalbantoglu and Wong Chong Thai, Postcolonial Spaces (Princeton Architectural Press, New York).
- Conzen, Micheal R. G. (1966). Historical Townscapes in Britain: A Problem in Applied Geography, in J. W. House (Ed.), *Northern Geographical Essays in Honour of G.H.J. Daysh*, Newcastle upon Tyne, Oriel Press, pp. 56-78.
- Cullen, Gordon (1968). The Concise Townscape. New York: Reinhold Book Corporation.
- Curtis, William. Regionalism in Architecture (1985). In Powell, Robert (ed). Regionalism in Architecture – Proceedings of the Second Regional Seminar in the series Exploring Architecture in Islamic Cultures convened by The Aga Khan Award for Architecture held between December 17 and 22, 1985, at Dhaka, Bangladesh. Singapore: Concept Media.
- Curtis, William (1986). Towards an Authentic Architecture. *Mimar 19: Architecture in Development*. Singapore: Concept Media.
- Crinson, Mark (2008). Singapore's Moment: Critical Regionalism, Its Colonial Roots and Profound Aftermath, The Journal of Architecture, 13:5, 585 605.
- Crosbie, Micheal (2005). Curtain Walls: Recent Developments by Cesar Pelli & Associates. *Birkhäuser Publishers for Architecture, Basel*.
- Cross, Jennifer (2001). Archives of the Twelfth Headwaters Conference, November 2-4, 2001: What is "Sense of Place"?
- David, Canter, (1977). The Psychology of Place. London, Architectural Press.

- David, Canter, (1996). The Facets of Place. In: Psychology in Action. Dartmouth Benchmark Series. Dartmouth Publishing Company, Hantshire, UK, pp. 107-138.
- Eggener, Keith L. (2002). Placing Resistance: A Critique of Critical Regionalism. *Journal of Architectural Education*, May 55/4, 228-287.
- Endut, E. H (1993). Traditional Malaysian Built Forms: A Study of the Origins, Main Building Types, Development of Building Forms, Design Principles and the Application of Traditional Concepts in Modern Buildings. *Dissertation Degree of Doctor of Philosophy*, Sheffield University.
- Flew, Anthony (1984). A Dictionary of Philosophy, rev. 2d ed. *New York: St. Martin's Press*, 157.
- Frampton, Kenneth (1982). The Resistance of Architecture: An Anthological Postscript. *Architectural Design Profile: Modern Architecture and the Critical Present.* 62 (7/8), 85-118.
- Frampton, Kenneth (1982). Avant Garde and Continuity. *Architectural Design Profile: Modern Architecture and the Critical Present*. 52 (7/8), 20-27.
- Frampton, Kenneth (1982). Place, Production and Architecture: Towards Critical Theory of Building. *Architectural Design Profile: Modern Architecture and the Critical Present.* 52(7/8), 28-45.
- Frampton, Kenneth (1983). Towards a Critical Regionalism: Six Points for Architecture of Resistance, (Port Townsend, Wash: Bay Press, 1983).
- Frampton, Kenneth (1983). Prospects for a Critical Regionalism, Perspecta: *The Yale Architectural Journal* 20.

- Frampton, Kenneth (1985). Critical Regionalism: Speculations on an Architecture of Resistance. Chris Johnson ed. *Architecture in Conflict*. United Kingdon: Mansell Publishing Limited and the Law Book Company Limited.
- Frampton, Kenneth (1986). Ten Points for Architecture of Regionalism: A Provisional Polemic. *CENTER: A Journal for Architecture in America*. NY Rizzolli Publication. Vol 3, 20-27.
- Frampton, Kenneth (1988). Place-Form and Cultural Identity, in John Thackara, ed., Design after Modernism: Beyond the Object (New York: Thames and Hudson) pp 51 56.
- Frampton, Kenneth (1992). Modern Architecture: A Critical History. Thames & Hudson, London.
- Frampton, Kenneth (1995). Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture. Cambridge: MIT Press.
- Frampton, Kenneth (1996). Rappel a L'orde, the Case for the Tectonics," *In Theorizing a New Agenda for Architecture, an Anthology of Architectural Theory 1965-1995*, edited by Kate Nesbitt, 516 28. New York: Princeton Architectural Press.
- Frampton, Kenneth (1998). Legacy of Alvar Aalto: Evolution and Influence. In Peter Reed (ed.), Alvar Aalto: Between Humanism and Materialism pages, *New York: Museum of Modern Art, pp* 119-139.
- Galal Abada (2004). On Site Review Report. Aga Khan Trust for Culture.
- Gianni, Vattimo (1988). The End of Modernity. Cambridge, England: Polity Press.
- Gottdiener, Mark (1997). The Theming of America: Dreams, Visions, and Commercial Spaces. Boulder, CO: Westview Press. Pg 1-6.

- Greenbie, Barrie (1981). Spaces: Dimensions of Human Landscape. New Haven: Yale University Press.
- Gurdip Singh (1998). Sculpting the Sky: Petronas Twin Towers. KLCC. Al Hilal Publishing, *Pte Ltd*.
- Gurupiah Binti Mursib (2007). Regionalism Thinking in the Discourse of Malaysian Architecture.
- Haddad, Elie G. (2007). Critical Regionalism and Its Discontents. *In Regional Architecture and Identity in the Age of Globalization*, Lebanese American University, Lebanon.
- Hall, K. B. and Porterfield, G. A. (2001). Community by Design. New York: McGraw-Hill.
- Hamilton, William Harris (1954). Regionalism and Nationalism in Architecture. InV. Canizaro (Ed.2007) Architectural Regionalism: Collected Writtings on Place,Identity, Modernity, and Tradition, Princeton Press, NJ.
- Harries, Karsten (1988). The Voices of Space; In the Ethical Function of Architecture. A Journal for Architecture in America.
- Hin Tan (2000). Mega Projects: Urban Visions. In Ngiom and Lillian Tay, 80 years of Architecture in Malaysia. Kuala Lumpur: PAM Publications.
- Hiss, Tony (1990). The Experience of Place. New York: Alfred A. Knopf.
- Hummon, David (1992). Community attachment: Local Sentiment and Sense of Place, in Place Attachment, pp. 253-278, Eds. Altman, I., and Low, S.M., Plenum Press, New York.
- Hyon-Sob Kim (2009). Alvar Aalto and Humanizing of Architecture. *Journal of Asian Architecture and Building Engineering*.

- Ivy, Robert (2001). Architecture, Authenticity and Regionalism. Nov 2001, Vol. 189, Issue 11, p 21, Architectural Record.
- Jane, Jacobs (1989). The Death and Life of Great American Cities. *Toronto: Random House Inc.*
- Janesick, Valerie (1994). The Dance of Qualitative Research Design: Metaphor, Methodolatry, and Meaning," in Norman K. Denzin, and Yvonna S. Lincoln, eds., *Handbook of Qualitative Research* (London: Sage Publications, pp. 209-219).

Jameson, Frederic (1972). The Prison House of Language. Princeton Architectural Press.

- Jameson, Frederic (1994). The Seeds of Time. New York, Columbia University Press, p. 201.
- Jencks, Charles (1991). *The Language of Post Modern Architecture*. London: Academy Editions.
- Kelbaugh, Douglas (1991). Toward an Architecture of Place: Design Principles for Critical Regionalism, Critical Regionalism: The Pomona Meeting Proceedins (Pomona, CA: College of Environmental Design, Carlifornia Polytechnic University, 1991) p.180-181.
- Kelbaugh, Douglas (1997). Five Points of Critical Regionalism, On the Ground, Seattle, Washington Press, Vol. 2, No.2.
- Kelbaugh, Douglas (2002). Typology: An Architecture of Limits, in Kelbaugh, D. (2002), *Repairing the American Metropolis: Common Place Revisited*. University of Washington Press, Seattle, 94 132.

- Kelbaugh, Douglas (2002). Common Place: Toward Neighbourhood and Regional Design. Seatle WA: University of Washington Press.
- Ken Yeang (1987). Tropical Urban Regionalism: Building in a South-East Asian City. Singapore: Concept Media Pte Ltd.
- Ken Yeang (1992). The Architecture of Malaysia: The Pepin Press.
- Kennedy, I (1992). Endemic Tourism: A Profitable Industry in a Sustainable Environment. Towards a Vision for Australia and the Region. Sydney: Pacific Asia Travel Association.
- Kopec, Dan (2006). Environmental Psychology for Design. New York: Fairchild Books.
- Lefaivre L. & Tzonis, A., (1991). Lewis Mumford's Regionalism. *Design Book Review*. Issue 19, winter. Available at:

 http://www.bk.tudelft.nl/dks/publications/o.../1991-dbr-lewis%20mumfords%20regionalism.ht
- Lefaivre, L. & Tzonis, A. (2003). *Critical Regionalism: Architecture and Identity in a Globalized World*. Munich, Berlin, London, New York: Prestel Publishing Ltd.
- Lesnikowski, Wojciech G. (1982). Rationalism and Romanticism in Architecture. *McGraw-Hill, Inc.*
- Lillian Tay (2000). The New Malaysian Lifestyle. In 80 years of Architecture in Malaysia by Ngiom and Lillian Tay. Kuala Lumpur: PAM Publication.
- Lopez, Rachel (2009). Sense of Place and Design. Focus: Journal of the City and Regional Planning Department. Vol. 7: Iss. 1, Article 16.
- Lowenthal, David (1976). Environmental Perception: Preserving the Past, *Progress in Human Geography*, 3 (4), pp. 549-559.

- Lund, Hollie (2002). Pedestrian Environments and Sense of Community. Journal of Planning Education and Research (21), 301-312.
- Lynch, Kevin (1960). The Image of the City. Cambridge MA: MIT Press.
- Lynch, Kevin (1981). A Theory of Good City Form. Cambridge MA: MIT Press.
- McGraw-Hill, Inc. (1995). Architecture of Tall Buildings: Council on Tall Buildings and Urban Habitat, Committee 30 (Architecture): Contributors, Mir M. Ali... [et al.]: editorial group, Mir M. Ali, chairman, Paul J. Armstrong, editor.
- Mehrhoff, Arthur W. (1990). The Phenomenon of Place. Available at: http://maa.missouri.edu/people/mehrhoff/pdfs-docs/PhenomenologyofPlace.pdf
- Mohd. Tajuddin Mohd. Rasdi (2003). Crisis in Islamic Architecture. *The Kalam Papers*, Universiti Teknologi Malaysia.
- Mohd. Tajuddin Mohd. Rasdi (2000). Search for National Identity, *In Ngiom and Lillian Tay*, 80 years of architecture in Malaysia. Kuala Lumpur: PAM Publication.
- Moore, Steven A. (2001). Technology and Place: Sustainable Architecture and the Blue Print Farm. University of Texas Press.
- Moore, Steven A. (2005). Technology, Place and Non Modern Regionalism, In V. Canizaro (Ed.2007) *Architectural Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition*, Princeton Press, NJ.
- Mumford, Lewis (1967). The South in Architecture. New York: De Capo Press.
- Nalbantoglu, G.B & Wong, C. T. (1997). *Postcolonial Space(s)*. New York: Princeton Architectural Press.

- Norberg-Shulz, Christian (1980). Genius Loci: Towards a Phenomenology of Architecture, *New York Rizzoli*.
- Norton, Derek M. (1994). Architecture and the Crisis of Place. *Graduate School of Architecture*, *Virginia Tech/Washington Alexandria Architecture Consortium*.
- Ozkan, Suha (1985). Regionalism within Modernism. In Powell, Robert (ed). Regionalism in Architecture – Proceedings of the Second Regional Seminar in the series Exploring Architecture in Islamic Cultures convened by The Aga Khan Award for Architecture held between December 17 and 22, 1985, at Dhaka, Bangladesh. Singapore: Concept Media.
- Pallasmaa, Juhani (2009). Space, Place, Memory and Imagination: The Temporal Dimension of Existential Space. In Spatial Recall: Memory in Architecture and Landscape, edited by Mark Treib. *Routledge, Taylor & Francis Group. New York and London*.
- Pallasmaa, Juhani (2005). The Eyes of the Skin: Architecture and the Senses. Wiley-Academy.
- Pallasmaa, Juhani (1988). Tradition and Modernity: The Feasibility of Regional Architecture in Post-Modern Society. In V. Canizaro (Ed.2007) *Architectural Regionalism: Collected Writtings on Place, Identity, Modernity, and Tradition*, Princeton Press, NJ.
- Peckham, A., Rattray, C. & Schmiedeknecht, R., (2002). Rationalist Traces. *London-Wiley*.
- Pelli, Cesar and Crosbie, Micheal J. (2001). Building Petronas Towers, Page B1.1. Wiley-Academy.
- Peter, K., Scully, V. J., and Bressi, T. B (1994). *The New Urbanism: Toward an Architecture of Community*. New York: McGraw-Hill.

- Portugali, Nili (2006). The Act of Creation and the Spirit of a Place: A Holistic-Phenomenological Approach to Architecture. *Axel Menges, Stuttgart/London*.
- Pierce, David C. and Wiles, Richard C. (1999). A Place for Regionalism. The Hudson Valley Regional Review, A Journal for Regional Studies.
- Peterson, Douglas and Connery, Kevin (1997). Reconfiguring the edge city: the use of ecological design parameters in defining the form of community.
- Richins, Harold (2008). Environmental, Cultural, Economic and Socio-Community Sustainability: A Framework for Sustainable Tourism in Resort Destinations. Springer Science+Business Media B.V.
- Community Design Guidelines. Rep. Portland: Portland Bureau of Planning, 1998.

 Print.
- Jadhav Rajratna Uttamrao (2007). Eastern Regionalism and Indian Identity: A Case Study of Charles Correa's Inter-University Center for Astronomy and Astrophysics and Raj Rewal's Central Institute of Educational Technology.
- Ralph, Edwards (1976). Place and Placelessness. In David Seamon & Jacob Sowers, Human Geography, P. Hubbard, R. Kitchen, & G. Vallentine, eds., London: Sage, 2008, pp. 43-51.
- Rapoport, Amos (1977). Human Aspects of Urban Form. New York: Pergamon Press.
- Rapoport, Amos (1990). History and Precedent in Environmental Design. New York: Plenum Press.
- Reed, Peter (1998). Alvar Aalto and the New Humanism of the Post War Era. In Peter Reed (ed), pp 94-117.

- Ricoeur, Paul (1954). Universal Civilization and National Cultures, in History and Truth, trans. Chas. A. Kelbey, Evanston, p281.
- Romi Khosla (1985). Crashing Through Western Modernism into Asian Reality. In Powell, Robert (ed). *Regionalism in Architecture Proceedings of the Second Regional Seminar in the series Exploring Architecture in Islamic Cultures* convened by The Aga Khan Award for Architecture held between December 17 and 22, 1985, at Dhaka, Bangladesh. Singapore: Concept Media.

Rossi, Aldo (1982). The Architecture of the City. Cambridge, MA: MIT Press.

- Rudolph, Charles F (2007). Critical Regionalism to Post-Critical Realism: Notes on a Transition" in Regional Architecture and Identity in the Age of Globalization, *Georgia Institute of Technology*.
- Shyqeriu, Banush (2010). Ornament and (as) Structure New Biological Paradigm". http://mosquesynergicspaces.blogspot.com/2010/11/ornament-and-structure-new-biological.html
- Shuhana Shamsuddin and Norsidah Ujang (2008). Making Places: The Role of Attachment in Creating the Sense of Place for Traditional Streets in Malaysia. Habitat International 32.
- Steele, Fritz (1981). Sense of Place. Boston, Massachusetts: *CBI Publishing Company*.

Tschumi Bernard (2005). Event – Cities 3: Concept vs. Context vs. Content. MIT Press.

Thomas, Derek (2002). Architecture and the urban environment: A vision for a new age. Architectural Press: Linacre House, Jordan Hill, Oxford.

- Till, Jeremy and Wigglesworth, Sarah (2003). Strong Margins (2003) in V.B. Canizaro (Ed.2007) *Architectural Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition*, Princeton Press, NJ.
- Treib, Marc (1998). Aalto's Nature. In Peter Reed (ed) pp 46-69.
- Tuan, Yi-Fu (1975). Place: An Experiential Perspective. The Geographical Review 65, 2, pp. 151-165.
- Tuan, Yi-Fu (1974). Topophilia: A Study of Environmental Perception, Attitudes, and Values. Englewood Cliffs, NJ: Prentice-Hall.
- Tzonis, Alexander & Lefaivre, Liane (1981). The Grid and the Pathway: An Introduction to the Work of Dimitris and Susana Antonakakis With Prolegomena to a History of the Culture of Modern Greek Architecture, *Architecture in Greece 15*.
- Tzonis, Alexander and Lefaivre, Liane (1990). Why Critical Regionalism Today. In Kate Nesbitt (ed.) *Theorizing A New Agenda for Architecture: An Anthology of Architectural Theory* 1965-1995. New York: Princeton Architectural Press.
- Urbanity.es, "Design and Construction of the Petronas Towers," (2007).
- Van Manen, Max (1990). Researching Lived Experience: Human Science for an Action Sensitice Pedagogy. Albany, NY: State University of New York Press.
- Venturi, Robert (1977). Complexity and Contradiction in Architecture. *New York Museum of Modern Art, 2nd edition.*
- Venturi R., Brown D. S. & Izenour S., (1977). Learning from Las Vegas: The Forgotten Symbolism of Architectural Form. Cambridge.
- Von Miess, Pierre (1990). Element of Architecture: From Form to Place. *New York: Von Nostrand Reinhold.*

154

Weston, Richard (2004). Key Buildings of the Twentieth Century: Plans, Sections,

and Elevations.

Weston, Richard (1995). Alvar Aalto. Phaidon Press Limited.

Wheeler, Stephen M. (2002). The new regionalism: Key Characteristics of an

emerging movement.

Zabetas, Konstantinos (2004). Poetic Architecture: A spiritualized way for making

Architecture, in International Network for Traditional Building, Architecture

and Urbanism, Volume1, number 16.

Zacharias, John (2001). Pedestrian Behaviour and Perception in Urban Walking

Environments. Journal of Planning Literature 16.1 (2001): 3-18. Print.

www.spss.com.my.

www.petronastwintowers.com.my

www.klccconventioncentre.com.

Video.google (video.google.com) – Petronas