SKYSCRAPERS AND PLACEMAKING:
SUPPORTING LOCAL CULTURE AND IDENTITY

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Abstract
Because of their massive bulk and soaring height, skyscrapers immensely impact placemaking. Today, skyscrapers are not exclusive to the U.S.; they have prevailed in many other countries across the world. This paper examines the role of skyscrapers in supporting placemaking in non-Western countries; mainly in China, India, and the Middle East, which have lately witnessed a surge in skyscraper construction. Through case studies, the paper describes and evaluates skyscraper projects that have attempted to embrace traditional forms. In addition to considering aesthetics and morphological issues, the paper stresses that skyscrapers’ design should respect cultural values and practices in relation to functional issues and space utilities. It is hoped that the paper will augment design discourses on the role of skyscrapers in supporting local culture and identity.

Keywords
Skyscrapers, form-giving, culture, symbolism, context.

Introduction
Following the collapse of the World Trade Center (WTC) towers in September 2001, skeptics took a pessimistic view by calling skyscrapers death traps and hastily predicted their demise as a building typology. Surprisingly, the past decade proved that these views are invalid because we have witnessed an unprecedented construction boom of tall and super tall buildings worldwide. The Council of Tall Buildings and Urban Habitat (CTBUH) corroborate this, which went further in observing that the past decade has witnessed the completion of more skyscrapers than any previous period in history. This resurgence of tall buildings is notwithstanding the recent global economic recession. An aggressive race to earn the world’s tallest building title continues, while at the same time, cities are constructing higher buildings in greater numbers (Wood, 2011).

Aesthetic of buildings is neither the only nor the ultimate objective of architectural design. However, in the case of skyscrapers, the topic becomes more significant because their visual impact is more profound and extends in time and space. These buildings are designed to last for a long time and their sheer size and “tallness” exert significant impact on the visual appearance of the built environment at all geographic scales, from the neighborhood to district, community, city, and region. For example, Burj Khalifa sets the perceptual
characteristics of the City of Dubai to a viewer from a distance even from the outskirts of the city. Because of their significant visual impact, this paper argues that skyscrapers do impact placemaking, and therefore, studies that examine their design are needed for creating a better and sustainable urban fabric.

**Placemaking and Skyscrapers**

In many cases, skyscrapers have poorly contributed to placemaking (Al-Kodmany 2001; Jencks, 1988; Huh, 2005). In discussing the problem of ‘placelessness,’ Alan Jacobs and Donald Appleyard explained that it is often that skyscrapers evoke the image of a nerve-wracking, workaholic business environment, and in the residential context, conjure the perception that living in apartments resembling rat cages detaches people from one another. Insensitive design of tall buildings makes city spaces feel unpleasant, meaningless, and soulless (Relph, 2007; King, 1996; Kurtz, 1973; Oldenburg, 2007).

Architects and urban designers care about improving the qualitative human experience of a city’s environment by turning spaces into places for all kinds of purposes including living, working, playing, etc. Whereas the term ‘space’ represents the physical container of activities and objects, ‘place’ is a particular portion of space that meets physiological and psychological needs of people while evoking meaningful and memorable messages of a specific culture (Norberg-Schulz, 2007). Urban designers and architects care about turning spaces into places because cities constitute one of the most significant, direct, and constant human experiences of our world (Nasar, 1998).

Unlike the high visual arts -- painting, dance, music, and sculpture – that may appeal to a narrow audience, cities must appeal to the masses since people in urban communities have no choice but to experience the city daily. Such an experience profoundly impacts us: indeed, some parts of our urban experience make us feel delighted and proud of local culture and identity. However, other parts can frustrate or even depress us (Fleming, 2007). The role of tall buildings in improving placemaking is significant and it deserves rigorous examinations.

**Culture-based Design**

This research focuses on the placemaking problem created by skyscrapers from a cultural perspective. It specifically explores ways to improve placemaking by incorporating cultural cues in the design of skyscrapers. This is an important topic due to the geographic shift of tall and super tall buildings from the Western to non-Western countries. In 1990, 80% of the 100 tallest buildings in the world were built in North America; by 2010, however, about 80% of the tallest are built elsewhere (Oldfield and Wood, 2010). Overall, a universal design template of tall buildings has swept the world that promoted the emergence of a monoculture of North American design rooted in Chicago and New York (Domosh, 1996; Dor, 2004; Ford, 1994; Frampton, 1992). It is characterized by a plain steel-and-glass box, and has been transplanted into non-Western countries with little or no modifications. The model has often-submerged local cultures through universal applications of technology, business formulas, and design standards (Kong, 2006).

Culture could be viewed from multiple
perspectives. It encompasses the land and its topography, housing patterns, local language, climate, food habits, religious beliefs, art and music, to name a few. It can be viewed as the sum total of characteristic features of everyday existence, as synergetic diversions of economic, political and social life, or a way of life collectively shared by people in a place and time (Rapoport, 1977 and 1983; Harvey, 1989). People often want to sustain their customary values and traditions to demonstrate their pride in their own collective being. Tradition, by definition, is cultural continuity of customs, social attitudes, etc. handed down from one generation to another. Thus, civilizations in different regions of the world vary because people want to continue their own traditions that they inherited from their ancestors (Harvey, 1989; Held, 2007; Kroeber, 2006). Urban designers and architects take into account cultural issues so that the resulting built environment ensures cultural continuity through the conveyed visual messages and the functional design of spaces.

Experienced foreign architects of repute are often invited by developers and owners in less developed countries to provide the design of skyscrapers of special significance, such as national landmarks. This matter is of particular importance in cities that are witnessing rapid growth. The lack of experience of local professionals compels the owners and developers to take the attitude that name brand architectural firms from outside their own countries are more qualified to do the job. They don’t want to take risk with their investment on costly projects such as skyscrapers. In many cases, these firms may not be attuned to the local culture, whereas local residents may cherish their own cultures and desire to ensure its continuity via the built environment. Therefore, research on placemaking by skyscrapers accounting for local culture and traditions becomes a necessity (Krishnan and Ali, 2004; Rossi, 1982).

Knowledge Gap

Discussion of architectural forms and their visual reference to vernacular architecture is abundant in the post-modern architecture literature (Ali and Aksamija, 2008; Koolhaas, et al., 1995; Koolhaas, 1979; Morris, 1992). For almost two decades, a growing volume of research has artfully discussed the problem of ‘imported’ Western design and their fit or unfit in non-Western cities (e.g. Asfour, 2007; Mahgoub, 2007; Rahma, 2010; Salama, 2007). The discussions of incorporating vernacular design elements to preserve cultural identity reflect rigorous analysis of the conflict between local versus global or vernacular versus international style architecture. However, these discussions indirectly examine skyscrapers (Choi, 2011). We rarely find dedicated research that focuses on skyscraper design and its contribution to local contexts. In some cases, scholars surrendered to the fact that non-Western cities lack any skyscraper precedence or “vernacular skyscraper” examples; and therefore, they accepted the notion of “importing” skyscrapers from abroad (Riley and Nordenson, 2003; Scholte, 2000).

This paper attempts to fill this knowledge gap by examining some recently built skyscrapers that largely depart from the typical glass-and-steel model. The design of these skyscrapers is significant because they attempted, with various degrees of success, to relate to a
specific culture and context. Cultural studies encompass a wide-spectrum of issues including lifestyle, habits, conduct, visual representations, and symbols (Rapoport, 1983). This paper offers a discourse on issues related to forms, aesthetics, and placemaking, and it examines them in the context of major skyscraper projects in different parts of the non-Western world.

Any meaningful discussion of aesthetics and forms, two attributes or qualities of tall buildings, often risks formulating subjective judgments. Both these qualities lack precise definitions and can be judged but not measured. The aesthetic appeal of a building can be elusive to a designer but critical toward the outcome of the design. What delights one person may be just interesting to someone else, or may not delight another person at all. Thus, beauty is subjective and emotive. “A thing of beauty is a joy forever” are words of wisdom with universal appeal, yet the expression “beauty is in the eye of the beholder” appearing in the 3rd century BCE in Greece, clearly brings to attention this ongoing dilemma. Although there have been attempts to formulate the so-called rules of aesthetics, there is no universally accepted theory of aesthetics. As Torroja (1958) stated “...the designer must rely more on his instinct and artistic background than on hard and fast rules, for it is more difficult to formulate rules in the field of art than in technology, especially if these rules are not merely nebulous philosophical considerations on art, lacking direct contact with the specific problem.” It is this kind of instinctive approach based on best judgment that was taken in critiquing the following case study buildings. Every tall building design should be considered unique and even when some basic rules of design are applied, an imaginative adjustment will invariably result in improvement. Any generalization of aesthetic rules should therefore be treated with great care and caution because it will inhibit the designer’s free spirit for exercising creativity and power of imagination with niggling regimentation. The paper therefore attempts to address this problem arising from the subtle dichotomy of subjectivity versus objectivity by sharpening the focus of the discussion on the prime objective of the research and by examining actual projects of built skyscrapers using factual information. The focus is on studying a new trend that strives to apply culturally dominated form-giving to skyscraper design. While we tend to give credit to designers for making their well-intentioned attempts, the examinations go further by critically assessing the outcomes. Do the resulting forms truly relate to local cultures and traditions? Were the claims by the architects successfully translated into the actual forms, or do the design claims constitute empty philosophical rhetoric? These are some of the questions addressed in the interpretation of the design outcome of the case study examples that follow.

Case Studies
The following case studies come from Asia and the Middle East, which have been lately most active in constructing tall buildings. In addition to incorporating cultural esthetics into the design of these skyscrapers, they also enjoy significant heights, floor areas, and intriguing forms.

East and Southeast Asia
With an exploding population migrating from rural areas and small towns to large cities,
particularly in Asia, problems of residential and commercial/mercantile accommodation continue to magnify. The future of these cities lies in the inevitable construction of high-rises, unless an alternate solution is found for creating architectural spaces, and efficient infrastructures. As many Asian cities are experiencing a population explosion and economic expansion, the unprecedentedly rapid rise of the urban scale in the early 21st century is leading to the creation of megacities with populations exceeding 20 million. A dilemma that faces urban designers and planners of all newly emerging Asian high-rise cities is to come up with a new model of development; that is, how to move away from established Western models and establish new Eastern models of urban growth, or combine Western models with past historical and evolving Eastern models. Regardless to success or failure of their design, today tall buildings can be seen in many Asian cities including Tokyo, Kuala Lumpur, Jakarta, Singapore, Seoul, Hong Kong, Shanghai, Beijing, Nanjing, Shenzhen, Guangzhou, and Taipei, to name a few. China is leading the wave of new skyscraper construction at the time of this writing.

**The Petronas Towers**
The 452m (1,482 ft) high, Petronas Twin Towers in Kuala Lumpur, Malaysia, were the tallest in the world from 1996 to 2004. In terms of architectural
design, the Malaysian government required Cesar Pelli, the architect of the project, to infuse certain cultural elements of the region into the towers’ design. Consequently, the architecture of the towers emphasized the Islamic and oriental use of symmetric geometry both in their outer view and within the interior, where the plan consists of interlocking semi-circle and square geometrical elements creating a 16-sided form. The resulting geometry of floor plans is intriguing and by extruding it, each tower resembles a tall minaret from a distance. The towers evoke the imagery of ancient architecture, such as the Islamic Qutub Minar (Minaret) in Delhi, India (see Figure 1). The lighting system of the tower is also well-designed; it reinforces the minaret’s imagery at night (see Figure 2). (Dupre, 2008; Pelli, 2003; Terranova, 2003).

Figure 2: Petronas Twin Towers at night, they evoke the image of Islamic minarets (source: skyscrapercity.com).


**Jin Mao Tower**
Designed by Skidmore, Owings & Merrill (SOM), Jin Mao’s architecture was inspired by the ancient pagoda so that the building gives a culturally-rooted identity to the skyline of Shanghai, China. It is a trend-setting tower located in the Pudong area of Shanghai that propelled other developments and construction of skyscrapers there making Shanghai a skyscraper city. Rising to 421m (1,380 ft), the building’s setbacks throughout the façade create the biomorphic form of stepped pagodas reverting to the traditional local imagery (Lepik, 2008, p. 126-127), (see Figure 3). The tower recounts the many ancient pagodas that still dot the mountainsides. The 88-story
tower follows the Chinese good luck charm of the number eight by having eight vertical segments with decreasing height of each higher segment by one-eighth of the height of the adjacent segment below. The base of the tower is another important component of Jin Mao. It is six stories tall holding yet more uses: hotel function areas, a conference and exhibition center, a cinema auditorium, and a 20,749 m² (226,000 sq ft) retail galleria. The top of the tower consists of a crown-like steel pinnacle, reminiscent of the Art Deco style. Jin Mao has earned a special recognition in the history of tall buildings. It is recognized as one of the two best architecture design projects in mainland China—the other is Xianshan Hotel in Beijing by I.M. Pei (Slater, 2009).

**Urban Forest Tower**

According to MAD Architects, the design of the Urban Forest Tower in Chongqing, China, aims to evoke the unique nature found in the oriental ancient world, which is lost in today’s Chinese cities. The tower attempts to bring nature back to the modern city by providing an oriental garden at each floor of the 385 m (1,263 ft) high tower (see Figure 4). Truly, the curved floors of the irregular shape lined with...
lush greeneries evoke the Chinese mountainous landscape and brings wilderness to the city. This project takes place in an economically growing city that follows Western architecture and urbanization models—similar to what is happening in other fast growing cities in China. Urban Forest Tower is meant to counter the prevailing trend by making the design revive local culture and nature. The excessive local nature of the Urban Forest counterbalances the dominant “concrete jungle” in a city that once enjoyed splendid scenic qualities.

Taipei 101
Taipei 101, also known as Taipei Financial Center, was built in 2004, and was the tallest building of the world until 2010. Rising to 509m (1,670 ft), similar to the Jin Mao Tower, the tower’s form was inspired by the traditional pagoda. Designed by architect C. Y. Lee, the tower steps back eight times because again the number eight is considered to bring good fortune. With the I-Ging-based theory of eight floors as a pod, with one pod as a joint and joints forming the structural entity, Taipei 101 seems to march upward to the sky. In conjunction with the pagoda symbolism, the tower also recalls the imagery of local bamboo sprouts soaring upwards node by node, expressing progress and prosperity (Lepik, 2008, pp. 134-136). The giant structure of the tower clearly belongs to the local culture, yet its massive scale overwhelms its surrounding environment (Terranova, 2008, pp. 130-139). The application of symbols and totems is intended to convey the message of fulfillment. The talisman symbols and totems are deployed at proper locations of the building (see Figure 5).

Shreepati Skies
Shreepati Skies in Mumbai, India, is a residential tower designed by architect Reza Kabul. The 81-story Shreepati Skies, however, promises to be unlike any other structures in India because of its unique form. In an articulate manner, the building design evokes the image of a dancing native lady posturing with a water pot symbolized at the tower’s top (see Figure 5).
6). Despite the contextual misfit of the tower being totally out of scale and dwarfing its neighboring buildings, the tower’s form is iconic and unique. According to the architect, the tower’s dynamic transformation — from a cubic form in the base to semi-cylindrical in the shaft, then, to a cylindrical at the top was intended to capture the art form of an Indian dancing woman. Consequently, the Shreepati Skies is nicknamed “the dancing lady.” The design of the tower is also well accentuated with its simple lighting system.

**Naga Towers**
The 54-story (230m /755 ft) Naga (snake) Towers in Gandhinagar, India, are designed to convey a modern version of Indian architecture that cherishes the Indian cultural symbol of the Naga (snake). The Naga is an integral element of India’s cultural ethos, tradition, and religion. The Naga image is a symbol of spiritual truth and energy that spread throughout the Hindu and Buddhist cultures. The snakelike design is evident in the embraced form of the buildings. According to ECADI architects, “the springing and leaping action of the snake is reflected in the form of the buildings in a symbolic indication of awareness and vitality...the Naga concept of duality and contradiction is represented in the double motif that eventually joins to make one building” (see Figure 7), (GIFT, 2009). Naga Towers will be built in one of India’s largest urban projects, the Gujarat International Finance Tech-City, which is poised to contain several dozen skyscrapers.

![Figure 6: The 81-story Shreepati Skies (Dancing Lady) in Mumbai, India. Its design conveys a subtle motion, a gentle Indian dancing move of a lady carrying a pot of water on the head. The tower is really iconic; however, it is out of scale and context. (Source: Architect R. Kabul).](image-url)
The Middle East

Aside from East and Southeast Asia, there is a boom in tall building construction in the Middle East. The oil rich Middle Eastern countries like UAE, Saudi Arabia, and Qatar have been recently building spectacular tall towers in their cities. Abu Dhabi, Dubai, Doha, Mecca, Jeddah, and Riyadh are some cities where tall buildings are being constructed at this writing, with Dubai leading the list. Although some of the major projects are on hold and some are cancelled because of the present global economic recession, they are poised to be realized once the current financial gloom is over. The motivation for building the tall towers is not so much a high population density, but to attract business and compete with the rest of the world, and for demonstrating economic prosperity. In Mecca, Saudi Arabia, the 601m-(1,972 ft) tall Abraj Al-Bait Towers Complex (also known as Mecca Royal Clock Tower) across and overlooking the site of Islam’s holiest shrine, the Kaaba, is nearing completion. It will have a large elevated clock, a seven-star hotel, an enormous prayer area, and shopping mall, and when completed it will be the tallest building in Saudi Arabia, the tallest and largest hotel in the world, and have the largest floor area of any building in the world. At this writing, construction of another 1,000m- (3,281 ft-) high Kingdom Tower in Jeddah has recently been approved by authorities. If built, it will be the tallest building in the world surpassing the height of the Burj Khalifa. Doha, Qatar -- another skyscraper city -- has seen unprecedented growth in tall buildings. Among others, Burj Qatar is a supertall building rising 231m (760 ft). The 300m (984 ft) Aspire Tower is the tallest building in Doha at
present. Another ultra-tall skyscraper, the Doha Tower, rises 550m (1,805 ft); construction of the foundation was begun, but has been put on hold. If built, it will be the tallest in Qatar, and one of the tallest in the Middle East.

**Burj Al-Arab**
According to the building’s architect, Tom Wright, the client’s goal was to create an icon for Dubai; a building that would become synonymous with the city, as Sydney is associated with its Opera House and Paris with the Eiffel Tower. At 321m (1,053 ft), Burj Al-Arab is one of the tallest hotels in the world. It stands on an artificial island out from Jumeirah beach, and is connected to the mainland by a private curving bridge. The tower’s shape mimics the sail of a ship; and thus it makes a vivid reference to the key traditional sea economic activities of the City of Dubai. The sail shape is articulated by employing innovative structural and cladding systems that coalesce various technologies, including large steel X-trusses and translucent white fabric stretched around the structural frame -- thereby evoking the sail of the dhow (see Figure 8). The fabric’s translucency allows the entry of daylight into the interior in a diffused form and recalls the tent, an Arabian vernacular structure that responds well to the desert environment (Dupre, 2008, pp. 122-123). During the day, this white wall glows to illuminate the full-height atrium at 180m (591 ft). At night, a complex arrangement of changing projected lighting makes Burj Al-Arab a dynamic beacon seen from outside, while providing a dramatic illuminated show seen from the atrium within. The
The building’s sail-shape is located in a prominent spot along the shoreline and has noticeably altered Dubai’s skyline. 

**Burj Khalifa**

Designed by SOM under the leadership of architect Adrian Smith, and soaring to 828 m (2,717 ft), Burj Khalifa in Dubai, UAE is very slender in form and silhouette and currently holds the title of the tallest building in the world. The 160-story tower is a mixed-use building that houses a boutique hotel in the base, apartments occupying levels 20 to 110, and offices above. According to the architect Adrian Smith, the greatest source of inspiration for Burj Khalifa’s form and geometry was a native desert flower, highly popular and widely cultivated in Dubai.

![Image of Burj Khalifa](Source: Adrian Smith + Gordon Gill Architecture; photograph by J. Steinkamp).

Figure 9: Dubai, the new ‘instant’ high-rise city with its most notable tower, Burj Khalifa, the world’s tallest building. (Source: Adrian Smith + Gordon Gill Architecture; photograph by J. Steinkamp).
and the filigree patterns of traditional Islamic architecture. Named “Hymeocallis,” it is a white lily with petals radiating out from the center. The three-leaf flower’s structure is one of the organizing principles in the tower’s design, where its shape is made up of a buttressed core that has three wings extending out of the core. The wings provide structural support and helps withstanding wind. The Y-shaped footprint design of the tower takes advantage of a buttressed tube structural concept and creates a variety of different spaces inside the building offering wide views to the city (Baker, 2004), (see Figure 9).

The tower has 15 tiers or groups of commonly shaped floors over 100 stories. They are staggered in a spiral stepping pattern. Consequently, the tower’s width becomes reduced each setback in order to mitigate wind’s impact. Special materials like textured steel panels, reflective glazing and aluminum are employed to resist extremely high temperatures typical in the UAE (Weismantle, et. al, 2007). The tower is part of a planned 500-acre complex of offices, hotels, shops, lagoons, and public space that will be a technological, economic, and social oasis. The building’s inauguration took place on January 4, 2010.

**Nakheel Tower**
The proposed Nakheel Tower mega-project in Dubai, which is on hold at present, was planned to accommodate over 55,000 inhabitants, and if
built, would soar to 1 km (0.66 mi) surpassing the height of Burj Khalifa. Building on the theories of past visionaries such as Le Corbusier, Frank Lloyd Wright, and Paolo Soleri, the Nakheel Tower’s scheme is the true realization of a vertical city. The tower’s design was inspired by the Arabic-Islamic geometric patterns characterized by radiating circles forming 16-pointed stars. As these circles crossed the circle of the plan they created a series of overlapping crescents—a known Islamic symbol (see Figure 10).

It is often true that supertall buildings are planned around a single core and they taper towards the top to mitigate wind forces. The Nakheel Tower, in contrast, is divided into four separate towers so that it allows the wind to pass through. This design will allow maximizing floor-plates at high levels. The individual towers are connected through skybridges at every 25 levels. The triangulated form and similar geometric features—characteristics of Islamic motifs—can be seen in other recent buildings such as Dubai’s Emirates Tower and the Al-Faisaliah Center in Riyadh, Saudi Arabia (Mitcheseson-Low and O’Brien, 2009).

**Discussion**

Skyscrapers, by the very nature of their imposing height and scale, are intrusive into the built environment. Some literature hinted that regardless of the design of its skin, a super tall structure does not comfort with any local (i.e., low-rise) design traditions in the non-Western cities in which they are currently being constructed (Goldberger, 2004; Beedle et al., 2007). Ultimately, by their sheer scale alone and visual dominance within the urban landscape, they only serve to undercut national culture and vernacular character. On the other hand, if they are designed well and placed in proper locations, they can arguably enhance placemaking and act as anchors that invite new urban developments around them and foster economic growth and social life. Keeping this in mind together with considerations for cultural association and morphological characteristics, the abovementioned case study buildings are critiqued as follows.

**Design Review and Criticism**

Undoubtedly, today’s skyscrapers combine art and architecture, and herald the beginning of technological supremacy and conquest of space with new urban forms. They are causing major transformation of the world’s great cities, particularly those that aspire to be the centers of finance, tourism and entertainment. These new urban giants with their futuristic forms that are populating the world’s major cities, despite their glamour and awe-inspiring outsized and out-of-proportion heights, are not without their shortfalls.

**Superficiality**: The skyscrapers project examples show design attempts that departed from the typical glass-and-steel tower prototype, in favor of forms that support local identity and placemaking. Some of the examples are more successful than others in terms of providing direct visual references to a particular context. For example, the designs of Taipei 101 and Jin Mao embrace the pagoda form and relate directly to the Chinese culture. Similarly, the embraced form of Petronas Towers in Kuala Lumpur was based on Islamic architecture and regional character. The spirit of the geometry is Islamic, and the geometric pattern is found throughout the country in architectural
ornaments and decorative arts (Pelli and Crosbie, 2003). The design of these towers could be considered place-based. Simply speaking, the Petronas Towers will be inappropriate in a Chinese city such as Shanghai and vice versa: Jin Mao will be inappropriate in Kuala Lumpur (Mitcheson-Low and O’Brien, 2009).

Nevertheless, some of the finer design issues are questionable; for example, does reference to eastern numerology actually signify serious cultural accommodation and improve sense of place? Admittedly, the lucky number eight is based on Chinese tradition and hence the design embraced this notion. To a non-Chinese critic this may even sound superstitious but to the Chinese folks this could be an important part of their belief system. However, most viewers will not be able to tell or may be indifferent to the fact that the design of these buildings was based on this lucky number.

Other towers such as Burj Khalifa and Nakheel Tower are less successful in terms of supporting placemaking. For example, a native plant inspired Burj Khalifa’s design but this can be seen only in the floor plans. The resulting form of Burj Khalifa does not remind any observer of the local plant, native forms, or local culture. Despite the claims by the architect, the tower’s design does not explicitly relate to Islamic and local culture. In fact, its form when seen from a distance reminds a viewer more of the needle-shaped visionary mile-high Illinois Tower of 1956 by Frank Lloyd Wright, rather than anything Middle Eastern. In the same vein, it is claimed that the design of Nakheel Tower was based on Islamic geometry. However, this can be seen only in the floor plans and their effect is lost in the shaft design. Consequently, the tower does not communicate a clear connection to Islamic architecture.

**Scale violation:** Another common problem with these skyscrapers is that many of them are out of scale, out of context, and out of place (see, for example, Figures 5 and 6). Because of their extreme height, they tend to dwarf their neighboring buildings and largely violate human scale. In these cases, skyscrapers’ visual exposure in the sky is immense and they do constitute a problem to placemaking at the sidewalk level. They declare their individuality and glory, and they are all about themselves. A better arrangement of skyscrapers will be achieved through providing a height transition so that nearby buildings rise gradually creating an iconic skyline that do not create an abrupt and radical change in the city’s silhouette.

**Extravagance:** Further, many of the skyscraper examples in this paper have been criticized for being lavish and extravagant manifesting the dreams of an emerging wealthy culture and capitalist society. Their exterior design is monumental and their interior design and décor are excessive and even ostentatious (Dupre, 2008; Lepik, 2008). For example, although Burj Khalifa has attained global status, the exorbitant cost to build it in a rather low density city is hard to justify at a time when we note the downturn of the world economy, a possibility that always should have been anticipated, and has reportedly resulted in excessive vacancy rates and revenue losses. The enormous wealth spent on the tower arguably could have been better spent on social and technological projects (e.g. education, research and development, healthcare, etc.) and on developing self-sustaining manufacturing industries that the
Design Challenges
Providing novel forms to any building is a considerable architectural design task. However, this issue is more challenging in skyscraper design since the building needs to withstand greater wind and gravity forces. Due to structural issues, the building shape has to conform to verticality and is limited in tapering in or out or embracing unconventional forms. In many cases, the skyscraper form is a result of the same economic formulae and functional floor-plate layouts resulting in indistinguishable architecture (Irish, 1989; Holleran, 1999; Willis, 1995). Functional, mechanical, technical, and electrical requirements may further restrict form giving. Nevertheless, recently, architects have been noticeably ambitious in their attempts to provide new forms for skyscrapers. Empowered with new building materials, sophisticated construction techniques, and robust structural software, architects have been attempting to provide new creative design of unique styles and brands. The following discusses key design challenges when it comes to choosing skyscrapers’ outfits that symbolize local cultures and traditions.

Shortage of inspirational sources: Architects will need to be very creative in making their contemporary skyscraper design relate to a particular cultural context (Weismantle, et. al., 2007). When faced with the challenge of designing a new mega-project, they look for symbols or other sources of inspiration from nature or elsewhere to formulate a design statement. Traditional built environments offer limited forms that could inspire skyscraper design. Such environments have been mainly characterized by low-rise architecture, and consequently they contain limited applicability to vertical architecture. For example, the pagoda is a unique traditional East Asian form and it is possible to emulate in contemporary tall building design. However, several critical questions may arise. What vertical vernacular architecture other than pagoda does Asia offer? How many more skyscrapers can embrace the pagoda form in their design? If every Asian skyscraper embraced this form, then the city’s appearance will suffer from sameness and boredom. In the context of Islamic architecture, the minaret is a vertical element that represents vernacular Islamic architecture, which knowingly or unknowingly led to the form-giving replication by the Petronas Towers’ design. However, how many other vertical elements does Islamic architecture offer for tall building design? There are only a few cities in the Islamic world, such as Sana in Yemen that offer traditional high-rises. Consequently, applying traditional forms to modern skyscrapers is a challenging task. The design complexity is ambiguous and does not appeal to ordinary observers who are not interested in philosophical underpinnings or subtle metaphors that architects and architectural critics can see in them. One may even go to the extreme viewpoint and ask: What has a pagoda, a place of worship, or Islamic architecture to do with these modern profit-seeking skyscrapers mainly housing secular corporate offices, hotels, etc. that cater to human needs other than religious? Is this symbolism necessary and even appropriate?

Copying Western design: The dilemma of choosing culturally-inspired or non-culturally-inspired forms is intensified when individuals of
the local culture demand Western architectural style perceived to be fitting with modernity. Research has indicated that in developing countries some local firms have consciously and deliberately emulated Western modernist and post-modernist architecture (by incorporating Western symbols or features, such as Georgian shutters and columns) as up-scale marketing schemes to attract upwardly mobile middle-class residents and businessmen to these new projects (Olds, 1995; Kong, 2006; Wu, 2000). In response to such a problem, city officials and urban designers may provide guidelines that indicate when it is vitally important to incorporate cultural references in the design, and when it is less needed. For example, signature skyscrapers of national significance could receive highest emphasis and therefore, architects will be required to make their design unique and tailored to the specific culture. Political leaders and governments have an important role in establishing and reinforcing such rules. In the case of the Petronas Towers, the Malaysian Prime Minister Mahathir Mohamad and the government required the architect of the Petronas Towers, Cesar Pelli to incorporate cultural and Islamic references into the Towers’ design. The Petronas Towers are of national significance to Malaysia and therefore, the political backing and recommendation of incorporating cultural references were appropriate (Abel, 2003; Baker, 2004). The rhetorical question arises: should politicians or city officials exercise control over the form-giving of tall buildings? On the other side of the coin, without any specific mandated guidelines or the influence of political leaders, if every building imitates the Western architectural style, very soon the so-called “Manhattanization” of world cities will take place. Cities will then begin to lose their own identity and turn into “placeless” places (Ramon, et al., 2003).

**Preservation of the historic fabric:** In the event of incorporating skyscrapers in historic districts, the skyscraper design and architectural fit become more challenging. Ill-conceived and “foreign” design of new towers placed next to historic fabric will cause irreparable damage to the existing character and image of the city. For example, contentious debates were fueled when the London’s modern-looking Swiss Reinsurance Building complying with the contemporary pluralistic architectural style was proposed to be placed amidst an area of buildings dominated by Victorian style, particularly near the St. Paul Cathedral. One way to avoid such a problem is to locate skyscrapers in clusters away from the historic districts. An example of this approach is provided by the City of Paris, which dedicated the LaDefense district as a home for tall buildings away from the historic district (Sciocolone, 2012). Some of the recent innovative modern design that is being built in this district is the Tour Phare (Phare Tower). Some historic cities may place strict rules that completely prohibit high-rise construction, as is the case of Jerusalem. Such practices could be difficult to apply in cities that face rapid growth, economic boom, and population explosion.

**Conclusion**

Skyscrapers have become a force of American cultural hegemony all over the world and resulted in the loss of many global cities’ identity (Kostof, 1995; Tomlinson, 1999). As early as in 1981, the notable architectural critic Paul Goldberger has lamented that all world cities
have begun to look alike and explained that the skyscraper is a contributing factor for urban landscape homogeneity. However, skyscrapers of distinct culturally inspired forms may improve city’s identity and placemaking (Findley, 2005). To communicate to the world their economic prosperity and scientific advancement, some cities are currently striving deliberately to create iconic skyscrapers. Today’s skyscrapers generally have become inherently iconic mega-objects, and they have an important role to play in supporting placemaking. Skyscrapers of national significance should in particular be designed so that they retain the heart and soul of the city and the region. It is expected that skyscrapers will inherently remain tall and influential, and will have a significant impact on placemaking. If placemaking is not given due considerations, there is a danger that no matter how crucial tall buildings may find their way into the milieu of the future city’s visible artifacts to accommodate the growing world population, they are also likely to turn into eye sores and unwanted burdens on the urban fabric.

From a cultural perspective, this paper has dwelled on skyscraper design attempting to embrace forms inspired by vernacular architecture and landscape. The design examples presented here have consciously and admirably departed from the international design template of skyscraper characterized by a plain steel-and-glass box, which has often been “copied and pasted” in many countries around the world, of course not without their own shortcomings and nuances. These limitations of an unwarranted overdose of cultural infusion have been pointed out in this paper. Placemaking with tall buildings is indeed a challenging design issue of our time. While not entirely successful, the examined project examples pioneer efforts to consider cultural aesthetics in skyscraper design and point to a design direction that is worth exploring and propelling further.

**Future Research**

This paper has addressed issues related to form and appearance of skyscrapers in their cultural context. However, cultural issues related to skyscrapers are far broader than the ones addressed in this paper. Future research will be directed along this line of research by addressing issues such as cultural use of spaces in skyscrapers, the spatial and vertical composition, appropriateness of symbolism, and the interior design of individual spaces. As a vertical city, the architectural program of a skyscraper should be examined against cultural needs, values, and preferences. Investigating the relationships between public, private, and semi-private spaces is particularly important with the advent of mixed-use skyscrapers in recent times. It is important to examine how a particular culture will re-arrange skyscraper’s spaces (office, hotel, residential, and public amenities) so that design will support cultural values, such as the value of privacy. Residential tall buildings have their own challenges dealing with the socio-cultural conditions. In addition, those tall buildings that are responsive to local climate, which historically has been a principal determinant of local building typologies and forms as well as of social norms and cultural life, need more investigation (Al-Kodmany, 2000). Further, the location of skyscrapers in relation to public and private transportation is important. While some cultures consider mass-transit as an acceptable means of transportation to all social
classes, other cultures consider mass-transit as unsuitable to affluent residents (Malik, 2001). Engaging researchers in the aforementioned cultural issues will complement the work of this paper.

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