Reinterpretation of Traditional Craft Practices in Contemporary Architecture

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Abstract
This study discusses how contemporary architects re-interpret traditional craft practices such as ironwork, woodwork, stonework, knitting, lacework, and paper craft in their building designs in accordance with cultural aspects. It argues that digital technology contributes to contemporary architecture by being a tool for restoring traditions of craftwork and an innovative medium for rendering images and presenting architecture. Through the virtuous use of CAD (computer-aided design) and CAM (computer-aided manufacturing), contemporary architects approach facade as a design instrument with a controversial manoeuvre. Their achievement of digital mastery consists of reinvention; yet it also indicates imitation. They use digital technology as a medium with the intention to attract public attention and encourage image consumption. Yet, they also use technology as a tool to shift the place of conventional craft from material practice to pure image. Simulating craftwork or reinterpreting traditional handicrafts in building-scale locates history within contemporary urban context. It creates a sense of tradition and a touch of history. By reviving traditional craftwork as a current interest, the architects seem eager to seek the soul of cities.

Keywords: Contemporary architecture; craftwork; digital technology; Polish Expo Pavilion; Nottingham Contemporary

1. Introduction

The use of computer-aided design and manufacturing technology has had a strong bearing in contemporary architecture. The effect of digital technology, as it is argued in this study, is twofold: on one hand, the advanced technology of CAD (computer-aided design) and CAM (computer-aided manufacturing) holds the promise of producing virtually any design that a designer might imagine. On the other hand, it points to the separation between hand and mind, and the elimination of spontaneous interference evident in the craft process. This study explores the Polish Expo Pavilion in Shanghai (2010) and Nottingham Contemporary (2009) in terms of digital design and manufacturing technology. It mainly focuses on how contemporary architects re-interpret conventional crafts, such as ironwork, woodwork, stonework, knitting, lacework, and paper craft in their building designs. The study argues that digital technology contributes to

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contemporary architecture as a tool for reviving the tradition of craftwork, as much as an innovative medium for rendering images and presenting architecture.

2. From Crafting to Manufacturing

The history of craftsmanship has a long history stretching back beyond the nineteenth-century. Ancient philosophers dwelled on the nature of craftsmanship and produced various works on the relationship of theoretical knowledge (episteme) and craftwork (techne). Yet the common view, which mostly derives from Aristotle (1999) is that the activity of craftsmanship is a union of theory and making, since neither of these aspects can be separated from the activity of craftsmanship. Following Aristotle, the first known architect to address the issue of theory and practice was Vitruvius. In the first two remarks from the first book of his seminal work, Ten Books on Architecture, Vitruvius (1914) asserts that an architect should have a general knowledge on many fields, since his mission is to control and organize the works of other artists. Knowledge, in Vitruvius’ terms, involves both concept and practice, as a master architect should be equipped both theoretically and practically. Practice, in this context, means the manual application of a design from a drawing, whereas theory is the ability to demonstrate and explain design principles. The notion of being competent in both theoretical and practical aspects leads to having absolute control of the craftwork.

The traditional craftsman had thorough control over his tools; yet this close relationship was challenged during the Industrial Revolution as machines began to be substituted for the tools of workers. Alienating the craftsman from his tools, mass-production enabled the idea of standardization in design. Twentieth-century modernists, by contrast, appreciated anonymity in craftwork and architectural design. Adolf Loos (1966) and Le Corbusier (1987) in particular, disparaged individuality and subjective taste in architectural production. By means of industrial machines, the act of “crafting” with traditional tools was displaced by “manufacturing,” and the “work” of the craftsman became the “task” of the worker. In the case of weaving on an industrial scale, the worker only had to keep track of a set of instructions and execute labour by inserting a punched card into an NC (numerical control) machine. By contrast to the craftsperson whose skill is stored as a form of tacit knowledge, industrial factory workers became de-skilled, executing the same task over and over again (DeLanda, 2004). Automation has been further developed with CNC (computer numerical control) machines in recent years, as technology moved forward from mechanization to digitization. Digital methods of design and manufacturing permit discovery through ongoing experimentation, rather than an application of previously mastered techniques (Stein, 2011). Like traditional craftwork, mass-customization in the digital age produces an effect of uniqueness; yet it is as fast and cost-efficient as standard models of mass-production (Willis and Woodward, 2010). This makes obsolete Loos’ remarks on ornament as wasted labour and time, as the digitally fabricated ornament is produced effortlessly once the production system is in place after a complex process of programming. In this sense, human skills are redefined in terms of digital technology, in which accurate digital coding of computer and manufacturing machines is necessary. The role of the architect is transformed from that of a form-maker to being a programmer and controller (Leach, 2004). As Greg Lynn (2004) argues, digital technology is more of an enabling device, rather than a de-skilling device, since its function is to assist the designer’s creativity, aesthetics, and improvisation. Contemporary techniques of fabricating ornament demonstrate a reconfiguration of skill, a redefinition of mastery.

3. The Perfection of Digital Craftsmanship

In the nineteenth century Ruskin argued that the performance and experience of crafting was much more important than the amount of time it takes to craft an object. The quality of craftwork is thus directly related to the pleasure and devotion of the craftsman in long hours of work. The value of craftwork relates to the subjective criteria of personal experience, enjoyment, and sacrifice, rather than the objective criteria of total work hours of labour and size of the produced object. Ruskin (1989) argues in The Seven Lamps of
Architecture that the traditional craftsman is noble, ethical, and does not need to adhere to industrial, capitalistic reproduction. Labour, on the other hand, relates to the values of industrialization and mass-production and differs from devoted craftsmanship, which, Ruskin (1989) argues was fading due to the intensification of the division of labour in mechanical reproduction. The age of the traditional craftsmanship is marked by individuality, which points to the Ruskinian concepts of spirit, pleasure, improvisation, and experience. The craftsman, by marking his work with a specific and individual sign, shows his presence on the produced object. Described as the “maker’s stamp” by Sennett (2008), the distinctive mark represents the individuality of the craftsman, and becomes his way of saying: "I exist."

The Ruskinian association between craft and morality becomes obsolete in the digital age, as craft becomes a tool of form generation, merging materiality with design process (Stein, 2011). Through the seamless coordination of digital programs, as Spuybroek (2011) remarks, every drawing that exists on the computer monitor has already been measured and is ready to be constructed. In this sense, the craftsman no longer plays as important a role as mediator in the execution of the architect’s designs; there is less chance for what Ruskin would consider as edifying mistakes in digital production.

4. Reviving the Tradition, or Simulating Craftwork

Despite Ruskin’s fears that machines would eradicate expressive, individual work, traditional crafts have not disappeared in the digital age at all. On the contrary, in contemporary architecture, architects transform traditional ornament into digital media, re-interpreting the effect of certain crafts, to give their buildings a touch of history, reviving the end product of the handicraft rather than the long, elaborate process of material and manual production. By doing so, as the architectural critic Mario Carpo (2011) argues, digital design and fabrication technologies create a high-tech analogue of preindustrial craftworks, acting almost like the digital extension of craftsman’s hands.

The 2010 Polish Expo Pavilion, designed by WWAA Architects, in Shanghai is a striking example of this simulation of a pre-industrial craft. Its whole structure is constructed as a giant piece of ornament (Fig. 1). The inspiration for the building design was the traditional Polish folk craft of paper cut-outs. The pavilion surfaces were made of impregnated CNC laser-cut plywood, painted with a natural wood colour, and stabilized by steel structural frames, which are completely hidden behind. The interior space was also covered by plywood cut-outs in various shapes, which looked like two-dimensional folded paper stage sets (Fig. 2). Unlike the porous nature of traditional cut paper, the full-sized interpretation of this craft as an architectural surface completely separates inside and outside, and creates a realm of fuzzy cut-outs and flowing colours. The exaggerated size of the plywood cut-outs contrasts with the small scale of traditional paper cut-outs; the scale of craftwork, in this sense, is flexible. On the issue of the perception of ornament, Ruskin (2005) elaborates that the appearance of the details of an ornament depends on its distance from the viewer’s eye. Unlike the small and detailed handicraft of the paper cut-outs, imperceptible from a distance, one can clearly distinguish the technique in the Polish Pavilion building, with its huge laser-cut ornamental surfaces. Moreover, in traditional craftwork, craftsman is fully engaged in the manipulation of the material, whereas in the latter, the architects are not directly involved in the production process of the plywood surfaces. Simulating a giant-sized Polish tradition of paper craft on the building with a different material and a novel cutting technology, the architects can be designated as craft masters of the twenty-first century.

In the case of Nottingham Contemporary in central Nottingham, UK, the use of craftwork differs from the re-interpretation of paper cut-outs in the Polish Pavilion (Fig. 3). The London-based architectural office Caruso St. John was inspired by the history of the area that was known in the nineteenth century as the Lace Market. Contextually, the monolithic and massive structure of the building connects with old warehouses in the neighbourhood. Caruso St. John pays homage to the traditional lacework on the brass-coloured building.
façades. The lace pattern on the building façades incorporates details so small that they are barely visible from a distance, despite the fact that the lace is produced ten times bigger than the original. This relates to Ruskin’s comments on the relationship of the viewing distance and the size of ornament; the details of the lace gets lost in the distance, and are only perceptible when the building is viewed closely (Fig. 4).

Fig.1. WWAA, Poland Expo Pavilion, Shanghai, China, 2010 (Copyright: Author).

Fig.2. Interior views of the Poland Expo Pavilion (Copyright: Author).

Referring to their interest in lace, in view of its history and the artistic challenges presented by the technique, Caruso St. John have drawn from the writings and works of Louis Sullivan, John Ruskin, and Gottfried Semper (Caruso, 2004). They particularly highlight the importance of Semper’s views on the link between building and textile. Semper (2004), in the mid nineteenth-century, suggested that the origin of architecture is textile, and the main source of ornament was not structure but instead was a veil – a textile element stretched between structural elements. In the case of Nottingham Contemporary, a journal article refers to the application of the lace pattern on the fluted façades as “drapery frozen in time,” since it gives the illusion of lightness (Gregory, 2007). Elsewhere, the ornamental façades of the building are depicted as “fabric-like, a pleated curtain, delicately tinted and threaded with gold” (Rosbottom, 2010). The illusion of fabric, drapery, and curtain on the façades of Nottingham Contemporary recalls Semper: the structural framework of the building is masked behind these apparently light coverings of space, since the structure is secondary to architecture. Caruso explains in an interview that they emphasize walls and hardly focus on columns in their projects, since walls are the elements that create and characterize architectural space (Vermeulen, 2002).
5. Conclusion: Aura and Image-Making in the Digital Age

In contemporary architecture, digital image-making becomes a powerful tool. Shifting reality, digital renderings make architecture structures ready for consumption as images. The result is that digital images are seen as if they were buildings, whereas buildings are seen as if they are images (Tsu, 2012). Today a building does not even need to be constructed in order to be known worldwide; it only needs to be well-promoted. In the twenty-first century, the concept of aura is thus redefined in terms of spectacle, marketing, and consumption. As Walter Benjamin (1992) states, aura is defined as a special and unique atmosphere specifically for works of art and architecture, which creates an abstract barrier, or a distance, between spectator and the gazed object. He observed that aura is lost in the contexts of mechanical reproduction, but in the contexts of digital practice in contemporary architecture it has survived and is re-constructed in terms of a consumption-based criteria through the interaction between the viewer and the viewed object. In this sense, the aura of the twenty-first century is constructed by the cultural drift into the values of spectacle, fame, and image-making.

In the case of the Polish Expo Pavilion, commercial success and public attention bestows the building a unique atmosphere, a special aura, which is created by consumers’ experiences and sensations. It is apparent that, in the public promotion of the pavilion, the abundance of splendid renderings and glossy images are merely for commercial use. They are not orthographic drawings for construction, but show the building only as a continuous and undisrupted ornamental surface. Compared to the web site images, the
ornamental surfaces of the constructed pavilion building are not produced as a single piece. The seams of wooden pieces, which were attached together to constitute a façade, visually break the whole ornamental design into fragments. The digital renders are presented to public for image-making before the pavilion is constructed on the Expo site. Renderings create an idealized architectural environment, and are produced as a show with a focus on ornamental façades. Through the visual accuracy of CAD technology, the perfectly rendered digital images look much like the photographs of the built pavilion; yet, in fact they are not.

Today, much emphasis is given to visuality and surface effects. In this sense, the contemporary architects in question approach the issue of ornament as a design instrument with a controversial manoeuvre. Their achievement of digital mastery consists of reinvention; yet it also indicates imitation. The architects use digital technology as a medium with the intention to attract public attention and encourage image consumption. On the other hand, they use technology as a tool to shift the place of conventional craft from material practice to pure image. Through the use of CAD and CAM, the architects expand the field of contemporary ornament by reviving traditional craftwork as a current interest. Simulating craftwork or material practice to pure image creates a sense of tradition and a touch of history, as if the architects were eager to seek the soul of cities.

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6 UIA 2017 Seoul World Architects Congress