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TRANSITIONAL OBJECTS

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ABSTRACT:

This paper examines the deployment of materiality as mediator between the abstract [conceptual design] and the representational [production documentation] in the context of introducing materiality (and consequent technology) into the architectural design educational process of New Zealand. Design, essentially through consideration of technology at the earliest possible moment in the design process, rather than being dealt with as a linear or sequential process often used in practice. This paper argues that in education, at least, the design [abstract] and technology [representational] process should not be sequential, but rather coincidental.

In reference to construction technology construction this paper reflects on works of eminent paediatrician, child psychoanalyst and psychiatrist Dr. D.W. Winnicott (1896-1971) and in particular his paper '*Transitional Objects and Transitional Phenomenal*' where he discusses an intermediate area between internal and external reality in a Mother/Child relationship. This potential space is where Winnicott perceived the creation of transitional objects, where creativity first takes place. Additional material refers to Winnicott's '*Playing and Reality*' and 'Playing: its theoretical status in the clinical situation'.

With Winnicott's work applied to architectural education, the proposal is to open with a discourse on 'why' particular and appropriate technology is deployed in the realisation of thematic initiatives, with the content weight later shifting to 'how' technology is deployed. Importantly, emphasis is place on 'when' technology is deployed and proposes a pre architecture engagement with technology through materiality. Case study models explore diverse construction systems woven through similar threads of thematic concern. The course discusses the need for personal engagement with technology by students at the earliest possible moment in the design process.

A particular case study model, for example, diverse construction systems are explored through the strong thread of thematic technology commonality in the architecture of the Villa Savoye, Centre Le Corbusier Zurich, Maison de Verre, Maison a Bordeaux by Rem Koolhaas, and Toyo Ito's Sendai Mediatheque. Assignment work deals with the moment technology first engages with and touches design, to reinforce the need for a personal engagement with materiality / technology at that moment, the earliest possible in the design process. So the resultant architecture has technology woven into design rather than applied subsequent to design.

The works of psychologist Dr. Carl Jung and art historian Professor Wilhelm Worringer are used to support this discourse.

Conference theme: Architectural Education

Keywords: Materiality, Synergy, Fragmentation.

1. INTRODUCTION

Architects in practice initiate the design processes equipped with an array of constructional technological techniques at their fingertips and the support of a team of specialist consultants, while the architectural student has little, or none of any. Consequently, the 'paper architecture' produced has little or no technological construction substance synthesised in the work and yet is then asked to 'apply' these technologies subsequent to the design.

A primary analyst in understanding the process involved in the development of creativity is D.W. Winnicott; and in particular his works '*Playing and Reality*' and '*Transitional Objects and Transitional Phenomena*' where he discusses an intermediate area between internal and external reality. This area, named '*potential space*' is where Winnicott perceived the creation of '*transitional objects*', where creativity first takes place, and in this paper with particular regard to architecture. The paper will also interrogate characteristics of the two distinct

approaches to construction technology with reference to works of art historian and psychologist Wilhelm Worringer. This paper would not have been possible to write without the reading of the works of Carl Jung.

A process where it is possible to engage with technology at a pre-conceptual design stage and reasons that early engagement is more likely to integrate cultural and technological principles sympathetic to and supportive of thematic concerns, as opposed to either the 'shoehorning' of convenient technologies into a predetermined design outcome or the application of 'cultural style veneers' to inappropriate technologies.

Dr. Winnicott had a special interest in the development of creativity in children or toddlers in the mother/child relationship and in particular, the 'good-enough mother' who allows herself to be used by the infant in the process of detachment by the child. His theories conceptualised the psychic space between the mother and infant, part physical, part psychological, which he called a *'holding environment'* where the child's transition from oneness with the mother to detachment can be more autonomous. This concept of a holding environment led Winnicott to his theories relating to the '*transitional object*'. The transitional object, in '*potential space*', or the intermediate space between internal and external reality, is where creative experimentation can take place, safely and without fear.

In '*Playing and Reality*' Dr. Winnicott developed ideas discussed in '*Transitional Objects and Transitional Phenomena*'. Referring to the intermediate area between internal and external reality, he postulates that if people can utilize this realm to initiate their relationship with the world [in this case, architecture], first through transitional objects, and especially through individual play and shared playing, then [in particular] cultural life and heritage becomes freely available to them. The process of playing, but not playing games [competitive] becomes a valuable activity in personal creativity, a pre form engagement with cultural themes in architecture. A further source is Winnicott's publication, "*Playing: Its Theoretical Status in the Clinical Situation*"

"The place where cultural experience is located is in the potential space between the individual and the environment (originally the object). The same can be said of playing. Cultural experience begins with creative living first manifested as play". (from "Playing: Its Theoretical Status in the Clinical Situation," 1968)

The creation of transitional objects, where creativity first takes place, was a technique that Winnicott frequently also used in his treatment of adult patients. It is during this stage of creative and therefore life development that regional culture comes into play, whether that be in the form of a synergetic or fragmentary approach.

Professor Carl Jung regarded the conscious mind as a skin covering the unconscious (*Analytical Psychology – it's Theory and Practice*) and further proposed that in the earlier years of life a person communicates directly with

the unconscious without ego or conscious skin. Later in life he postulates that intuition also bypasses these two filters, or barriers, as the case may be (*Memories, Dreams, Reflections*) and allows the unconscious and collective unconscious to bypass the ego and conscious mind to express unfettered creativity.

In '*Abstraction and Empathy*', Professor Wilhelm Worringer postulates two categories of creativity, where 'Abstraction' arises out of a condition where the creator is detached or remote from 'Nature', resulting in pure geometric forms (Gothic architecture, for example), while 'Empathy' on the other hand is organic by definition (Greek architecture, for example), since the creator is 'at one with the world and nature. In either condition, both have contained within them the terms which in this paper on architectural education I refer to as 'Synergy' and 'Fragmentation'.

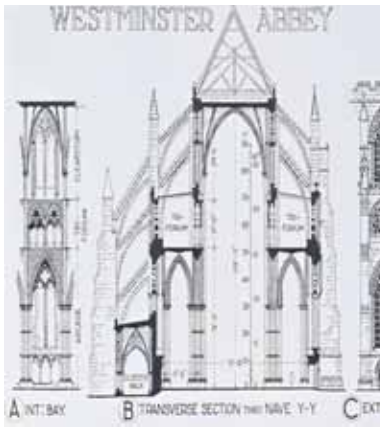
2. SYNERGY

Oxford English Dictionary Definition: *1957 R. B. CATTELL Personality & Motivation xvii. 791 Immediate synergy through group membership. expresses the energy going into the group life as a result of satisfaction with fellow members. 1960 R. W. MARKS Dymaxion World of Buckminster Fuller 8/1 Fuller refers to the integrated behaviour patterns as synergy. 1965 H. I. ANSOFF Corporate Strategy v. 75 We begin to explore synergy... It is frequently described as the '2 + 2 = 5' effect to denote the fact that the firm seeks a product-market posture with a combined performance that is greater than the sum of its parts. 1974 M. B. BROWN Economics of Imperialism ix. 228 The world-wide 'synergy' of the trans-national company is..the logical conclusion of a long historical process of capital accumulation and territorial assimilation. 1981 Economist 28 Nov. 19/2 Others, through mergers (eg, research houses into retail brokerage houses), have demonstrated that there is something to be said for synergy*. Copyright © Oxford University Press 2007

2.1. HISTORICAL CONTEXT IN THE ARCHITECTURE OF EUROPE

The architecture of Europe, is imbued with a 'comprehensive integrity', where each aspect of design technology maintains it's own clarity while respecting and harmonizing neighbouring elements. A principle source of this tradition, in the technological sense, originating in the use of masonry construction, where gravity exerts substantial symbiotic influence over design and technology (cohesive consistent cultural expression) through constructional techniques and where a need is perceived for consciously displayed awareness of the properties embedded in materiality. During the thirteenth century in Europe Gothic architecture developed the flying buttress, where the wall became liberated from load bearing requirements by the introduction these

buttresses, a clear statement on enclosure and structure became apparent. This clarified and articulated the functions of different elements, where the flying buttress becomes the structural frame supporting roofs and the wall, with little load bearing requirement, and therefore mass, was presented the opportunity to incorporate greater areas of glazing in stained glass for story telling in an age when books were not readily available.



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Chartres Cathedral, France. Flying Buttresses 1200

Art historian and psychologist Wilhelm Worringer wrote in 'Form in Gothic' (1927):

"Architecture begins to be an art from the moment that it ceases to be satisfied with employing stone as merely the material for some practical aim or another, and with treating it according to the strict nature of the material, but seeks to wrest from the lifeless nature of the material an expression corresponding to a certain 'a priori' artistic will"

2.1.1 During Victorian times in England arose the Arts and Crafts movement, as a reaction to mass production and industrialisation. The Arts and Crafts Movement evolved in England in the 1860's with primary

propounders William Morris (1834-1896) and John Ruskin (1819-1900). Morris believed the machine dehumanised the worker and led to a loss of dignity because it removed him from the artistic process. As Ruskin stated, "all cast from the machine is bad, as work it is dishonest."

While Ruskin was the founder of the Movement, William Morris became its leader. Morris took Ruskin's ideas and translated them into a unified theory of design. By doing so, Morris successfully unified aesthetics and social reform into the Arts and Crafts Movement. Morris, like Ruskin, much admired the works produced during the Middle Ages, especially the medieval idea of craftsmen's' guilds. But in all of his works, Morris believed that the Arts and Crafts Movement was more than just a design theory. If the quality of design was improved, the character of the individual producing that design would be improved, and hence society would be improved. Morris sought to reunite "head and hand" in a synergetic union offering the basis for the development of a "culture".

2. 2. CONTEMPOARY REGIONAL ARCHITECTURE OF EUROPE

In a contemporary European environment, Michael Hopkins, Richard Rogers and Renzo Piano, for example, synergise the comprehensive integrity, which exemplified much of Gothic architecture. 'Portcullis House', London, by Michael Hopkins and Partners (adjacent to the Houses of Parliament) deploys natural ventilation techniques to economise on running costs by the use of stack effect, clearly expressed on the facade (reminiscent of the chimneys to old English housing), yet affecting the deepest parts of the building, while drawing aesthetic reference to the adjacent Parliamentary Buildings. Thus, once again, each element of the building as a totality is clearly articulated while remaining unified with a resultant synergy. In the case of Richard Rogers, his articulate layering of the different elements of a building gave both eminence to clarity and diversity to the architecture, where each element was placed without compromise according to need and value, yet contributing to a synergy of the whole as greater than the sum of the parts, just as had been the case with Gothic architecture. The need for comprehensive integrity throughout the building was of primal importance to Rogers. This clarity of purpose, a layering and filtering of the façade with elements serving internal spaces throughout the building may in part derive from the dyslexia that Rogers has endured through his life, making simple and clear statements with a consequent complexity.

Portcullis House London 2001
Michael Hopkins and Partners

Lloyds HQ London 1985
Richard Rogers + Partners

For Italian architect, Renzo Piano, Synergetic regionalism of a contemporary interpretation has been achieved in the former French colony, New Caledonia in the Pacific, at Noumea. Here, Piano draws on traditional indigenous forms. For example, the forms created whistle in the wind by design through computer analysis and

Tourist Centre, New Caledonia. Renzo Piano Workshop

Traditional Indigenous Architecture New

wind tunnel testing whereas traditionally this had been achieved through empirical experimentation. Piano here is looking to the past to achieve an outstanding contemporary piece of regional architecture using state of the art steel and timber technologies.

3. FRAGMENTATION

Oxford English Dictionary Definition: *1. A breaking or separation into fragments; spec. in Biol. separation into parts which form new individuals.1881 Times 24 Dec., Fragmentation of work, not attacking too many points at once.* Copyright © Oxford University Press 2007

3. 1. HISTORICAL CONTEXT IN THE ARCHITECTURE OF NORTH AMERICA

The second tradition is manifest in the architecture of postcolonial North America, where there is a preoccupation and particular concern for skin, or surface, alone. Here the historic reference is traced through the deployment of timber frame construction, where the forces of gravity exert little or no substantial influence on ultimate form. As a consequence, the resolution of structural and other constructional technologies are often disregarded as useful to design in a domain where surface reigns. As a consequence each element is dealt with separately in fragments. This fragmentation extended to timber framing techniques developed into 'Balloon Frames', where the envelope was entirely detached from the interior where internal levels are placed on ledges of the 'Balloon'. Ironically, it was this type of construction (in steel and concrete) that formed the structural concept for the World Trade Centre (Twin Towers) of New York, which so easily collapsed under terrorist attack in 2001.

3. 2. CONTEMPORARY FRAGMENTARY ARCHITECTURE OF NORTH AMERICA

Disney Building, Los Angeles under construction revealing a smooth skin over a chaotic structure 2002. Frank O Gehry and Partners

Frank O Gehry exemplifies this preoccupation with skin or wallpaper and it's dislocation from other elements, particularly structural. The architecture becomes skin deep. Gehry is on record as saying his architecture reflects his perception of Los Angeles, a city of fantasy and façade. This Western Seaboard American preoccupation with skin (or the conscious mind as Carl Jung would suggest) extends throughout their lives, including the literal skin where cosmetic surgery is deployed to gratify a perceived need for permanent youth, and the unusual proportion of people referred to psychoanalysts and psychotherapists

Michael Graves and Partners. Portland, Oregon USA. Offices 1979-82. Post Modern Façade wallpaper over early modern interior.

Another example by Michael Graves and Partners is his office building in Portland Oregon, USA, where a skin deep decorative façade conceals a typical office design concept used for the previous 100 years. This is another example of skin-deep culture, or façadism.

There would seem to be a resistance on the part of Post Colonial North Americans to acknowledge the unconscious mind from which springs the individual and consequent consistent cultural impulse. In his earlier writings, Jung called this aspect of the psyche the unconscious mind or collective unconscious, which he later changed the term to objective psyche. The objective psyche may be considered objective for two reasons: it is common to everyone; and has the only sense of the self's ideal; rather than that which the ego or conscious self imagines. It thus directs the self, via archetypes, dreams, and intuition, and drives the person to make mistakes on purpose. In this way, it moves the psyche toward individuation, or self-actualization, where a myriad of cultures may develop and flourish. This denial of the unconscious has undoubtedly led so many Americans to psychoanalysis or psychotherapy.

4. FRAGMENATION AND SYNGERY –OPPOSING CULTURES

1960's American Car *Fragmentation*

1960's British Mini Car *Synergy*

A summarisation of the opposing philosophies between Europe and North America can be characterised by the auto motive industries of both countries. While in Europe the 1960's design of the European car known as the 'Mini' came out of close harmonization of design concept and appropriate technology, for example with no

chassis the Mini utilised two sub frames linked and strengthened by the bodywork all working in harmony, producing a synergy between design and construction technology. Meanwhile, in North America 'styled skins' were applied to the chassis and technology, thereby dislocating design from technology. For Americans, more power equalled bigger engines, while in Europe it was found through greater efficiency.

4.1 HISTORICAL CONTEXT IN THE ARCHITECTURE OF NEW ZEALAND

Post colonial architecture of New Zealand substantially emphasized the use of repetitive small member size [timber] framed construction systems, yet while pursuing the rigor of comprehensive integrity as practiced in Europe out of the traditions of masonry construction in the early colonial days, in the latter part of the 1990's some contemporary environment architecture moved closer to the North American of a preoccupation with skin or surface. However, in the background and more so recently, the predilection is moving once more toward a synergetic approach.

4.2 CONTEMPORARY ARCHITECTURE OF NEW ZEALAND

Much of the commercial architecture constructed in the Auckland CBD during the economic boom times of the 1980's maximised net (lettable): gross (constructed) area calculations often consequent to developer client requirements for greater financial return. To that end, external wall constructions were often minimised to literally one skin of low performance glass. In the meantime in Europe subsequent façade engineering technology in the commercial architecture of Europe has developed from the single skin barrier to responsive

Mediterranean housing *Auckland Style*

Mediterranean housing *France*

double or triple+ filtering facades and while in New Zealand there are legislative, environmental and economic reasons why this technology has not been utilised, it remains the case that the external skin (seen by some as the architecture) frequently pays little homage to nor offers any connectivity with the technology within. The

engagement by architects and designers of New Zealand in thin barrier skin architecture (known as '10mm architecture') has continued to recent times and contributed particularly in the early part of the twenty first century to wide ranging and serious problems relating to water penetration into buildings, particularly in the residential sector. The causes of these failures are identified in the publication "Report of the Overview Group on the Weathertightness of Buildings" of the New Zealand Building Industry Authority (BIA). This report condemns types of thin barrier (sic) external skin construction and in particular 'monolithic cladding'. The BIA website refers; http://www.dbh.govt.nz/whrs-media-20020520-1

Much of the work of the BIA is now being absorbed into legislation with the notable requirement that with 'monolithic cladding' there can be no presumption that the barrier will succeed in practice and that a secondary waterproofing layer and cavity must be incorporated in all new construction – indicating the external wall is be a 'filter and not a barrier'. More importantly here, the report identifies weatherproofing vulnerability as a consequence of the application of thin veneered 'style replication' to traditional New Zealand timber frame practice, a technology developed out of frequently disparate cultural aspirations which can only result in a dislocation between the forces of design and technology - a cultural malaise, so to speak. This paper argues that for architecture to succeed in practice, there should be a synergy between the two forces of culturally driven design and technology for the regional architecture to succeed. (white New Zealanders still largely regard themselves as being of the Western world.

Traditional Villa, New Zealand. 19th Century

Heke St House, Auckland, New Zealand. 1991
Mitchell and Stout

The design of the traditional 19th century villa found in New Zealand developed a series of layers or filters between the outside in inside world. At the footpath location is placed a picket fence, which while defining a boundary, functions also as a filter rather than barrier, for it is semi transparent and low in height, permitting visibility of the private/public zone of the garden. Layered behind the garden is a veranda, which is neither outside the house nor inside. Raised above garden level at the internal floor level it is roofed over and utilises a

filtering handrail, all this before entry to the house - a series of layers and filters not dissimilar to the Lloyds building of London by Richard Rogers.

A contemporary example of this layering and filtering is the House in Auckland, New Zealand by Mitchell and Stout, where the filtering from outside to inside is taken a step further toward the dissolving of the material forms into space. The application of an architectural 'style' from an alien culture can only result in a dislocation between the forces of design and technology - a cultural malaise, so to speak, and absence of synergy. For architecture to succeed in practice, there should be a synergy in design which cannot be detached from technology any more than it can be removed from any consistent cultural impulse, whatever that might be at any place in the world.

5. FRAGMENATION AND SYNGERY – ARCHITECTURAL EDUCATION

Architectural education is most frequently delivered in specialist fragments according to the interests of individual educators, usually adopting sequentially related topics, history, theory, concept, outline design, detail design and documentation etc - replicating 'text book' and 'fee payment' codes of practice, but not the thinking process of the practicing of architect. The experienced practitioner comes to the conceptual stage of design equipped with an understanding of available technologies and may blend concept and detail at the earliest stages, and frequently works in a non sequential way. Where architectural students are required to engage with construction technology, which for many is a daunting and even esoteric topic, usually subsequent to the design process, they will search out specialist opinions of an often disparate group of academics and practitioners, while the practitioner will seek to gain specialist advice from like-minded people. Students frequently engage with or apply technology to earlier thematic interests as a separate and detached academic exercise sometimes perceived as fruitless since they deal only with 'paper architecture'. However, it is possible to engage with technology at a pre-conceptual design stage and this paper reasons that early engagement is more likely to integrate technology sympathetic to and supportive of thematic concerns, as opposed to either the 'shoehorning' of a convenient technology into a predetermined design outcome or the application of 'style veneers' to inappropriate technologies.

Referring back to D. W. Winnicott (1896-1971), for this paper I have referred to two of his works, "*Transitional Objects and Transitional Phenomenon*" and "*Playing and Reality*" In the former publication he says;

“When symbolism is employed the infant [student] is already clearly distinguishing between fantasy and fact, between inner objects and external objects, between primary creativity and perception." (from "Transitional Objects and Transitional Phenomenon," 1951)

“It is in the space between inner and outer world, which is also the space between people--the transitional space--that intimate relationships and creativity occur. (from "Transitional Objects and Transitional Phenomena," 1951)

Winnicott had a special interest in the mother/child relationship and in particular, the ‘good-enough mother’ who allows herself to be used by the infant in the process of detachment by the child. His theories conceptualized the psychic space between the mother and infant, part physical, part psychological, which he called a ‘holding environment’ where the child's transition to detachment can be more autonomous. This concept of a ‘holding environment’ led Winnicott to his theories relating to the ‘transitional object’. The transitional object, in ‘potential space’, or the intermediate space between internal and external reality, is where creative experimentation can take place, safely and without fear.

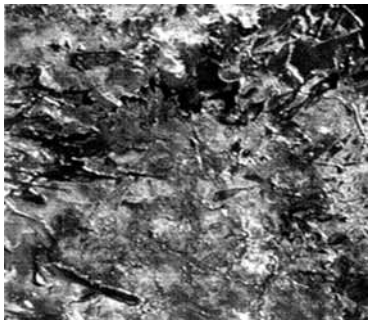
In a subsequent publication ‘Playing and Reality’ Dr. Winnicott develops ideas discussed in ‘Transitional Objects and Transitional Phenomena’. Referring to the intermediate area between internal and external reality, he postulates that if children [students] can utilize this realm to initiate their relationship with the world [architecture], first through transitional objects, and especially through individual play and shared playing, then cultural life and heritage becomes freely available to them. The process of playing, but not playing games (competitive) becomes a valuable activity in personal creativity, a pre form engagement with cultural themes in architecture. A further source is Winnicott’s publication, "Playing: Its Theoretical Status in the Clinical Situation". The place where cultural experience is located is in the potential space between the individual and the environment (originally the object). The same can be said of playing. Cultural experience begins with creative living first manifested as play. (from "Playing: Its Theoretical Status in the Clinical Situation," 1968.

4. 1 EDUCATIONAL PRACTICE AND ARCHITECTURAL PRACTICE - *FRAGMENATION AND SYNGERY IN NEW ZEALAND ARCHITECTURAL EDUCATION*

As previously discussed, Design and Construction Technology courses have traditionally been delivered in a manner isolated from each other, as opposed the experienced practitioner, who synergises the two through experience and consultation with like-minded people. This proposed Design Technology course is to run in parallel with a design paper requiring constructional technology integration and the course introduction

focuses on what I have described earlier as a New Zealand malaise (thin skinned style applied to a dislocated technology) - opening with examples of random 'style pasting' veneers on standard New Zealand NZS 3604 timber frame construction. This extends into materiality and the proposition of a necessity for engagement with materiality at a pre-architecture stage. This engagement with materiality at a thematic level leads to investigation and integration of appropriate technologies to optimise use of the chosen material. Thematic studies are not

Residential Dwelling Auckland 2004



Bronze Casting

Stainless steel sheet tiling.

referred to as 'architecture' but simply intuitive/instinctive exercises. The residential dwelling below for example (thin skin monolithic cladding on timber frame) is used to illustrate material or denial of materiality in architecture and paralleled with the default material rendering capabilities of low grade modelling software – an absence of engagement. The two adjoining images served to illustrate purposeful materiality, which in turn would lead to deployment of appropriate technology, thus thematic design concerns on materiality run parallel with appropriate technologies. The course engagement with materiality continues as threads are woven through a series of buildings linking pre-architecture thematic issues explored through materiality and opens with Le Corbusier's Villa Savoie (1929-31), Paris France, where the constructional techniques employed to express thematic aesthetic of ship design, are actually the incongruous traditional French construction of random stone infill with a smooth plaster finish.

Villa Savoie (1929-31), France, Le Corbusier

House at Bordeaux (1998), Rem Koolhaus OMA

The OMA Rem Koolhaas One-Family Home (1998) Floirac, Bordeaux France in contrast, but referring back to the Villa Savoie, uses exposed raw concrete with integrity and playfully deploys circular openings as a reference to ship design.

At the National Museum of Australia (2001) by Ashton Raggatt McDougall, one pavilion replicates the Villa Savoie, except here the building is clad in contemporary metal sheet as in ship construction, while displaying it's unit construction though slight colour differences between adjoining panels. In the first example, Le Corbusier explores contemporary steel ship aesthetic using a blend of concrete frame and traditional European masonry

National Museum Australia (Villa Savoie pavilion 2001) Ashton Raggatt McDougall

Centre Le Corbusier, Zurich 1963-7 Le Corbusier

and render technologies, while Koolhaas, referring back to the Villa Savoie, deploys concrete but exposed in it's raw state rather than concealed, yet perforated with circular ship like 'portholes'. Ashton Raggatt McDougall, on the other hand, chose to follow the forms of the Villa Savoie, except here the building is clad in contemporary metal sheet as in ship construction, while displaying it's unit construction though slight colour differences between adjoining panels. In the first example, Le Corbusier explores contemporary steel ship aesthetic in The Centre Le Corbusier using a blend of concrete frame and traditional European masonry and render technologies, while Koolhaas, referring back to the Villa Savoie, deploys concrete but exposed in it's raw state rather than concealed, yet perforated with circular ship like 'portholes'. Ashton Raggatt McDougall, on the other hand, chose to follow the forms of the Villa Savoie, but using the contemporary materials of coated lightweight metal panel cladding (emphasised by a mismatch in colour in adjoining panels). Finally, the Centre Le Corbusier, the final building by Le Corbusier whilst alive, deploys the technology of ship ribbed steel construction without any aesthetic or thematic reference to ship design.

Extended case study investigation included La Maison de Verre (1927-32) Paris, France by Pierre Chareau, where steel and glass technologies are overtly yet seductively deployed as material evidence of thematic value

at the time Le Corbusier, knowing the building, was constructing the concrete, masonry and plaster Villa Savoie. Reyner Banham said in 'Theory and Design in the First Machine Age';

"It may well be that what we hitherto understood as architecture and what we are beginning to understand of technology are incompatible disciplines."

Here, Banham is referring to early 20th century Modernism, where traditional construction techniques were being used to give form to radical new cultural and aesthetic themes, as was the case with Le Corbusier. He had in mind the works of such people as Buckminster Fuller were explored, as being more appropriate to the

Geodesic Dome, Buckminster Fuller

'spirit' of the day. Today works from Toyo Ito in buildings such as the Sendai Mediatheque (2001), Sendai, Japan by Toyo Ito, where he who used steel ship yard technologies (actually constructed in the shipyard) in the construction, while describing the building as a contemporary interpretation of Le Corbusier's 'Domino' construction system of the 1920's, finally amalgamates design and technology into a synergetic force.

Sendai Mediatheque, Japan. 2001. Toyo Ito

While the first weeks of the course should deal with 'why' appropriate technology is necessary for good design, with some attention given to 'how' technology is deployed, the course structure would be inverted in the second half of the semester to explain 'how' technology is deployed while retaining aspects of the 'why'. Emphasised as critical for students is the moment 'when' technology engages with design. The connectivity device of materiality between the abstract or thematic (conceptual design) and the representational or technology (production documentation) is referred back to D.W. Winncott's work on potential space and transitional objects and Jung's consideration of the conscious and unconscious, to reinforce the understanding of materiality concerns as a linkage between theme and technology. The earlier the engagement with materiality (transitional object) the more likely is appropriate technology to be deployed, empathetic to cultural or aesthetic concerns.

In the coincident design paper, the first half of the semester is devoted to thematic (intuitive/instinctive) development modelling to represent the student's personal interpretation of the subject of the paper in conjunction with appropriate exercises in materiality. This correlates to Winnicott's potential space where through play (intuition) creative transitional objects are formed at a pre architecture stage. It also correlates with Jung's concept whereby the child is unfettered by consciousness, whereby the unconscious (through play) may engage with individual creative and cultural notions unfettered by consciousness or the ego. In adult life the same result can be achieved through intuitive feeling/thought. In "Analytical Psychology – it's Theory and Practice" (1935), Jung states;

"*Intuition is a function by which you can see round corners, which you really can't do; yet the fellow will do it for you and you trust him……Psychological functions are usually controlled by the will……..But they can also function in an involuntary way, that is, they think for you, they feel for you……they function unconsciously so that you do not know what they have done…….the result of a feeling process which has happened in the unconscious*."

In '*Memories, Dreams, Reflections*' Jung goes on to say that the child (and sometimes the adult) experiences life directly through the unconscious mind, unfiltered by the ego, which develops later. It is this '*arcing across*' from the unconscious mind to the conscious mind, bypassing the ego, thus allowing personal and collective creativity of the unconscious to be expressed, which is introduced in the Design Technology course and directly employed in the coincident design paper.

In the second half of the semester, following a series of '*non-architectural' models and sketches'* of the first half (where the use of the term architecture is prohibited) are translated into architecture amalgamating thematic concerns with materiality and construction technology through a series of exercises involving relationships with context and programme – big spaces and small spaces with optimised relationships.

5. CONCLUSION

In a contemporary world, globalisation does have distinct and useful advantages. For example, regional identity in architecture is possible through global digital developments, where a particular regional craft culture may be designed appropriately at any place in the world and made anywhere in the world, while being integrated into architecture of the appropriate region. With the ever-increasing availability of computer technology, Computer Aided Design and Computer Aided Manufacture (CAD, CAM and CADCAM), together with Rapid Prototyping (RP) and stereo lithography (SL) all facilitate a contribution to the development of native craft emulating skills and 'one-offs' as well as facilitating the rationalisation of complex geometries, in place of hand

made "crafting". For example, an Islamic architect working in North America can design on computer, an element such as elaborate tracery with a regional context, have it manufactured in Asia, and integrated into the architecture of the Middle East, for example.

However, Carl Jung reminds us that science is no less empirical than culture. Where the skin of as building may be analogous to the skin of a person, then interior is analogous to the unconscious (culture, or regionalism) and only through the concept of wholeness can Regionalism survive, for we must look back to look forward. Of America, Jung has this to say in 'Memories, Dreams, Reflections' (1909):

"*As far as technological culture is concerned, we lag miles behind America. But all that is frightfully costly and already carries the germ of the end in itself*"

Having said that, Jung reminds us in "Analytical Psychology – it's Theory and Practice" (1935):

"*Consciousness is like a surface or a skin upon a vast unconscious area of unknown extent. We simply know nothing of it. You cannot say anything about a thing of which you know nothing. When we say 'the unconscious' we often mean to convey something by the term, but as a matter of fact we simply convey that we do not know what the unconscious is. We have only indirect proofs that there is a mental sphere, which is subliminal. We have some scientific justification for our conclusion that it exists. But we must be careful not to be too anthropomorphic in our conclusions, because things might in reality be very different from what our consciousness makes them*."

Nevertheless, whatever culture we embrace, it will always be necessary to look back into history in order to give substance to future activity and this is best done through the unconscious mind. The global gloss of the architectural façade may be facile, but it is after all, just skin deep. Global sharing of technology is useful, but any cultural fullness in Architecture can only be sustained by the synergetic relationship of the conscious (Construction Technology) and unconscious (Design through thematic intuitive feeling /thought, as a future development and extension of history, whatever or wherever that may be.

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