

THE EXCHANGE BETWEEN THE ‘MAKER’ AND THE ‘MADE’ INTANGIBLE, BUT TEACHABLE, OUTCOMES FROM CRAFTING DESIGNED OBJECTS.

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Design educators manage a delicate balance of teaching tangible and intangible physical, cognitive and emotional skills and lessons in support of the maturation of young design professionals readying themselves for the rigors of the post-college world. The act of imagining and crafting iterative explorations towards a final design solution is a process that flexes cognitive and physical design muscles. Research, analysis, synthesis, sketches, renderings, form studies, models and prototypes all feed the physical and cognitive steps toward a refined realization of form, function, fit and feel. But the developing designer is also on an emotional/ behavioral journey of self-discovery, personal purpose, and a sense of accomplishment and reward. Design educators and curriculum accreditation bodies can quantify the tangible and teachable skills but it can be much more difficult to address the young designer’s inner maturation, philosophical and spiritual orientation to design, ethics and developing a professional ethos. This paper will seek to identify methodologies and moments where some of these more ethereal ‘exchanges’ might be introduced in the educational process.

A SHORT HISTORY OF ‘MAKERS’ AND ‘MAKING’

For some 2.5 million years, humankind has been selecting materials, fashioning tools, and creating objects and environments that solve physical and cognitive problems; and enhance behavioral, emotional and cultural experiences. Found and manipulated materials have ranged, over time, from bone, hide, antler, stick and stone (Troeng 1993) - to metallurgical and molecular marvels, natural and synthetic composites and nano-scaled structures, skins and systems. The earliest hunter-gatherers bore the responsibility of performing these building tasks for themselves and their close family and clan groups. Around 12,000 years ago, with the dawn of the Neolithic Age, that paradigm shifted drastically (Wright 2004).

The advent of agriculture and the domestication of animals quickly created conditions where more food was produced than could be eaten in a day, and then in a growing season. This meant that waking hours were no longer entirely devoted to hunting, gathering, farming and fending for one's own food.

(Wrangman 2009) The ability to live in one fertile place set the stage for sedentary housing and population centers. Grain storage for large groups of people created class and status hierarchies, those that 'made' and those who oversaw the 'makers'. (Yaeger 2009)

One of the most interesting cultural, social and economic results of the Neolithic and human communities that 'didn't all need to be farmers' was the rise of the crafter/ tool maker as a specialized trade. (Bar Yosef 1995) These unique individuals, clans or families leveraged natural talents and/or learned skills and supplied their communities with impact, grinding, and cutting tools; farming and hunting implements; pottery; textiles; and decorative wares fashioned from stone, wood, crude metals, earthenware and elements of animal origin. (Yaeger 2009) These materials had functional, aesthetic, and cultural attributes but also embedded meanings and mythologies.

MATERIAL MYTHOLOGIES

Storytelling and mythology have long been employed to explain the mysteries of the world surrounding human habitation. As a thinking species, the act of explaining the unknown origins, properties, and purposes of 'air, water, earth and sky' became a uniquely human preoccupation. (Campbell 1988) Sir James George Frazer, social anthropologist and scholar of comparative religions compiled thousands of years of cultural and spiritual mythology in his encyclopedic work titled, *The Golden Bough*. Several volumes are dedicated to metaphysical attributes associated with trees and wood alone. (Frazer 1890). Anthropomorphic terminology of limbs, veins, trunks and heartwood; attributes of weathered wisdom and king-like guardianship; sacred spaces created in protective canopies; fertility and the bearing of fruits, nuts and vegetation; "spirit" that flows with sap every spring; an "ether wave" of life-giving force that brings forth leaves, blossoms and fruit and binds all living things in the universe. (Jolly 1963) Earthen materials such as stone, clay and crude metals, while inanimate, have had 'origin' mythologies written around them, kept the subterranean secrets of life and death, and contained magical and mysterious

properties that are discovered or unleashed by the builder and live on in their newly created forms and functions. (Campbell 1988)

TEACHING 'MAKING'

The teaching of 'making' began as a generational skill exchange, developed around the geographic limitations of clan groupings and their indigenous resources. Local crafters became good at working the materials close at hand. Through storytelling (mythology), observation and iterative imitation young makers learned to shape the objects their elders were shaping and the family tradition of passing craft and commercial skills from one generation to another survived long into the 'shop keeper' models of community and commerce of the early Middle Ages. Soon organized pathways of apprenticeship, journeyman, master skill acquisition in a 'guild shop' created more opportunities for training in craft using local materials, serving local needs. The rise of 'the academy' transformed the teaching of 'making' into newly formalized formats for art, craft and skill education based on Greco Roman classics. (Young 1985) Student success was judged by their ability to mimic the work of both the ancient masters and their studio master. It wasn't until the Bauhaus model of balanced aesthetics and crafting when students were given the freedom to develop their own personal aesthetic and philosophical approach to form and design. (Young 1985). This model generally connects physical, cognitive and now philosophical/ emotional skill building and continues to provide the general foundations to contemporary design curriculums.

AN INDUSTRIAL AND PHILOSOPHICAL REVOLUTION

Thousands of years after the Neolithic, another quantum-leap techno-socio-cultural epoch was looming on the horizon. The Industrial Revolution, in mid to late 19th century Europe and America, was changing the 'making' landscape of the western world. The millennia of one-off, hand-made, village-crafter object building was being transformed by factories, power systems, and new scales of mass production.

Essayist, philosopher, art and social critic John Ruskin railed against the looming machine-made design landscape of the Industrial Revolution and stirred the soul of the evolving Arts & Crafts movements in Britain and the United States. Ruskin writes, "The highest reward for a person's toil is not what they get for it, but what they become by it." (Birch 2004) He argued doggedly for the intrinsic connection between

soulfully designed and hand-crafted interiors, furniture, house wares, and decorative arts; and an intangible spiritual and emotional reward for both the maker and the final owner of the resulting objects. Ruskin goes on to suggest that “Fine art is that which the hand, the head, and the heart of man go together”. (Birch 2004) He weaves hand, heart, intellect and design into a process of imagining and making and to the resulting fruits of labor- tangible and intangible. William Morris, one of Ruskin's most noteworthy disciples, and a prolific designer of interiors, furniture, textiles, and decorative wares, built his first hand-making studios around the Ruskin-inspired tenets of restoring ‘the soul of goods’ and replacing the ‘spiritually inferior’ goods made by machine to those of the human hand. (XineAnn 2014)

Rewards derived from the design and physical labor of hand-crafting can take on a variety of forms. Financial reward from the sale of finished goods; “social currency” of peer recognition of the crafter as a uniquely contributing member of the community (Crawford 2009); accolades and acknowledgements of creating a legacy of work that will likely outlive the crafter are each reasonable outcomes of craft creation. In an educational context these results could be described as ‘extrinsic’ rewards that are more external and outwardly obvious- finished work, awards, good grades; and ‘intrinsic’ internal motivators like satisfaction and a sense of personal accomplishment. (Kaplan 2010) Handcraft and hobby activities like woodworking, modeling, and sculpting have proven to produce chemical benefits of endorphin and serotonin release lowering levels of stress and raising levels of positive mood and demeanor.(Hall 2011) But are there still higher order, more inspirational outcomes of labor that deal directly with connections to higher levels of human experience? Behavioral psychologist Abraham Maslow placed spirituality in our highest hierarchical position of ‘self-actualization’ as an upward movement from the lower level ‘creaturliness’ of man to the enlightened ‘godlikeness’ of the human journey. (Maslow 1968)

Over time, other designers, crafters, and artisan groups have aspired to reach these esoteric and ethereal heights. The Shakers, the Roycrafters, the Amish, and the Mennonites all interwove doctrine, design and spiritual reward directly derived from handiwork and human connection to material, form, and resulting objects. Traditional Japanese furniture crafters or sashimono-shi, (Hall 2011) refer to their training and work as michi (Hall 2011) which translates to a journey, a way of living, a moral doctrine, an art, a duty.

They strive for 'intrinsic' Zen-like levels of self-knowledge, craft, and harmony with their tools, materials and finished products.

1500 years ago, Benedict of Nursia wrote a blueprint for monastic living and daily devotion that became the 'Rule of St. Benedict' and the philosophical cornerstone of abbey life for Benedictine monks and monasteries the world over. (Walsh 1999) The "Rule" centers around a daily schedule that includes sparse meals, multiple prayers, and morning and afternoon work sessions totaling five hours of daily manual labor. This work not only contributes to the abbey's upkeep, but also serves as an individual sacrifice of effort and energy to God above. In 2014, some 1500 years later, on a 1200 acre wood lot and prairie in northeast Iowa, the New Melleray Abbey houses 30 Benedictine brothers still actively involved in this 'exchange', hand-building hardwood caskets of oak, maple, and walnut. The monks harvest hardwoods from their acreage and hand-fashion simply designed wooden caskets in a pattern of spirituality and devotion hundreds of years in the making. (Richter- O'Connell 2014)

NEW AVENUES OF DISCUSSION

While a recurring 'design and craft to spiritual-outcome' thread may be argued from prehistory to the present, does that perception still have validity in contemporary design school studio settings? Furniture Design professors in a major Midwestern University find teaching moments to discuss the physical, mental and emotional outcomes of 'making'. The tactile act of a human hand running across a worked surface reveals much about the stage of refinement in the pursuit of design intent. Subtle planar imperfections, the quality of finish smoothness, the resistance of grain and growth rings encountered by hand or a machine cutting tool, the read of the rise and fall of annual wood growth before committing a board to a planer or jointer, all idiosyncratic material phenomena discussed as encountered in the studio. A physical and chemical release results from the physical exertion of workshop activities and the reveal of final finishing and assembly of previously only imagined objects. (Davidson, Brown 2014)

Lecture settings like Design and Architectural History courses that weave 'technology, materials, fashion, aesthetics, societal contexts and human need' (Pena 2010) into resulting design movements provide rich opportunities for discussion of historically less tangible social, cultural and occasionally spiritual results of

design movements. The previous discussion of Arts & Crafts Movements, Shakers and Roycrafters can trigger classroom discussion of higher level design motivations and inquiries into students own developing orientations to the work and personal outcomes of design. Biographical research of iconic and influential designers often reveals 'design philosophies' that can trigger classroom discussions of personal motivations of admired professionals.

Seminar and discussion classes in contemporary topics in design can pose questions to design students about the philosophical approaches to projects they encounter in studio and suggest open dialog about how those decisions begin to form a personal design philosophy that will evolve and inform their work throughout their professional lives.

Design educators are currently crossing a new threshold- a 'Digital Revolution' in design and fabrication that often reshuffles or eliminates some traditionally 'hand' focused iterative modeling steps in the making process. Lipson and Kurman in *Fabricated, The New World of 3D Printing*, list several emerging principles of 3D printing that potentially impact the hands-on participation of the crafter. They speculate that a human crafter is limited by time, training and the tools at hand to create a variety of shapes in a variety of materials but the printer's repertoire is far less finite. They suggest that new crafting skills may lay in the maker's understanding of printing materials and mixes and their ability to maximize the printability of files and forms, as well as downstream, post print processes of curing, finishing, and testing. (Lipsom, Kurman 2013) Newly formulating digital fabrication coursework has the ability and perhaps the responsibility to address the positive and negative fallout from distancing craft from crafter.

CONCLUSIONS

The future of design curriculums must continue to balance the physical, cognitive and emotional skill building and maturation of young design students constantly moving along a timeline of evolving design processes and methodologies. Educators must also provide opportunities to experience and learn from both extrinsic and intrinsic motivators and outcomes. The author argues that there is great value in exploring 'the exchange' of the highest order intrinsic motivators – the development of young designer's spiritual orientations to design, self, community, the natural and built world around them, and finally the

cosmos above. After all, it was an architect, designer and part-time professor who is often credited with coining the phrase 'God is in the details'. It is arguably one of design education's responsibilities to help students seek out and define what those Godly 'details' might mean to them.

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