Architecture:
An Introspective Look at the Pedagogical Culture

by

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

In North America, to become an architect, students must acquire a wide range of knowledge, create designs in studio, and spend some time working in an architecture firm. There are various lessons that they need to learn, and techniques that they develop through their education that combine to give them the necessary skills to write their professional exams.

However, the education of an architect is not a process that is simple or straight-forward, and there are a series of other elements that, combined with this basic knowledge, ultimately create contemporary architects. Qualities like individual development, experience, emotional response, personal attitudes, and behaviours are not elements that are going to show up in any architecture school's brochure, but their effect on the student is just as important as the knowledge that he or she will require to practice.

To date, pedagogical inquiry into architecture seems to take two views: either looking at educational techniques and courses; or focusing on the detrimental symptoms of the less-tangible elements mentioned above. This thesis will bridge these two areas by researching the educational process and combining this knowledge with the important but more subjective areas of individual development. Through this study a clearer understanding of the profession will emerge, creating an opportunity for it to improve in the future.

<u>Acknowledgments</u>

I would like to acknowledge the contributions of the following:

This thesis is dedicated to those who kept me grounded over the last seven years:

To my Family for their encouragement and love,
to Jessica Becker for the well-needed vacations to Hamilton,
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and to Jessica Sheldon for trading neurotic tales with me,
all the way from high school to hilltops in Athens.

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Table of Contents

List of Illustrations

Introduction

In the available research on architectural education, there are currently three major areas in which writing is available: there are many books about buildings and how they should be designed; there is a lot of research on how to teach students and what they should know by the time they graduate; and there is an increasing amount of writing that has been devoted to the culture of the profession and the unique behaviours and attitudes that it fosters in the schools. From these sources there are a few that begin to bridge between the subjects. There are cultural texts that also define the educational system[1] and there are books about architecture that talk about how architects were trained over time.[2] However, there are very few writings, especially in the area of architectural culture, that place their ideas in the full context of the profession[3].

The aim of this thesis is to form a more complete picture of the educational system and its practices. In order to do this a 'collection' has been assembled of books, movies, articles, papers, websites, studies, conversations, comics, blogs and opinions on the subject of how architects are taught and what the experience of becoming an architect entails. From this process of collecting, these diverse sources have been brought together, allowing for the various concepts to be looked at side-by-side instead of just one at a time, creating a more inclusive view of the current situation.

The collection process was conducted on a variety of fronts. In the early stages of the project, emphasis was made on recent writings about 'studio culture'[4] and the 'hidden curriculum'[5] of architectural education, with research developing through the bibliographies of these sources, and then expanding into additional books, websites and magazine articles. As the areas of focus began to be defined, additional research was carried out in the fields of psychology,[6] sociology,[7] and history,[8] and the need for opinions from current sources was identified. Visits were conducted to schools of architecture across Canada – at the University of Manitoba,[9] Dalhousie University,[10] the University of Waterloo,[11] Carleton University,[12] McGill University,[13] and the University of Toronto[14] – and interviews were conducted with staff, students and faculty at each of the six schools. As well, each school was toured and photographed extensively, and notes were made regarding their studios and other spaces.

As the writing continued, more information was gathered from movies[15], internet blogs[16], recent accreditation discussions[17] and online networking sites[18], rounding out the discussion to include recent trends and developments.

On examining the collection in its final form, it is important to note that in the architectural sources available on the subject, there exist a significant number of writings that cite a similar list of sources. Of particular interest is a general lack of divergent points of view in the discussion of the more detrimental areas of the culture, a situation that could bear future study.

This document is a weaving together of the sources collected into a piece that moves from large scope to small, from history to the present, and from general ideas to specific practices, so that the smaller details can be examined in their proper context. Images and quotations are used throughout to both augment the text and showcase the 'collection,' and interview transcriptions are notated according to the speaker type (e.g. 1st year student, architecture professor, practicing architect, etc.). Speakers are not identified by school due to the requirements that were part of the multi-university ethics approval and in order to give the speakers the opportunity to discuss sometimes controversial issues without feeling threatened. This unfortunate restraint does place a limit on how much the specific institutions can benefit from the comments of their staff and students, but the general ideas discussed in the thesis are still applicable to all.

The discussion takes place in three parts:
 Part 1 presents the foundations of the profession and the educational system: the 'Architect' is defined according to outsiders, architectural students, professors and practicing architects; a history is presented of the education of architects in the western tradition from Egypt to the current North American situation; and the more subjective qualities of the architect are examined in a series of archetypes from both the profession's view and that of society.

Part 2 looks specifically at curriculum and pedagogical theory in architecture schools, expanding upon the knowledge of history and professional definitions from the first part: exploring the reasons why individuals choose architecture; how programs are arranged and what they contain; studio learning and the importance of social interaction to its success; crits and criticism and their place in architectural education; and the careful balance that programs must maintain between theory and practical education.

Part 3 delves past the curriculum, building upon the understanding of the educational process established in the second part and expanding the scope into the less tangible practices of the schools: individuality and its place in the program; the experience and its importance; how emotions affect architects as they learn and develop into practitioners; the attitudes that are picked up as a part of the educational process; the dysfunctional behaviours that are prevalent in the schools; and the challenge of maintaining life and work balance as an architect.

This document is both a discussion of the education of architects, and a collection of elements that will have unique meaning to any reader; the various quotes and images will have a different impact depending on each reader's views or preferences. This compilation is meant to spark increased discussion on these issues, while at the same time fostering an appreciation for the long traditions and development of this ancient profession.

Discussion has been increasing concerning architectural education at present, and this conversation has lead to positive developments that are presently being implemented (for example, ideas from the 1996 'Boyer Report'[19] are currently being added to accreditation requirements[20]). However, as all designers know, there is always more work that could be done. By attempting to bring together some of the more divergent areas of knowledge, and as a result presenting a new point of view, this document adds to the growing call for pedagogical and cultural development.

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[1] *Lewis 1985, Salama 1995*
[2] *Kostof 1977, Briggs 1974*
[3] *Boyer 1996, Dutton 1991*
[4] *Studio Culture Summit Report 2004, Koch 2002*
[5] *Quinn 2000, Monaghan 2001*
[6] *Padesky 1995, Salovey 1997*
[7] *Stevens 2007*
[8] *Kruft 1994, Saint 1983*
[9] *University of Manitoba Site Visit Interviews*
[10] *Dalhousie University Site Visit Interviews*
[11] *University of Waterloo Site Visit Interviews*
[12] *Carleton University Site Visit Interviews*
[13] *McGill University Site Visit Interviews*
[14] *University of Toronto Site Visit Interviews*
[15] *My Architect 2003, Sketches of Frank Gehry 2005*
[16] *Chen 2008*
[17] *AIA White Paper 2007*
[18] *Various authors Facebook Groups 2007*
[19] *Boyer 1996*
[20] *ACSA Report for the Accreditation Review Conference 2008*

Part 1: Professional Foundations

1.1: Defining the Architect

"Him I consider the architect, who by sure and wonderful reason and method, knows both how to devise through his own mind and energy, and to realize by construction, whatever can be most beautifully fitted out for the noble needs of man." – John Habraken, former director of MIT department of architecture[1]

Defining what an architect is or what exactly it is that they do is by no means an easy task. Ask an architect and you will get one answer, ask a client and you will get another, and from a student, still one more. The interesting part of this disparity is that most of these responses are correct, and there are cases of practicing architects that fit all of these molds. Every architect is different; just as every building is a unique construction, and this shifting of definitions is part of what defines the profession today. On the following pages a variety of these responses are displayed (collected from architects, professors, students, and individuals outside of the profession), as well as some thoughts on the content of these definitions and the interesting shift that occurs as students progress through architectural programs.

1.1.01

To an outsider, the client, or any individual not closely associated with the profession of architecture, the architect is, first and foremost, a designer of buildings. Some consider the architect to be a translator of dreams, using construction as a means of realizing the client's hopes into a built form. The architect is also often defined as a coordinator of the many disciplines involved, acting as a bridge between clients, engineers and others in the construction of buildings.[2]

As students enter schools of architecture and begin their education, this fairly simple definition changes, and architects are presented as, "Moral Decision Maker[s]", burdened with "many heavy social and moral responsibilities," or as, "unrecognized God[s] ... attempting to perfectly create a world."[3] Perhaps naïve, perhaps a reaction to being thrown into a new educational realm, these definitions are nonetheless representative of the radical shift that occurs in the student's view of the profession upon entering school.

"The Architect, by his arrangement of forms, realizes an order which is a pure creation of his spirit; by forms and shapes he affects our senses to an acute degree and provokes plastic emotions; by the relationships which he creates he wakes profound echoes in us." –Le Corbusier[4]

I believe an architect is a dream planner. Someone who has the responsibility and opportunity to make people's dreams come true in the form of a home. They have the opportunity to design a home the person / people would love, but at the same time the responsibility to make sure that the home follows guidelines / rules of building and can fit within a budget. - Community Support Services Team Leader

An architect is half engineer and half artist. They put both sides of the brain to good use. They design and repair buildings. - Registered Nurse

Someone who designs buildings and the spaces around them. Someone who makes an engineer's life difficult. - Infrastructure Engineer

An architect is a space planner, a dreamer, a planner, a creator, a philosopher, a problem-solver, a mathematician, and an artist. An architect must understand all professions, abilities, disabilities, life stages, and behaviors in order to create the most appropriate design. - Interior Designer

An architect is a consultant (in translating customer needs into reality), a voice of sanity (to tell customers when their requirements are unrealistic), a diplomat (to navigate this fine line), a visionary (to translate the requirements into something stunning), a designer (to create a practical solution to an idea) and a project manager (to make it happen on time and on budget). Some architects will fill all of these roles while others will specialize in parts of the requirements. - Accountant

An architect is the creative force behind building design. - Newspaper Editor

An architect is a professional whose job it is to realize a dream that a client has, guiding them to make good choices about their design. - Administrative Assistant

An architect is a person whose job is to design buildings. - Linguist

An architect designs infrastructure (buildings, city layouts) and works with necessary individuals (engineers, planners, government) to ensure needs are met (budget, sustainability, aesthetics) - University Student Life Coordinator

An architect is someone who corresponds with clients, lawyers, engineers, and builders in the process of designing and overseeing the construction of a building. - Theatre Technologist

An architect is a person who designs buildings. They make a space more livable, appealing and user friendly. They make sure that buildings work for their purpose and look good. - Toxicologist

An architect designs the physical structures we live and work in on a daily basis. They take into consideration a variety of life-affecting criteria: space and mobility, window and door placement for light and ease of safe access, structure stability, as well as a myriad of materials for potential use; materials chosen that may affect the natural environment or the health of the building's inhabitants.' - Librarian

Architects have taken courses in or have knowledge about planning, drawing, computer aided design, structure and building codes, materials used for building etc. They take an idea for a building or structure of some kind, and see this from start to finish: creating several drawings of what the structure will look like, scale drawings of location and building, materials to be used. - Educational Assistant

An architect is someone who is living their dream - they can become any number of things and create any number of things, but they choose to live out someone else's dream and bring it into reality. - 1st year student

Architecture is everything. So you need to be aware of everything. An architect is a professional 'jack of all trades' who must constantly broaden their minds. - 1st year student

An architect is someone that helps society define space using their own ideas. - 1st year student

Moral Decision Maker. - 1st year student

An architect is an unrecognized God, on a smaller scale, attempting to perfectly create a world within the world that already exists. - 1st year student

With the many heavy social and moral responsibilities on their shoulders, architects are visionaries who create something from nothing. - 1st year student

Architects deal with the function of life, and make the context for life better. He / she is a person who knows about the cultural values of a place, instead of just being an engineer. They give to people to make a better life.
- 2nd year student

An architect is a person who shapes social interactions through the built form. - 2nd year student

Architects design more than just buildings, they design experience. - 3rd year student

An architect designs to bring people together. - 4th year student

What is an architect? I wish I knew. I don't know, I don't think there's one answer... Different architects have different definitions. - 3rd year student

As the student progresses through his or her education, the definition shifts once again, and instead of a series of somewhat inflated qualities, the responses from upper-year and masters students range across a broader spectrum. Architects "bring people together", are knowledgeable about "the cultural values of a place, instead of being just an engineer", they "give to people to make a better life", "bring dreams to reality", are "generalists", or are "artist[s] ...[who] encapsulate the art of persuasion, organization and conversation / rhetoric ...to contribute to the realization of the original concept."[5]

Lastly, and perhaps the most credible, are the definitions from members of the profession, and in comparison to some of the student's responses, these are remarkably simple. Though the language is perhaps more eloquent, the basic definitions provided by the profession's full members are very similar to the basic responses of outsiders. This final set of definitions states that architects "focus on the built environment by balancing between that which is real and that which is more numinous," work with "clients [in] the design and construction of their projects" and act as "stewards for [the city's] design and management."[6] The basic definition of the coordinator or dream-realizer is echoed from the client's definitions, bringing the definition full-circle.

In collecting the responses to the question of 'What is an Architect,' it became clear that the profession is highly reliant on the individual for its meaning. In general, all architects are designers of buildings, but at the same time, they can be much more. In defining the profession, it should be understood that a variety of elements combine together to create any single architect, and that there is no easy answer to exactly who they are or what they do.

"I haven't seen any profession in which you can meet an important politician at twelve and at four you are fighting with the workers on the buildings site. These strange conditions are what I love. And maybe that's why society doesn't understand architects, because we even dress in a hybrid way that allows you to have a meeting with a developer at twelve and go to the site at four. So your way of dressing is a sort of in between: You just pick a jacket and you are on the level of discussion with a developer. Maybe that's funny, but that is what I like in architecture. It's not only a matter of meeting interesting people but you are confronted with different phenomena. Everything is interesting." - Juan Palop Casado, LPA[7]

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[1] *Habraken 2006, 13*
[2] *Non-Architect Responses*
[3] *1st Year Student Responses*
[4] *Corbusier 1986, 1*
[5] *Mid-years Student Responses*
[6] *Professor and Practitioner Responses*
[7] *Praeger 2004, 108*

Architects design spaces, buildings, forms, and the environment. - 2nd year student

Architects improve the environment, they are someone who takes what people want and translate it. They are sympathetic to others needs and desires. - Masters student

An architect is someone who brings dreams into reality. Working with a client, they are sympathetic to their imaginings and use their skills and understanding of cultural environments to bring these imaginings to reality. - Masters student

An architect is someone who in a thoughtful and deliberate manner creates spaces that reflect the essence of life and who we are. The architect brings the built environment and human together. In other words it is that which moves us, and has an impact on our well being and it is the architect's responsibility to create a positive impact. - Masters student

An architect is a generalist: you can't separate them from the world. - Masters student

Architects recognize that buildings are a miniature cosmos, not simply related to themselves, but to the greater world. They continuously engage the built world in order to improve the quality of life of its users. Architecture is the art of building well, eating well, and living well. - Architecture professor

An architect is a professional responsible for the design of a cultural artifact. An architect uses a comprehensive combination of resources in order to produce a building or any other designed object/thing. An architect is an artist in many ways which are at the drawing board and beyond it to encapsulate the art of persuasion, organization and conversation/rhetoric which all contribute to the realization of the original concept. - Intern architect

1.1.02 *Scene from the pageant 'The Skyline of New York', with architects modeling their own creations, 1931.*

A client pays an architect to provide a structure that shelters users from the natural exterior elements and/or to provide functional spatial order [per user and user function] for the interior of a structure. - Architect

Architects are focused on the art of living, and they stay focused on the built environment by balancing between that which is real, and that which is more numinous. - Architecture professor

An architect is an individual who deals with the creation of our built world. They can be a planner, a designer, a critic or perform any number of roles. – Architect

An architect is a master-builder; they are a bridge between societal needs and wishes, personal needs and the built environment. – Architect

Architects provide graphic, verbal and "written" instructions on how to assemble these structures and/or interior spaces. Some architects propose their structure as a significant component of the aesthetic and cultural landscape but many provide purely functional structures and spaces in order to maximize profits by discouraging customized labor, materials, and design process with little or zero regard to the aesthetic and cultural context. – Architect

An architect, who practices architecture, by my understanding, is a professional who works in the building industry to assist clients with the design and construction of their projects. – Architect

Architects accept and embrace the responsibility for the city, and are stewards for its design and management. - Architecture professor

defining the architect

1.2: A History of the Architect and his Education

"The Art of Building, as far as I can gather from the Works of the Ancients, spent the first Vigour of its Youth in Asia: It afterwards flourished among the Greeks; and at last came to its full Maturity in Italy. And this Account seems very probable; for the Kings of Asia abounding in Wealth and Leisure, ...found that they had occasion for larger and nobler Habitations, ...and imagining that a King was obliged to do something which private Men could not effect, these great Monarchs began to be delighted with high Works, which they fell to raising with a Kind of Emulation of one another, till they came to erecting the Pyramids.[1]" - Leon Battista Alberti

The first architects in the history of the western architectural tradition can be found in Egypt in the time of the pharaohs. In this period, architects were closely tied with the priestly class, and acted as designer go-betweens for the kings and their gods. Architecture was viewed as a field for cunning and multi-talented individuals, as can be seen in the architect Imhotep, who was "canonized and worshipped as the patron saint of wise men, scribes, etc.[2]" Like the profession today, architecture in Egypt gathered its influences from many fields, or in this case, many gods: from "the goddess Seshat, known as Lady of the builders, of writing, and of the house of books", to "Thot, the god of science", and "Ptah, the god of crafts"[3]. Architects were educated by priests, and then apprenticed to practicing architects where they learned the traditions that had been passed down from generation to generation.

It was in Greece that the word 'Architect' was first used, and the term 'Arckhitektn' was defined as "a chief artificer, master-builder, director of works, architect or engineer, as opposed to an artisan or manual worker."[4]   In Greece, the architect was often an inventor as well as a builder, and no distinction was made between architecture, engineering and city planning. He was considered to be a "Jack-of-all-Trades ...sometimes veering towards the sculptor, sometimes towards the engineer, ...capable on occasion of designing theatrical properties and scenery or the paraphernalia for public festivals.[5]" There are few records available regarding the education of architects at the time, but in general, architecture was an occupation limited to the upper class, and tended to be established in families. The "would-be architect started off in one of the arts or building crafts,"[6] received a general education from private instructors, and completed his education by apprenticing under a practicing architect.

In Rome, the architect's scope included construction, hydraulic engineering, surveying and planning. More is known of the architect of this period because of Vitruvius' work, 'the Ten Books on

1.2.01: inscriptions from the tombs of architects

1.1.02: mosaic of the architect and his assistants

1.2.03: the Roman architect and masons at work

1.2.04: St. Denis giving instructions for the building of a cathedral

Architecture' which described the art of architecture as well as the qualities and training for the ideal architect. This treatise, written sometime between 33 and 14 B.C. is the only remaining document that discussed both the profession and the craft of architecture, acting as the basis for much of the knowledge of the profession in Roman times[7]. Unlike the Greek system, in which only the wealthy could afford the private instruction necessary, in Rome, architecture was a profession that was available to all. There were three main methods through which one could become an architect: first, by exploring the liberal arts and then apprenticing under an established architect; second, training in the Roman army while picking up the basics of engineering, construction and artillery skills then working up to the post of senior engineer or architect; and third, rising through the imperial civil service in a path similar to that of the army.[8] Vitruvius himself was a product of the military path to the profession, and during the time in which he was writing his treatise, he was employed for the design of artillery.[9]

In the Middle Ages there was a major change in the profession of architecture. This change came primarily from the "reluctance on the part of sponsoring agencies [clients], primarily the Church, to acknowledge the specific identity of professional experts in charge of structures it commissioned."[10] Because of this lack of recognition, the profession of architecture as it was so called began to fade into obscurity, and was replaced by a series of other titles that revolved more around the titles of mason or master-builder (e.g. 'magister fabricae', 'maistre des ouvrages' or 'baumeister').[11] Architects were no longer educated in the liberal arts but were trained instead as carpenters and stonemasons in guilds, serving apprenticeships and later presenting a 'master work' to complete their education. In this way, architects acted more as contractors instead of solely as designers. However, even with this shift in title, the profession by no means disappeared:

"It may be stated without doubt that for every medieval building of any importance there was an architect. By an 'architect' we mean, primarily, a man who designs and superintends the construction of a building. Whether his training [was] acquired in a workshop or an 'office' is immaterial, nor does it matter in the least what title his contemporaries choose to give him. If he performs this dual function of design and superintendence properly, he is an architect." –from 'The Architect in History'[12]

This title of 'master mason' persisted for centuries, and it was not until the Gothic period that the term 'architect' re-emerged. Apprenticeship would continue to play a big part of the architect's education, (seven years in length, beginning at age thirteen or fourteen), but now his education would also include a stage of learning as a journeyman (traveling and observing different types of work on job sites) and the creation of a masterwork (either a real-world job completed or a model showcasing their skills). When all this was done, the architect could practice on his own, or attach himself to a wealthy patron for commissions.[13]

It was not until the Renaissance that the profession would once and for all re-emerge from obscurity. [14] Like the Greek and Roman architects, the Renaissance practitioner was a dabbler in many trades, and was often involved with painting or sculpture before focusing on buildings. His education was closely linked to his family's wealth, as his liberal arts training was attained almost entirely from private tutors, and he would complete his education by apprenticing to a practicing architect. Definitions of the architect at this time returned to a concept similar to Vitruvius' view; individuals who worked between the two concerns of geometry and beauty. In Alberti's 1452 publication of his own Ten Books of Architecture, he presented this view of the architect:

"Him I call the architect, who, by sure and wonderful Art and Method, is able, both with Thought and Invention, to devise, and, with Execution, to complete all these Works, which, by means of the Movement of great Weights, and the Conjunction and Amassment of Bodies, can, with the greatest Beauty, be adapted to the Uses of Mankind." - Leon Battista Alberti[15]

At the time, mainly stemming from the general arts base of their education, many architects simultaneously worked as painters or sculptors, and even in Giorgio Vasari's publication 'The Lives of the Most Excellent Painters, Sculptors and Architects'[16], though recognizing architecture as a unique field, all the architects mentioned were also noted as masters in other fields.

"Architecture is to be adequately pursued only by such men as possess an excellent judgment, a good knowledge of design, or extensive practice in some such occupation as painting, sculpture, or woodwork, and have been thereby led to the habit of measuring figures, edifices, and bodies." –from 'The Architect in History'[17]

Alberti also set the foundations for a profession that was responsible for more than just design, stating that the architect was required to also offer "Service, Security, Honour and Ornament [to the] public," and directly influenced the "Pleasure and Health" of the community.[18]

As the renaissance spread to France, the architect began to define his profession as unique from the fine arts, and in Philibert De l'Ormé's 1567 publication, the 'Premier Tome de L'Architecture,' the profession was described as "a self-governing profession of specialists with accepted standards of training and clearly defined responsibilities and privileges.[19]" De l'Ormé presented for the first time the social distinction of the profession (that it would be responsible for certain types of buildings over others), and planted the seeds of the current educational system; leading away from the haphazard standards of liberal arts and apprenticeship. He also believed that the education of the architect was best suited to formal education, a concept that was "completely new for France, where architecture had hitherto been a craft activity."[20]
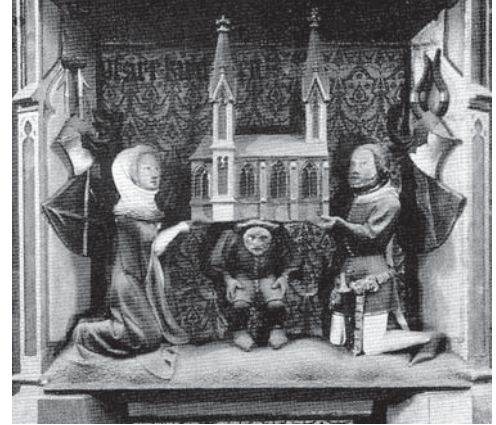
1.2.05: relief commemorating the founding of Ulm cathedral

1.2.06: Brunelleschi presenting the model of the church of S. Lorenzo

It was not, however, until over a century later in 1672, that these ideas found their form in the establishment of an all-encompassing system of architectural education. At the time, King Louis XIV was "dissatisfied with the training of French architects in the theory and aesthetics of architecture,"[21] and he decided that a school was needed in which French architects could be trained. At the same time, other academies were being formed so that the state could control the training and discoveries of all areas of knowledge, and architecture, alongside painting, sculpture, dance, writing, music and science was placed into these schools.[22] In the newly-formed academy, architects would learn general design principles that would be added to with practical experience when they graduated into a position at the Royal Building Administration. The Academie Royale de l'Architecture, formed for this purpose, and its later incarnation, L'Ecole des Beaux Arts, marked a turning point in the education of architects, and provided "the basis for the method of instruction used in architectural schools [well into] the twentieth century."[23]

The educational system of the Academie was fairly simple. It hosted weekly meetings in which members "discuss[ed] architectural themes and arrive[d] at resolution[s]," and these sessions usually began with "the reading aloud of earlier architectural theorists."[24] This discussion was meant to establish the current architectural theory to be practiced as the national style of France, and the methods to be passed on to young architects. Courses in geometry, arithmetic, mechanics, military architecture, fortifications, perspective and stonecutting were also available, and a three-year lecture course was officially developed in 1717.[25] Design competitions were a big part of this education, and as the lecture course developed, an annual competition was run in which students were awarded a gold or silver medal[26]. The Academy continued with this educational strategy for over a hundred years, from 1671 until 1793, when it developed into two schools, the École Polytechnique and the École des Beaux-Arts.

The École Polytechnique was founded in 1795 because of a need for more technical experts in the field of construction, and its initial mandate was to give its students a "strong scientific background, supported by mathematics, physics, and chemistry."[27] With its formation and the later creation of the École des Beaux-Arts, the education of architects began to be divided between two areas; the École Polytechnique emphasized the importance of practical knowledge, and the École des Beaux-Arts advocated more design-oriented learning. This educational divide would continue well into the 20th century until accreditation processes for schools would enforce a more balanced curriculum.

1.2.07: the Ecole des Beaux-Arts 'salle des études antiques'

1.2.08: Beaux-Arts competition being judged

"Regarding theoretical knowledge, we feel assured that it does not take much time to become masters thereof. Despite its value, theoretical knowledge does not suffice for an Architect if he cannot [use this] in combination with applied knowledge, as it is in this facility that talent is shown."- Jean-Nicolas-Louis Durand from his 'Précis des leçons d'architecture données à l'École Polytechnique.'[28]

1.2.09: the Atelier of Jean-Louis Pascal

The École des Beaux-Arts was created in 1799, and it used a step-by-step system where students completed a series of levels as part of their education. First, students made contact with the patron of a studio. Second, they would enroll into the Beaux-Arts program by presenting a letter of introduction from the patron and a document proving that they were between the ages of fifteen and thirty. This done, they would become 'aspirants,' and appear formally on the enrolment list of the school. Upon admission, students were placed in the Second Class, where they entered competitions to gather the points they would need to advance to the First Class. After this, they had to win more competitions, complete a thesis project, and gain a year's work experience in order to complete their training.[29] The greatest effect that the École had on later methods of architectural education was from its use of 'ateliers' (studios), environments where students were divided up into small working groups with a patron or master presiding over them. Within this system, 'les anciens' (the older students) would work with less experienced students for the preparation of design competitions for evaluation by a review panel.[30] Students in these ateliers were dependent upon each other, and there was a hierarchy established according to their skill level.[31] The patron in each atelier would occasionally come in to observe a student's work, but generally the students ran these ateliers on their own, with a single 'massier'(student in charge) as the administrator (responsible for collecting money for costs: rent, coal, lamp oil, reference books and the fee for the studio architect)[32]. Besides taking part in studio design projects, after the 1820s, lectures were also held in architectural theory, history, construction, perspective, and mathematics, and after 1900, courses in physics, chemistry, geometry, building law, general history and French Architecture. As the school became more popular over time, the enrolment increased from thirty-seven a year in 1820 to almost one hundred in 1890. [33]

In its long reign as the authority on architectural education (functioning as a school until 1968), the Beaux-Arts attracted students from all backgrounds, and played an important role in the

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ASSOCIATION OF COLLEGIATE
SCHOOLS OF ARCHITECTURE

1.2.13

N   C   A   R   B

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initial development of architectural education in North America. It provided a "natural source of ideas at a time when American architects were lobbying for state licensing laws, decrying the low quality of public buildings, organizing professional societies, and attempting to found new schools."[34] In the 1700s, Americans who were interested in practicing architecture, who came from wealthy families, often traveled to Europe for their education and the 'Grand Tour',[35] and many of these students traveled to France in order to study at the École. Richard Morris Hunt was the first American to study at the École in 1845, but many followed the same path, including H.H. Richardson and Louis Sullivan. These architects, once trained, would return to the United States and start up schools or offices founded on the Beaux-Arts principles and the traditions that they had experienced as students there. The first American ateliers were established in 1857 and 1866 respectively, both with the École mandate of studying "art, intellect, and theory."[36]

As schools were created in various countries, the majority of practicing architects began to shift from those who were trained through apprenticeship, to graduates of educational institutions. As the École was making its mark in France and America, a similar process was also developing in Britain. In this case, the impetuous for the creation of architecture schools came not from the government, but from the students. When no schools were created in Britain to match the system in France, a 'pack of troublesome students,' formed the Association of Architectural Draftsmen (later to become the Architectural Association) in 1847.[37] As a group, these students prepared designs, providing their own criticism and commentary, and volunteer lecturers were brought in to fill the holes in instruction. This school stirred up the debate of standardized qualification for architects, and in 1887, the previously existing Royal Institute of British Architects (RIBA) created a qualification process composed of three parts: Preliminary, Intermediate, and Final Examinations, where the Final was required for all practicing architects. In the 1890s, 'official' schools were opened to properly train students to pass their exams, starting with King's college in London, and in 1900, a BA Honours course was established that exempted graduates from the Intermediate requirement. Lastly, in 1920, a five-year course was instituted that granted graduates full exemption from the exams. [38]

This marked shift to qualification processes as governed by an architectural association was mirrored by organizations in the United States on a similar timeline. In 1857, the New York Society of Architects was created (later to become the American Institute of Architects or 'AIA') under a mandate of "unit[ing] in fellowship the architects of this continent and combin[ing] their efforts to promote the artistic, esthetic, scientific and practical efficiency of the profession."[39] The first full architecture school opened at the Massachusetts Institute of Technology (MIT) in 1865, and like the British system, graduates of architecture schools were exempted from their registration exam. In 1903 this exemption applied to graduates from Cornell, Columbia, Harvard, MIT and

Pennsylvania.[40] Architecture schools were also beginning to appear in Canada, starting with the University of Toronto in 1890[41], and McGill University in 1896[42].

As the education of professional architects shifted slowly away from the influence of the workplace and into that of academic instruction, more regulating boards were created in the United States to maintain these programs and ensure the quality of their teachings. In 1912, the Association of Collegiate Schools of Architecture (ACSA) was created to "advance the quality of architectural education,"[43] and in 1919, the National Council of Architectural Registration Boards (NCARB) was created as a sub-section of the AIA to provide "uniformity in licensing and practice laws, facilitate reciprocal licensing, to discuss the scope and content of licensing examinations, and improve the general educational standards of the architectural profession in the United States."[44] These developments were primarily focused on the proper training of architects and the content of their education, leaving the overall philosophy or method of instruction as a decision to be made by the schools. Up until World War I, instruction was primarily influenced by Beaux-Arts ideals, but afterwards, new theories were developed regarding how architects should be trained and how they could best be instructed to face the changing professional world.

One of these new theories for education was the Bauhaus, a school founded in Germany.   Walter Gropius, a German architect who was the director of the Bauhaus in 1919, spearheaded this new theory of design and is, "from the point of view of architectural education, the most important figure in the development and implementation of the new theory of design education."[45] The Bauhaus believed that all types of design were alike, and that all designers should share a common education. This ideal, in comparison to the Beaux-Arts, was a reversal of the idea of 'architect as specialist', and returned to the premise of the 'architect as generalist' (similar to the Greek, Roman, and Renaissance configuration). Students of all design disciplines worked together in design teams so that they could learn to collaborate with others, in a theory and method that was in sharp contrast to the Beaux-Arts premise of design competitions.

In terms of program, the Bauhaus was very specific in its requirements. In its statutes of 1921 it stated that, "Every applicant will at first be admitted for a trial period of six months… During this period the preliminary course is obligatory. This course consists of elementary instruction in form in conjunction with studies of materials… Final admission is dependent on the applicant's completion of the above classes and on the quality of his independent work finished during this six-month trial period. Only after being finally approved by the Council of Masters may the newly accepted student join the workshop of his choice and freely select his artistic master from among the membership of the Council of Masters."[46] The preliminary course contained the basics of form and composition as well as practical arts training in workshops of
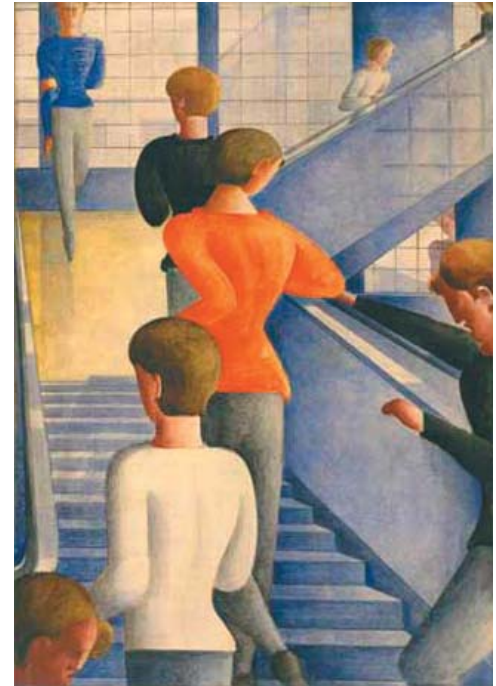
1.2.15: 'Bauhaus Stairway' by Oskar Schlemmer
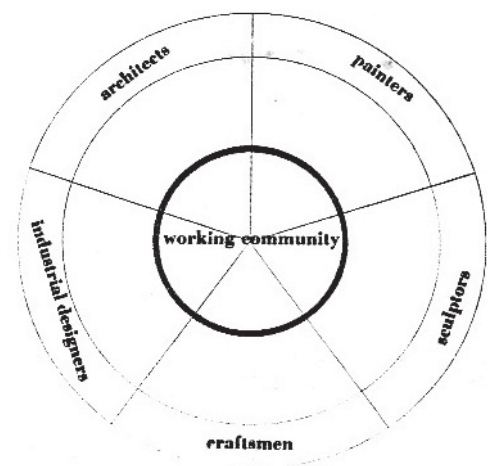
1.2.16: Bauhaus 'essential scheme for architectural education'

1.2.17: Frank Lloyd Wright teaching at Taliesin

1.2.18: the 'great drafting room'
University of Pennsylvania

various subjects (printing, ceramics, stone sculpture, metal, wall painting, glass painting, cabinetmaking, weaving, stage, wood carving, and book binding).[47] Following the preliminary course, the students took courses in design, building construction, forms and space as well as training in model building. After the general course, the student could choose specific architectural training consisting of design studio and lectures in various types of construction.[48]

The Bauhaus refined design education for almost fifteen years until it was shut down in 1933 by the National Socialists who claimed it was a breeding ground for "cultural bolshevism and communist"[49] values.

The Bauhaus, though closing its doors in Germany in 1933, continued to have lasting effects on the education of architects in the United States, and, with Gropius hired as an instructor at Harvard in 1936, he was able to spread his Bauhaus principles to a new audience.[50] Ludwig Mies van der Rohe, another major player in the Bauhaus movement, was "given a free hand in the conception of a new curriculum" for the Illinois Institute of Technology (IIT), in which he established a method of Bauhaus style teaching that persisted for decades.[51]

The Bauhaus had its influence on schools in Canada as well. At McGill University, the program was drastically shifted in 1941 under "the conviction that the disciplines of engineering and architecture must be brought together to resolve modern building problems."[52] This change led to a practice that continues today that requires students to take part in architectural courses as well as engineering.

As well, building upon the Bauhaus bridging of disciplines and the historical idea of the architect as knowledgeable in a variety of fields, Frank Lloyd Wright's Taliesin School of Architecture, formed in 1932, was developed based on the concepts of 'learning by doing' and a mixing of disciplines. The educational system at Taliesin emphasized painting, sculpture, music, drama and dance, with the understanding that these arts all responded directly to architectural ideas.[53]

Alongside this development of new programs, and going back to the need for the regulation of graduates and architects, the architectural organizations in the United States (NCARB, AIA, and ACSA), joined together with the National Architecture Accrediting Board (NAAB) to ensure that architects were competent, and to protect the right of students to a "comprehensive professional education."[54] The NAAB would serve a dual purpose: that of maintaining the quality of existing programs; and supplying schools with the support they would need to develop into unique entities within the overall criteria.[55] This emphasis on providing quality programs became increasingly important as enrolment in schools continued to rise after World War II. In 1953, there were over ten thousand students

enrolled in the United States; a dramatic increase from numbers in the five to six thousand range from 1930.[56] These numbers would continue to grow, and in recent ACSA statements, there are now over two hundred and fifty schools in their membership from both the United States and Canada, with faculty numbering over five thousand.[57]

As this growth continued, the shift from pure apprenticeship to higher education moved one step closer to completion in 1967 with the NCARB voting to require all practicing architects to have a professional degree from a school that was recognized by the NAAB, or to possess practical training to a similar standard.[58] Throughout the 1970s, debate was rampant over what exactly an architect's education was to consist of, and what role the workplace would play. At the time, apprenticeship was still an available option, and many architects were educated in a combination of academic instruction and apprenticeship-like learning. Regardless of the method, standards were made official in 1983 with the creation of the Architect Registration Examination (ARE), a nine-part thirty hour exam that was taken over the course of four days.[59] In 1984, the final step was taken to solidify the entire system. It was finally decided that all architects would be required to have a professional degree. This decision was made to a close vote, and it was followed by years of resolutions to "rescind the action, failing by an ever-increasing margin [with each passing vote]."[60]

This forever changed the education of architects in North America, and many of the schools were forced to redevelop their programs to fit the mold. An example of this drastic change can be found in Frank Lloyd Wright's Taliesin, a school that continues to exist today, but who notes in their history the effects of this drastic shift:

"As with other professions, the practice of architecture has become increasingly structured. The American Institute of Architects (AIA), the National Architectural Accrediting Board (NAAB), the National Council of Architecture Registration Boards (NCARB), and other organizations which govern the standards of architectural practice, increasingly required graduation from an accredited institution of higher education and an accredited architectural program as a pre-requisite to sit for the Architectural Registration Examination (ARE). ...In response to this changing climate, the Foundation stepped forward to formalize the apprenticeship program into the Frank Lloyd Wright School of Architecture. Apprentices, however talented and well trained, could not become licensed architects in many states without the approved degree. ...From 1985 until 1996 the School underwent a rigorous process of reporting towards accreditation, which was earned successfully at both the Institutional level and the Professional Architectural level."-except from the 'Historic Legacy' of Taliesin[61]

At the same time that pure apprenticeship was lost as an option, the Intern Development Program (IDP) was created, "recognizing the importance of practical experience in addition to the NCARB exams."[62] This piece of the educational process required interns to prove that they had acquired basic knowledge in a variety of areas

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Canadian Architectural Certification Board
Conseil canadien de certification en architecture
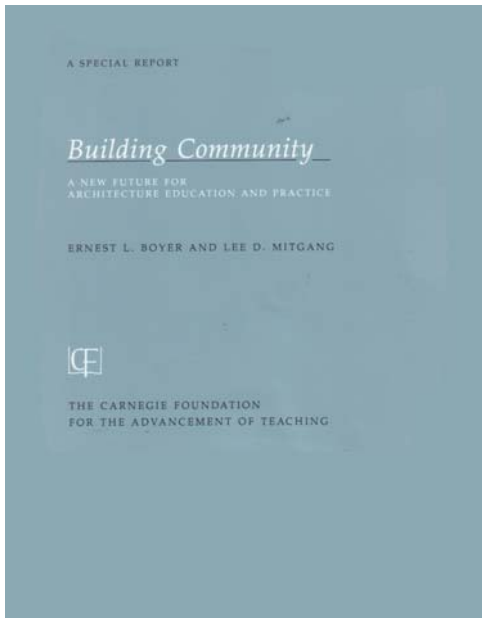
1.2.22

1.2.23

of practice by logging time with a firm before they could complete their registration as an architect. The educational system at the time was changing, and through university education, internship, accreditation and registration exams, the process of becoming an architect was increasingly standardized.

 "We proceed, we persist, we create, we change in order to give the world beauty, shelter, home and sanctuary. The new age is dawning, and this profession will build it. It is the greatest challenge that we face. And with skill, commitment, and willingness to adapt to new realities, it is going to be our greatest triumph." -1985 AIA President John A. Busby Jr. [63]

In Canada, a similar process was in place, and in order to regulate architecture graduates, the Canadian Architectural Certification Board (CACB) was created in 1976, to "assess and certify the academic qualifications of individuals holding a professional degree/diploma in architecture who intended to apply for registration."[64] This organization worked alongside the Royal Architectural Institute of Canada (RAIC) that had been created in 1907[65] to standardize the education and profession of architecture, and to coordinate the process as it applied to the various provincial and territorial jurisdictions. Later in its existence it expanded its services to directly accredit the architectural programs available, and in 1989 it joined together with the NCARB to compare the programs and examinations of the two countries in order to develop a system that would create a "mutual recognition of qualifications." [66]

However, with the increasing emphasis on education as it existed in the school, the importance of workplace skills was shifting and needed to be reevaluated to fit this new system. In 1996, Ernest Boyer and Lee Mitgang presented a report entitled "Building Community: A New Future for Architectural Education and Practice," that spoke to this change, stating: "We found a sense of disconnection between the two separate worlds of architecture education and practice. The gulf dividing architecture schools and the practice world has grown perilously wide."[67] As a result, the Intern Development Program (IDP) was re-configured to begin before students graduated, offering up workplace experiences as part of the overall education, and various schools became more involved in expanding their educational scope to include more client-responsive projects and connections with practice.

These requirements, together with the NAAB standards determine what makes up the education of the architect today. In the current NAAB standards for accreditation there are a series of qualities that are assessed in each school in order for it to be approved. These consist of architectural education's relationship with the Academic Context, Students, Registration, Profession, Society, Social Equity, Studio Culture, how it works to provide adequate Human Resources, Physical Resources (facilities), Information Resources, and Financial Backup for its students, how it teaches Critical Thinking, Graphic Skills, Research, Formal Ordering Systems, Design, Collaboration, History, the Use of Precedents, understanding of Human Behavior, accommodation for Diversity and Accessibility, Sustainable Design, Programming, Site Conditions, Structural Systems, Environmental

Systems, Life Safety, Building Envelope Systems, Building Service Systems, Materials and Assemblies, Construction Cost Control, Technical Drawing, understanding the Client, the Architect's Administrative Roles, Practice, Leadership, Legal Responsibilities and Ethics, and the preparation of a Comprehensive Design[68]. The Canadian Standards from the CACB are very similar to the American system, except for the addition of Verbal and Written Skills, Building Code Compliance, Detailed Design Development, and an understanding of the Internship Process. In the Canadian document, unlike the American conditions, there is no reference made to Studio Culture.[69]

With all of these requirements, the current educational system is no longer as simple as a liberal arts base with an apprenticeship component, and in order to meet the demands of an ever-changing profession, the North American education of architects is in a state of flux, in which it is constantly re-evaluating its position through a rotating system of accreditations, conferences, curriculum reviews and standards development. The current focus is the increase of sustainable design ideas into the profession and the schools, in which programs are responding to the need for architects to "be responsible and creative stewards of our planet's natural resources,"[70] while developing a system of education that responds directly to international concerns and the current "fluidity of architectural practice."[71] As well, programs are responding to the unique requirements that being part of university institutions place upon them, and are increasingly articulating the importance of architectural education to a wider public ("university leaders, students, funders, and the broader public"[72]). New requirements are being added to the accreditation process in areas that were never before considered as part of architectural education such as "Climate Change,"[73] and "Studio Culture,"[74] and more are being considered that respond to skills such as collaboration, ethics and leadership. Discussions have also begun regarding the accreditation process as a whole, changing it from a series of very specific requirements to a more holistic idea that is "more concerned with integrating knowledge and the understanding of the role architects should play in a dynamically changing world."[75]

Much of the inspiration behind today's architectural programs can be traced back to the influences of both the École des Beaux-Arts and the Bauhaus. From the Beaux-Arts, architectural education takes the values of aesthetic awareness, and from the Bauhaus it integrates ideals of collaboration and modern design theory. From both, the basic setup of studios, programs and methods of judging student performance are gained, and today's architecture schools integrate many of their ideals and solutions. At the same time, each school has its own unique view on how best to become an architect and the increasing amount of requirements that are being placed on the educational system have drastically changed the idealized programs that these two schools developed.
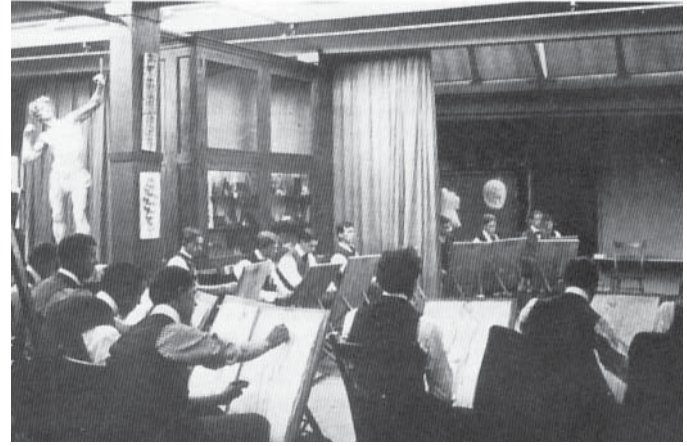
1.2.24   *1.2.25*

The establishment of schools beyond the École des Beaux Arts and the Bauhaus has been an exercise in which the ideals of the long history of the profession has been fragmented, reinterpreted and implemented to suit hundreds of different institutions. The actual content of design education has not changed significantly from Vitruvian ideals, but at the same time it has been added to and configured differently by every school that has been formed since. As the education of architects continues to develop, the ideals established by the past will continue to have a strong influence, but increasing emphasis will be made on the design process as a whole entity that involves both form and other concerns (sustainability, structure, material, systems and other disciplines).

"We have a fairly clear idea of the subjects recommended for study in the days of Ancient Egypt, as well as of Greece, to say nothing of the accurate record of curriculum proposed by Vitruvius in his first book. We also know with considerable detail the requirements for the various examinations given by the Guilds of the Middle Ages, and furthermore, we know quite exactly the prescribed course in the schools of architecture established since the Renaissance. It is interesting to notice that in all these periods the tenor of instruction varies but little. In essence, the young professional is expected to have as broad an education as possible, and more specifically, to develop as a creative artist and as a conscientious, scientific builder." -Leopold Arnaud, Columbia University[76]

[1] *Alberti 1485, 114*
[2] *Briggs 1974, 9*
[3] *Kostof 1977, 5*
[4] *Briggs 1974, 3*
[5] *Briggs 1974, 19*
[6] *Kostof 1977, 21*
[7] *Kruft 1994, 21*
[8] *Kostof 1977, 37*
[9] *Briggs 1974, 28*
[10] *Kostof 1977, 60*
[11] *Briggs 1974, 61*
[12] *Briggs 1974, 55*
[13] *Kostof 1977, 80*
[14] *Salama 2007, 12*
[15] *Alberti 1452, preface*
[16] *Kostof 1977, 96*
[17] *Briggs 1974, 142*
[18] *Kruft 1994, 43*
[19] *Kostof 1977, 124-125*
[20] *Kruft 1994, 120*
[21] *Kostof 1977, 177*
[22] *Kruft 1994, 128*

[23] *Kostof 1977, 161*
[24] *Kruft 1994, 128*
[25] *Drexler 1977, 61*
[26] *Drexler 1977, 64*
[27] *École Polytechnique Origins, paragraph 3*
[28] *Durand 1802, iv*
[29] *Kostof 1977, 210*
[30] *Anthony 1991, 9*
[31] *Cuff 1991, 251*
[32] *Drexler 1977, 91*
[33] *Drexler 1977, 82*
[34] *Kostof 1977, 209*
[35] *Cuff 1996 24*
[36] *Cuff 1996, 26-27*
[37] *AA History, paragraph 1*
[38] *Kostof 1977, 198*
[39] *AIA History, 1857 paragraph*
[40] *NAAB History, paragraph 2*
[41] *Al&d History, paragraph 1*
[42] *McGill History, 1896 paragraph*

[43] *ACSA About, paragraph 1*
[44] *NCARB History 2004, 5*
[45] *Kostof 1977, 320*
[46] *Wick 2000, 67*
[47] *Wick 2000, 35*
[48] *Salama 1995, 53*
[49] *Wick 2000, 49*
[50] *Wick 2000, 344*
[51] *Wick 2000, 348*
[52] *McGill History, 1941 paragraph*
[53] *Muller 2006, paragraphs 1-3*
[54] *NCARB History 2004, 27*
[55] *NAAB History, paragraph 4*
[56] *Boyer 1996, 18*
[57] *ACSA About, paragraph 2*
[58] *NCARB History 2004, 27*
[59] *NCARB History 2004, 23*
[60] *NCARB History 2004, 28*
[61] *Muller 2006, paragraphs 19-20*
[62] *NCARB History 2004, 26*
[63] *AIA History 1977-1986*

[64] *CACB About Us, paragraphs 1 and 2*
[65] *RAIC History, paragraph 1*
[66] *NCARB History, 25*
[67] *Boyer 1996, xvii*
[68] *NAAB Accreditation Conditions 2004*
[69] *CACB Accreditation Conditions 2005*
[70] *AIA white paper 2007, 4*
[71] *ACSA Report 2008, 3*
[72] *ACSA Report 2008, 3*
[73] *ACSA Task Group Reports 2008, 23*
[74] *AIAS Studio Culture Summit Report 2004*
[75] *ACSA Task Group Reports 2008, 3*
[76] *Oliver 1981, 2*

1.3: Professional Mythos and Archetypes

The profession of Architecture has always been surrounded by a certain mythological quality. Roman planners would consult the gods before laying out a city, Egyptian architects were also priests, Dedalus was linked with the legend of the Minotaur and the labyrinth, and Christ was considered the *architectus ecclesiae* (architect of the church). However, as the profession has changed, so too have its myths, and although not as profound, the current myths could be considered as archetypes or a series of ideals that persist in the individuals of the architectural community. These myths are the social norms, idealized pictures, and stereotypes that both strengthen and make light of the profession as a whole, and they have both positive and negative aspects. For every architect these values are construed differently, in some cases they are not incorporated at all, and opposite values can exist with similar emphasis in a single individual. Like the words of Aaron Betsky, Director of the Netherlands Architecture Institute, when he was asked what made him choose architecture as a career, he responded, "ok, it's like the Frank Gehry fish story. I give you two completely different stories, but it's all the truth."[1]

Archetype: Architecture, a Profession of High Social Status

"We who are architects are practitioners of 'The Mistress Art', and members of one of the oldest and noblest professions in the world. The dignity that is conferred on the architect by his long history is a thing to be proud of, and dignity in architecture is an essential part of its value to the community." –from 'The Architect in History'[2]

Few would disagree that the profession of architecture is a respected career in society. Like Lawyer, or Doctor, or Engineer, the word itself, when used in conversations starting with, "What do you do for a living?", at least earns itself a polite nod or "oh, really?" And it is assumed by the general public that "architects are educated, artistically sensitive and technically knowledgeable."[3] This social status is often the initial reason why individuals consider architecture as a career.

"I just want to have the title. I want my business card to say, "[my name], Architect." -3rd Year Student

This reverence may come from the profession's long history of working for rich or respected clients, its intriguing place as the balance of both artistic and technical skills, or a general respect for the ability of the architect to bridge the gap between imagination and the real world.

THE NEW YORK TIMES, SUNDAY, OCTOBER 28, 2007

IN THE REGION/New Jersey

Pride in Architecture

AWARD WINNERS A modern duplex in Princeton Borough, right; the Cooper River boathouse, above left; and a library addition in Morristown.

ICON ON THE SHORE Lucy the Elephant, in Margate, is on a state list of "150 Best Buildings and Places." (She was recently struck by lightning and has been dismantled for repairs.)

year in the state was a modern duplex built to replace a derelict house in the John Witherspoon neighborhood of Princeton Borough, a short walk from Princeton University and the center of town. Described as an "urban insertion" by its architect/builder, RMJM Hillier of Princeton, the structure presents a distinctly modern face in an older community that already includes an array of design styles.

The use of white polycarbonate panels and black porcelain tiles on the exterior brings a "sparkle and energy" to the street, commented the AIA-NJ's awards panel.

J. Robert Hillier, the founder of RMJM Hillier, said his company had built the new duplex in partnership with the family that had lived in the previous house for four generations. Some of the neighbors were pleased, he said, but some were initially upset with the new look.

"Ultimately, what makes a really good neighborhood, though, is a variety of architecture, and continuous vitality," he said.

One other private residence, built beside Lake Leffert in Matawan, was honored this year. Midouhas Architecture of Ship Bottom designed the house to nestle into sloping terrain, with a private open courtyard on the water side, connected to the main building by "floating" stairways.

Other award-winning buildings included a number of educational facilities:

● The new glass-and-brick home for the biomedical engineering department designed by KSS Architects of Princeton at Rutgers University's campus in Piscataway;

● A new campus center for the Dwight Englewood School, created by Dattner Architects of New York City in Englewood;

● The Franklin L. Williams Middle School in Jersey City, designed by Clarke Caton Hintz of Trenton/Ehrenkrantz Eckstut & Kuhn of New York in response to the Abbott court ruling, which requires upgraded schools in certain poorer districts;

● The nouveau-Adirondack-style Cooper River boathouse, designed by SOSH Architects of Atlantic City.

A third addition to the 1917 Gothic library in Morristown, listed on both the New Jersey and national historic registers, won kudos for Holt Russell Morgan Architects of Princeton. The awards panel noted that the architects had managed to bring abundant natural light into the building, despite height limitations dictated by history, endowing it with two clerestory "light corridors."

Also in Morristown, the historic green at the center of the downtown area made the "150 best" list.

Other places on the list fleshed out the notion of the state's inherent diversity, according to Mr. Barranger. They include the downtown of Montclair, the Barrier Islands, the State Capitol complex in Trenton and Branch Brook Park in Newark.

1.3.01

"Architects have been voted the sexiest male professionals, in a survey of women's ideal partners. The survey ... found that women favoured architects "due to the esteem associated with the profession." Architects are seen as being "balanced and rounded individuals who combine a creative approach with a caring, thoughtful disposition"... "Their ability to cope with pressure of work in a relaxed manner was also deemed to be a significant plus." –Dating Agency article[4]

Regardless of the reasons, there remains a general respect for a profession that promises opportunities for cultural contribution, creative and intellectual fulfillment, and recognition for projects completed. For creative individuals there is often a sense of personal accomplishment that comes with the ability to take ideas and have them translated into reality, and, in the case of the architect's reality, the end product is rarely small. Even if the final project is only recognized by the public as a place they go to work, visit for entertainment, or meet friends in front of, the building is still a major element in their daily existence.

1.3.02

Archetype: Fame and the Starchitect

Related closely to social status is the idea of becoming famous, an ideal that is by no means unique to architecture in a society that thirsts for stars. In the practice of architecture, as with many careers, there are many who work, and few who are famous. However, in a position so closely tied (at least subconsciously) to ideas of social recognition and status, the hope of becoming famous is an ideal that is certainly present in some would-be and practicing architect's minds. In the current culture the term 'Starchitect' describes those professionals who do manage to make their mark, and it is a term that is applied to those who have achieved success, fame, and recognition for their work on the world stage, and who have become a household names for architects and non-architects alike. Frank Gehry, as an example, was introduced by John Tusa of the BBC in saying, "If you ask the man in the street who is the most famous architect in the world there's a pretty good chance that they'd reply Frank Gehry." In the interview, Gehry's projects were described as something that "only Gehry could have done" and the interviewer remarks that, "such fame comes to few in any profession, fewer still to architects."[5]

"There were days when I was made to feel like a rock star. The New York Times interviewed me about my cowboy boots (which frankly, are excellent); soon after, a reporter quizzed me on my glasses. ...Rolling Stone asked me to contribute a list of items for its 'Cool' issue." –Daniel Libeskind[6]

1.3.03: actor Brad Pitt on the cover of El Croquis magazine

The names that comprise the ever-changing list of starchitects are few, but are described as "dominat[ing] the architectural profession in much the same way that a few dozen movie stars dominate Hollywood: in casting a film or selecting an architect to design a museum, it is inevitably the same small handful of names that comprises the short list."[7] The concept of an A-list of architects is hardly a new one for the profession, and despite the ability of today's Starchitects to permeate into modern media such as television (Frank Gehry appeared on an episode of the Simpsons), or movies (Brad Pitt

mythos and archetypes

working in an architectural office), these figures have always existed, from Frank Lloyd Wright as the inspiration for Ayn Rand's novel The Fountainhead and the subject of a Simon and Garfunkel Song (below), to Vasari's Renaissance publication the 'Lives of the Artists', where he compiled a "pantheon of celebrity painters and architects, with Michelangelo at their summit."[8]

"So long, Frank Lloyd Wright
I can't believe your song is gone so soon
I barely learned the tune
So soon
So soon

Architects may come and
Architects may go and
Never change your point of view
When I run dry
I stop a while and think of you"
    - Simon and Garfunkel, 'So Long Frank Lloyd Wright'[9]

1.3.04: Frank Lloyd Wright

Archetype: The Single Visionary, Hero Architect

Perhaps rising from the earlier stated need for recognition, next to be mentioned is the concept of the Hero Architect, or the Single Visionary. In order to understand this type, the basic format of the hero story should be kept in mind: that even though the main character may have a bit of help from time to time, when it all comes down to keeping score, there is only one person who will take credit for the victory. The Hero Architect could be defined as an individual of unquestioning vision, morality and skill, who, though at times encountering stumbling blocks, is ultimately successful in achieving his goals, imposing his views upon the world at large, and in turn receiving acclaim, recognition and respect from those who he so graciously created for.

"No work is ever done collectively, by a majority decision. Every creative job is achieved under the guidance of a single individual thought. An architect requires a great many men to erect his building. But he does not ask them to vote on his design. ... An architect uses steel, glass, concrete, produced by others. But the materials remain just so much steel, glass, concrete, produced by others until he touches them. What he does with them is his individual product and his individual property."[10]

1.3.05: Howard Roark from 'The Fountainhead'

As spoken by the character of Howard Roark, from Ayn Rand's the Fountainhead, the above passage outlines the view that through personal skill, the architect is able to act out his infallible creative vision upon the world's surface. By continuously following his ideals and never compromising, Howard Roark, though he does face hardship, is ultimately right. He personifies the Hero Architect persona, as a "romantic hero struggling against the unheeding forces of society [in order] to fulfill his unique and prophetic destiny."[11]

"What is the architect's service? … to be appropriate… blend in... camouflage… who gets anything out of that? … you have to talk about the courage of the architect who has the conviction to say, well that's not what I want to be doing, and I don't think that's what cities should be doing."[12]
- Frank Gehry

The persistence of this archetype is interesting considering that in modern architectural practice the ideal of a single visionary working alone to create buildings has all but disappeared. Buildings are designed and constructed in teams of multiple professionals, and the architect is less an isolated designer and is more a designer facilitator. Nevertheless, despite evidence to the contrary and the realities of the current professional situation, in the architectural mythos this element, the Single Visionary, the Hero Architect, or the Solo Artist, remains strong. Even Walter Gropius who was one of the founders of the Bauhaus (a school forged on the belief that the design process was a group effort) was once quoted as saying:

"To safeguard design-coherence and impact, the right of making the final decision must therefore be left to the one member who happens to be responsible for a specific job, even though his decision should run counter to the opinion of the other members, for the freedom of the designer in charge must be paramount."[13]

The Hero Architect concept represents the drive to produce good work, and it challenges architects to strive for more meaningful and personally expressive projects, and to work towards the best solution possible. It helps to give architects purpose and push the envelope, but it may also encourage workers not to ask for help, in order to seem more heroic in their results. As a basic element in the architect's persona, the Hero is an important value underlying the architect's creative need to better himself and his surroundings.

Archetype: Moral Crusader

"I stood up. 'Mayor Diepgen,' I said, 'I did not come to Berlin to build a skyscraper. I came to build the Jewish Museum, and that's what I am going to do.' The mayor broke into a cold sweat. ...'But I am giving you the chance to shape the future of the centre of Berlin!' he said. I had nothing more to say. I was not going to sell the museum out, for any building in the world." – Daniel Libeskind[14]

"The great ones are impossible to deal with, they're a pain in the ass, because they know that if they do their job properly, that if they just this once did it right, they can actually lift the human spirit, - take it to a higher place."- David Murphy from Indecent Proposal[15]

In the pursuit of better work, it is not hard to imagine the architect as able to affect the societies in which they build. The architect is sometimes stereotyped as a high-minded individual who actively crusades for what is right, and in the profession, there is an increasing idea that the architect should be actively responsible for the impact his or her designs have on the people who use them, the environment, or the culture of the communities in which they are built.

1.3.06

1.3.07: Paul Kersey from 'Death Wish'

mythos and archetypes

Architects are sometimes represented as idealists who are willing to stand behind their beliefs, and, using film as an example, "the architectural hero [in movies] is not possessed of superhuman physical characteristics, but displays an inner strength that permits him or her to recognize the right thing to do and to invariably find the resources to do it."[16] Some examples of this type of architect from films are Alex Wyler from 'The Lake House', who spends two years waiting to catch up with the love of his life, Melanie from 'One Fine Day', who purposely leaves an important client meeting to go see her son play soccer, or Paul Kersey from 'Death Wish', who, when his wife is killed during a robbery, turns to vigilantism to fight crime on the streets of New York.

"If an architect is portrayed going off the deep end, it's always because they are so committed to what they're doing and that's an honorable thing." – from 'Architects and Architecture in the Movies'[17]

In the movies, this quality of standing up for beliefs 'no matter what' is the reason why characters are cast as architects, and often this element of ethical debate plays a big part in the plot of the film. Architects in these examples become a symbol of moral decision-making, and, though sometimes 'irrationally principled,' they are respected for their steadfast position.

In the profession, this value translates into a quality that makes architects strive to create designs that have meaning beyond the beautiful or the functional. In many cases, architects and students of architecture develop projects that have a moral principle as a foundation, and the belief behind this behaviour is that their projects can change the world. It is a valuable ideal to aspire towards, and the belief in the power of good design is one that is encouraged by the schools. An example of this is the socially-focused architecture of Sergio Palleroni:

"Sergio Palleroni has been quietly changing the world ...this cofounder of the University of Washington's Building Sustainable Communities Initiative—known as BASIC—has been fomenting a below-the-radar revolution in socially conscious architecture for the past two decades. Thanks to a confluence of socioeconomic and ecological crises and the advent of new technologies and construction strategies, the unglamorous though gratifying work of sustainable humanitarian design is making a global impact far beyond the disadvantaged populations immediately served, and Palleroni is leading the way." –article on Sergio Palleroni in 'Interior Design'[18]

"The reasons that architects become involved in issues lying far beyond their practices may not be easy for those outside the profession to understand. Perhaps we can generalize: many architects believe that cities ought to reflect more than a potpourri of individual decisions. After all, architects are heir to a long tradition of large-scale and visionary planning. Many architects harbor dreams of cities conceived in a vision of controlled splendor – cities where both monumental effects and critical details testify to a close attention to details."- from 'Ontario Association of Architects: A Centennial History'[19]

1.3.08: Melanie Parker from 'One Fine Day'

1.3.09: Alex Wyler from 'The Lake House'

1.3.10: Mister Ed and Wilber

1.3.11: Louis Kahn

Archetype: Endearing Eccentric

"The architect appears often to be seized by an idealism that is oblivious to real life. But as the story progresses, the hero is shown to be thoughtful and ultimately considerate of the feelings of others. There is a basic "goodness" that may require an enormous crisis to awaken, but once aroused, the architect can summon boundless inner strength to produce a positive result." –from 'Movie Architects'[20]

The Endearing Eccentric as an architect is an interesting character that is portrayed in film and popular imagination as an individual who is 'just a bit off', but is lovable nonetheless. Like the Moral Crusader, they are connected to forces beyond their own personal needs, but in this case their connection with ideals is interpreted as an oddity instead of a highly respected vision. This character is represented in film and television architects in characters such as Wilber from 'Mr. Ed', Michael Newman in 'Click', or Louis Kahn in 'My Architect'. In these three cases, their eccentricities, whether related to the supernatural (as is the case of a talking horse or a television remote that can control time) or in their general relationships with family or colleagues (as in the case of Louis Kahn), are seen as partially a result of their connection with the creative, and their attempt to balance life and idealism. They are considered strong moral characters not because of their success in balancing both, but because they continue to make the attempt to try, and that regardless of the results, they ultimately 'stick to' their values, whether it be to the craft, their family, or to their friends.

As an archetype for the profession, this 'adorable' eccentricity provides architects with the ability to challenge existing norms, push the envelope, and be acknowledged or respected for their continual attempts to make things better, whether they are successful in or not. There is a general esteem for this type of persistence from the general public, who, though sometimes thinking of it as more 'trouble than it's worth', continue to admire the architect for trying.

Archetype: The Egoist and the Prima Donna

"I will not bore you by continuing to describe my goals. I would advise those who intend to take up architecture to study attentively what I have to say, to study my designs scrupulously, to ponder on them and on my writings, before coming to any conclusion; then, to do as I have done with regard to the ancients, that is to respect their designs when they are good, but not to follow them slavishly; but to become rather the slave of nature which is an inexhaustible spring where all of us, however many we are, should draw continuously." - Etienne-Louis Boullée[21]

In comparison to the lovable eccentric, the egoist is much more aware of his or her talents, and is generally considered to be more straight-forward in their actions. The egoist, defined as "One given overmuch to egoism or thoughts of self,"[22] is a quality that, though perhaps not overtly stated or possessed by all, is one that is still prominent in the pantheon of architectural archetypes. There are horror-stories of architectural egoists designing buildings with no acknowledgement of their final users simply to make their mark, or spaces that encroach or completely overbear their intended use that find their way into

the cultural imagination. Examples of this behaviour can be found in the case of Frank Lloyd Wright, who, on being "questioned about the low ceilings in the Guggenheim ...reportedly replied that the paintings should be cut in half if they were too large."[23]

On the other hand, though easy to portray in a negative light, the presence of a strong ego and the will to follow through on one's designs is a quality that is actually very helpful for architecture. Anyone without the confidence to back up their ideas in the face of criticism, or lacking in personal drive would fail to complete projects, and with the history of the profession as a foundation, a certain amount of self-centeredness is somewhat unavoidable. In the words of Frank Lloyd Wright, "Early in life I had to choose between honest arrogance and hypocritical humility. I chose honest arrogance and have seen no occasion to change."[24]

On a similar bent is the character of the Prima Donna. A sometimes mentioned trait of architects, and an archetype that has little or no positive aspects, the Prima Donna, like the lead female vocalist of its most basic operatic definition,[25] is often described as "a vain and overly sensitive person who is temperamental and difficult to work with."[26] When architects are referred to as prima donnas, they are usually behaving as if the rules do not apply to them. Often, these designers are portrayed culturally as artists with minimal regard for the 'realities of life', and, as is the case of some reality-based design shows (Trading Spaces, Designer Guys, Real Renos, etc.) they are shown making annoying additions to otherwise smoothly proceeding constructions, or naïvely underestimating time and budgets. This may or may not represent the realities of the architectural profession, but it does represent the less than flattering impression that is given to society through popular culture.

"Architecture schools should stop perpetrating the myth of the architect as visionary genius and encourage, along with design and theory, training in management, technology, and do everything in their power to discourage future generations of prima donna architects." –from the 'Boyer Report'[27]

Besides misrepresenting the profession to society, this archetype is also seen in the architect's relationship to certain project types. Projects are sometimes pigeon-holed into basic or 'bread-and-butter' projects versus opportunities to make 'great architecture,' and the prima donna architect is naturally biased against the former, viewing the more 'every-day' project as beneath them. However, as Thorbjoern Mann puts it, "what, essentially is the difference between the two? It isn't size – there are many famous small buildings and many uninteresting large ones. It isn't money – all projects have budgetary limits. It isn't creative freedom – all buildings are subject to building codes and site restrictions, are made of certain materials, and must accommodate clients' wishes."[28] To architects, the difference is in the opportunity to express oneself versus the desire to 'get it over with' and make money, and in the educational system especially, the drudgery of simple projects is considered to be the unfortunate side of the profession and something to be avoided if possible. This prima donna archetype is found with concerning
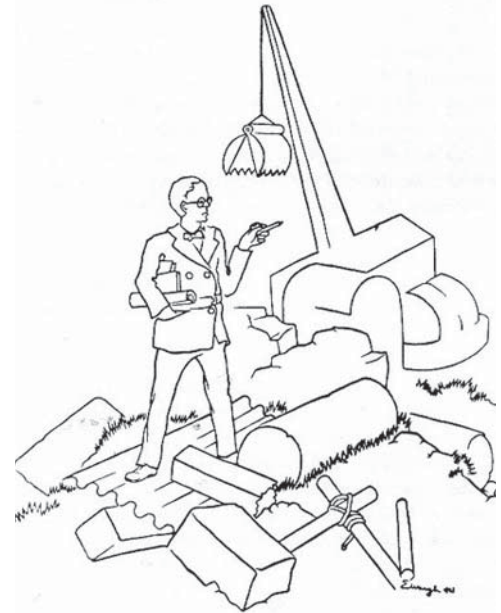
"I DO NOT THINK IT POSSIBLE FOR DOMESTIC ARCHITECTURE TO BE BEAUTIFUL, BUT I AM DOING MY BEST"

1.3.12: caption reads:
"I do not think it possible for domestic architecture to be beautiful, but I am doing my best."

"Damn contemporary, bullshit architecture!"

1.3.13: caption reads:
*"damn contemporary bulls**t architecture!"*

regularity in the schools, as students sometimes separate themselves from the future realities of the profession by proclaiming that they are aiming to become 'design-architects' (where they would have other architects to 'do the dirty work' or complete the necessary but mundane tasks while they design) instead of acting as facilitators for the entire process. The important lesson to be learned from the acknowledgement of this archetype is the ease with which the positive values of the Moral Crusader or the Egoist can shift into this zone, and that architects should always keep an eye out for this value in their conduct, as it does little for their own reputation or that of the profession at large.

"You go into the 2nd year studio right now – half of them don't want to apply to co-op jobs, not because they are bad jobs, because they think that they should just design. They said, "I don't want to touch CAD, I just want to design." And it's that kind of prima donna pretentious attitude that's eroding the quality of our profession." -Architecture Professor

Archetype: Our Own Worst Critic, the Idealist Martyr
"Another feature of his [the architect's] plight, is that of not wholly respecting himself, (how can he?)"[29]

The above quote, spoken by Frank Lloyd Wright before he became an international success, speaks to another type of architect, the Idealist Martyr, the Pessimist Architect, or the Impossible Visionary, one who simultaneously believes they have something great to contribute and that they will never be successful. As an attitude it is seen more often in the schools than in practice, and it acts as a foil to the bravado of the Hero, representing the self-doubt or shadow that is present in all individuals. The basics for this archetype are very similar to the Hero-Architect in their individualistic focus, but this type is a very different ideal whose origin can be traced to some of the first values given to architects as they begin their study. By existing in an environment that gives a considerable amount of criticism, students, especially within their final years of study or early years in the profession, can often manifest symptoms of this ideal as they lose confidence.

1.3.14

*"I used to be really smart. Seriously.
Then I got so smart, I found out how dumb I was.
Seriously.
It's a cycle like that.
I hope I'm getting smarter again.
Actually, no, I don't."*
	- 3rd Year Student Poem

To consider one's self to be worthless can hardly be considered an ideal. But in the definition of an architect, standing alongside the Egoist and the Hero is the self-esteem driven Pessimist, and all three are considered at times to be a particular badge of honour. By brimming with self-deprecation, pessimists can call into view the insecurity of their peers, 'for if he (maybe a well performing student) considers himself to be worthless, what does that mean of me? How can I consider myself to be successful?' In the workplace, this general

1.3.15

negative attitude, though much more silent, can manifest itself in the individual that does not feel as if their opinion is worth voicing, who works in silence, or who never pushes the envelope for fear of failure. This value can never be eliminated, and in fact, as a positive aspect, a bit of self-doubt could be a natural balancing point for some of the more self-confident traits.

"He was his own artist. He was free compared to me." - Phillip Johnson speaking of Louis Kahn[30]

Archetype: The Good Architect

"High-minded and not self-assuming, but rather ...courteous, just, and honest without avariciousness. This is very important, for no work can be rightly done without honesty and incorruptibility. Let him not be grasping nor have his mind preoccupied with this idea of receiving perquisites, but let him with dignity keep up his position by cherishing a good reputation."[31]
-Vitruvius

There are many values, stereotypes and ideals that combine to make up the architect, but most important of all of these is perhaps the most basic: the Good Architect, or the successful, happy practitioner, who just enjoys their job. This ideal for the architect is a bit of a 'Renaissance Man,' dabbling in a variety of interests, balancing work and life, and using the best of the qualities discussed in this chapter to aid in the pursuit of good, solid, architecture. Good Architects are practical but still push the envelope, they have their failures but learn from them, and they design and facilitate the construction of buildings.

*1.3.16: 'The Seated Man' or 'The Architect'
by Roger de la Fresnaye*

In practice or in life, they are not always the 'stars' of the profession, but they create good projects, work well with their clients, and delight in their profession. As an ideal to aspire towards, the Good Architect is the embodiment of the various teachings of the schools and the lessons of the workplace, but examples of this archetype have interpreted this knowledge to create their own personal functioning style, which they bring into their work and relationships with family, friends, coworkers, and clients.

"Trying to be a Renaissance person is challenging, but many architects come close to it. They are able to manage and organize their lives and work to do it all, and in great quantity. And, although the prolific Renaissance architect of today may not always produce cutting-edge or timeless architecture, he or she may very well be the one who has the best crack at it."- from 'Architect? A Candid Guide to the Profession[32]

f i n a l   j u d g e m e n t

1.3.17

1 Praeger 2004, 40
2 Briggs 1974, 1
3 Lewis 1985, 5
4 Drawing Down the Moon, from Daily Dose of Architecture 2005, paragraph 1
5 BBC Radio 1999
6 Libeskind 2004, 156
7 Lewis 2007, paragraph 1
8 Lewis 2007, paragraph 2
9 Simon & Garfunkel 1970, track 5

10 Saint 1983, 2
11 Kostof 1977, 331
12 Sketches of Frank Gehry 2005, 44.11
13 Kostof 1977, 336
14 Libeskind 2004, 146
15 Indecent Proposal 1993, 1.41.12
16 Grice 2007, 20
17 Stein 2007, 12
18 Kaiser 2006, paragraph 1
19 Simmins 1989, 66
20 Grice 2007, 24

21 Rosenau 1976, 112
22 Egoist, Webster's Revised Unabridged Dictionary
23 Naden 1968, 110
24 Naden 1986, 4
25 Prima Donna, Webster's Revised Unabridged Dictionary, 2008
26 Prima Donna, New Dictionary of Cultural Literacy, 2002
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30 My Architect, 5.53
31 Vitruvius, 1.1.7
32 Lewis 1985, 247

Part 1 Summary

The profession of architecture is an entity that cannot be pinned down easily, and in order to create a general picture of what it is, information from a variety of sources is needed to understand it. Like the way that buildings are conceived, the scope has to start wide and work its way towards smaller situations, so that when the details are reached one can easily understand their place in the overall construction. Following a similar pattern, this document starts with a general definition, moves to the history of current practices, and mixes this knowledge with some of the prevalent stereotypes to establish the background understanding that will be needed for later analysis.

1.1   Defining the Architect:
- Defining the profession is not an easy task, as it can be interpreted differently by architects, students and 'outsiders' and definitions are highly dependent on the individual
- In general, the definition of an architect is similar between practicing architects and 'outsiders', but the definition skews dramatically in architecture schools, emphasizing the importance that education has on perceptions of the profession

1.2   A History of the Architect:
- the idea of the architect as a 'generalist' is an ideal that has existed in the profession throughout its long history
- the history of the profession has had a lasting effect on architects in practice and in the schools, and an understanding of it is important before engaging in any analysis of the current situation
- the current situation is one of vast change, and programs and accreditation processes are being improved to respond to integrated design processes and sustainable design methods

1.3   Professional Mythos and Archetypes:
- every architect has a unique combination of values, but there are some archetypes that are prevalent, and therefore important to discuss
- by understanding why characters like the starchitect, hero architect, moral crusader, endearing eccentric, egoist, prima donna, critic, martyr and the good architect are aspired towards, a more complete view of the field can be developed

Part 2: Educational Practices

2.1: Choosing Architecture

Many people consider architecture because of some of the archetypes discussed in the previous chapters; they wish to attain a level of social status, make their mark upon the world, or become famous. Other reasons include a desire for personal artistic expression, an interest arising from the influence of cultural sources (movies, books, or television), or the conception that architects are highly paid. These reasons aside, for many, the major influence behind their choice of architecture is the advice they are given by teachers or guidance counselors. This advice is often based on the ideal of the architect as a mediator between technical knowledge and art, and architecture is sometimes presented as an option for students who are strong in both these areas. "Counselors, parents, and teachers steer toward architecture those young [people] … who exhibit the telltale signs commonly associated with a budding architect: doing well in both math and art; being good in art, but needing to earn a living."[1]

Beyond the requirements of both artistic and technical ability, there are many opinions from the profession regarding who *should* become an architect and what qualities this ideal candidate should possess. The most quoted of these lists is Vitruvius' opinion in his Ten Books on Architecture, where he describes the architect as a multi-talented generalist, stating that: "[the architect] ought, therefore, to be both naturally gifted and amenable to instruction. ...Let him be educated, skilled with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists, and be acquainted with astronomy and the theory of the heavens."[2] This definition has been very influential in the establishment of architecture schools for most of history, and many of today's educational institutions still claim to trace their philosophies back to this ancient treatise.

Vitruvius' theme of inborn qualities versus learned ones is also present in Dana Cuff's statement of what an architect needs to be successful, "there are two qualities that neither employers nor educators can instill and without which, it is assumed, one cannot become a 'good' architect: dedication and talent."[3] The architect must have basic traits that can be improved upon with the right instruction, and if they add "real enthusiasm for [their] work, ...ambition, and perseverance,"[4] they will be well equipped for the profession.

Lastly, perhaps the most specific list of qualities available is the set of personality traits that are given in Roger Lewis' *Architect? A candid guide to the profession*. Though he admits that these traits could

Architecture

One of the oldest in North America, the School is well known for its intimate atmosphere. About 250 students study with 10 full-time and more than 25 part-time professors. The School's philosophy is straightforward: to encourage the pursuit of excellence in the practice of architecture by developing competence in both the art and science of building design and construction.

2.1.01
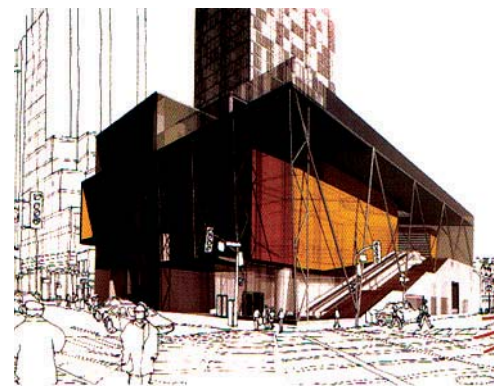
Architecture

Architecture is a creative field that touches virtually all areas of art, culture and technology. Architects design buildings of all sizes, protect and enhance the natural environment and improve the quality of life in our communities.

As a student of architecture and a practicing architect you will design new buildings and give old ones new uses, explore innovative technology and new materials, and create spaces for people to use and enjoy every day.

Part of the Faculty of Engineering, the School of Architecture at the University of Waterloo offers an integrated Honours Bachelor of Architectural Studies (BAS) and Master of Architecture (MArch) program leading to professional licensure. Design courses are the primary focus of the BAS program: You'll work individually and in groups on a series of directed projects, ranging in scale from furniture to entire urban areas. You'll also take courses in three other broad theme areas: culture, technology and environment.

Over the course of your undergraduate program, you'll acquire an understanding of the workings of society and culture, the principles of physics, the materials and techniques of construction, human interaction with the natural and built environment, historical process, critical thought and the diverse forms of creative expression. You'll graduate with the skills, knowledge, judgment

2.1.02

The professional Master of Architecture (MArch)
is a rigorous and comprehensive program, preparing graduates for the full range of activities in architecture. It provides a thorough base of knowledge in history, theory, technology, ecology, society, and professional practice, while developing skills in design through an intensive sequence of design studio courses. There are five streams: Design, Visual Communication, History & Theory, Technics & Planning, and Professional Practice. Studios are supported by courses in visual communication, architectural representation, and new media. Students are encouraged to use their electives to explore a specialization in preparation for their design thesis. The program aims to develop critical, creative, and independent thinking and research that responds to current design issues and societal change. The greater Toronto region is used as an urban laboratory for the pursuit of new knowledge and new forms of practice.

The professional MArch is a 3 ½-year program for individuals who have completed a 4-year bachelor's degree in any discipline with a final year average of at least mid-B from the University of Toronto or its equivalent from a recognized university. Preference is given to individuals who have completed a balanced undergraduate education that includes study in the arts, sciences, and humanities, and who demonstrate leadership potential in the field. The following specific courses are required: secondary school calculus; secondary school physics; university level half-credit course in architectural history. Preparation is recommended in the visual arts, such as drawing, sculpture, graphics, photography, film, or new media, as well as computing and advanced writing skills. Each applicant with a suitable undergraduate degree is evaluated for the advanced standing option. Admission is based upon the applicant's overall academic background and the strength of the design portfolio.

The professional MArch is intended for those who do not already hold a professional degree in architecture. Those wishing to verify the status in Canada of a professional architecture degree earned abroad should contact the Canadian Architectural Certification Board <info@cacb.ca>.

The post-professional Master of Architecture (MArch)
is an advanced 1 ½-year design and research option for individuals already holding a professional degree in architecture. This option provides a challenging and rigorous forum for those wishing to extend and focus their previous education in architecture. Successful applicants

2.1.03

What we'll teach you...

- The Environmental Design program is the basis for examining the complex relationship between humans and the environments that we live in

- You will expand design knowledge and techniques through the study of design theory, design history, design technology, and communications/information technology

What we are known for...

- Many firms across Canada seek out our graduates because of our multi-disciplinary approach

- Each student is allotted a personal studio space where you'll draw, investigate, create, draft, build and express yourself

- Lifelong relationships are developed through close communication between professors, colleagues, and peers

2.1.04

"My goal is to help students understand architecture's historical and social meaning, and its potential to affect life. Using written texts and images as a contextual framework, I take students to significant buildings, locally and in other cities, to experience why these architectural examples work and feel the way they do."

Professor Janine Debanné,
Architecture

CARLETON UNIVERSITY

2.1.05

apply to other careers, he believes that for architecture especially the following qualities are essential: "Self-confidence and Ego strength, Ambition, Dedication and Persistence, Resilience, Amiability, Empathy, Charm, Poise, Leadership, Courage and Passion."[5] This listing is particularly interesting because of its balance between both traditionally important skills and qualities that are often downplayed such as empathy and courage. Lewis' list is a balanced recommendation that keeps in mind both the obvious and lesser mentioned qualities that make up the modern-day architect.

Architecture is an increasingly popular career, and because entrance numbers into architectural schools remain small (due to the requirement of one-on-one instruction), new schools are being created all over the world. Many students are choosing architecture for their post-secondary education, and they are graduating in increasingly large numbers. Because of this, more firms and positions are developing, and the practice is expanding into an increased range of services and specialties. Regardless of their reasons for choosing it or the innate skills that they may or may not possess, students are being educated as architects, and the educational process is having an effect on an increasing group of individuals in society.[6]

*"Apart from Wright's Guggenheim Museum in New York, how many modern buildings over the past 50 years have been immortalized on postcards? But now new buildings challenge the standard tourist icons; postcards of the Louvre's pyramid, the East Building of the National Gallery of Art in Washington DC, the Centre Pompidou in Paris, the Sydney Opera House and scores of new German art galleries fly around the world."[7]
– from 'Space in Time: Filming Architecture'*

[1] *Cuff 1991, 117*
[2] *Vitruvius 1.1.3*
[3] *Cuff 1991, 153-154*
[4] *Briggs 1974, 383*
[5] *Lewis 1985, 16*
[6] *Schön 1985, 1*
[7] *Grigor 1994, 18*

2.2: Educating Architects

"An architect knows something about everything. An engineer knows everything about one thing. An architect is a generalist, not a specialist – the conductor of a symphony, not a virtuoso who plays every instrument perfectly. ...An architect must know enough about each discipline to negotiate and synthesize competing demands while honoring the needs of the client and the integrity of the entire project." – from '101 Things I Learned in Architecture School'[1]

The typical North American architecture program is carefully balanced between a variety of subjects, and the exact emphasis or amount of each component is a combination left to the discretion of the individual schools, within the requirements of the accreditation items (shown on the right). Most mixes are laid out in three main areas: Culture and Art, Technology and Science, and Design or Architecture.[2]

Culture / Art programs are courses that can range in scope from history to visual arts, and are often very different in their form from school to school as they are greatly affected by the expertise of the professors available. Most often though, these courses are presented under the following subject headings: Cultural History, Architectural History, Art History, Art Representation Techniques, Figure Drawing or other Visual Art courses, Film, Psychology, Philosophy, Current Art / Architectural Theory, Photography, or Design Media.

On the other end of the learning scale from Culture and Art lies the Technology or Science courses that focus directly on so-called 'real world issues.' These issues can include structural concerns, sustainable design techniques, building science, and workplace or practice instruction, and in some programs these courses are combined with design-build projects or work placements. In university catalogs these offerings are listed under the following headings: Structural Mechanics, Materials and Methods of Construction, 3D Computer Modeling, Design-Build projects, Engineering Consults or Engineering Block-courses, Sustainable Design, Building Science, Building Systems, Building Construction, Professional Practice, Work placements, or Co-operative Education.

All of these offerings aside, the centerpiece of architectural education is undoubtedly the Design Studio, an eight to sixteen hour per week time slot devoted to the development of designs under the one-on-one direction of a professor or group of professors.

Each school is responsible for providing its students with instruction in all of these subject areas (as laid out in the basic accreditation requirements for each school: see Canadian Architectural
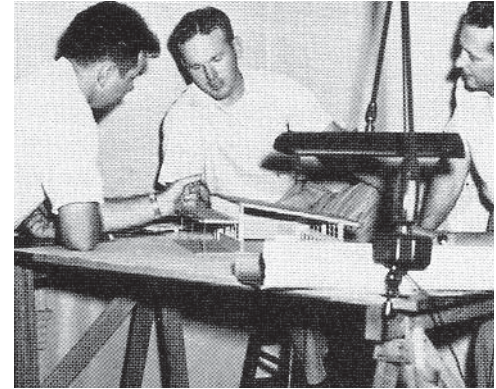
2.2.01

2.2.02

2.2.03

1 Verbal and writing skills
Ability to speak and write effectively on subject matter contained in the professional curriculum

2 Graphic skills
Ability to employ appropriate representational media, including computer technology, to convey essential formal elements at each stage of the programming and design process

3 Research skills
Ability to employ basic methods of data collection and analysis to inform all aspects of the programming and design process

4 Critical thinking skills
Ability to make a comprehensive analysis and evaluation of a building, building complex, or urban space

5 Fundamental design skills
Ability to apply basic organizational, spatial, structural, and constructional principles to the conception and development of interior and exterior spaces, building elements, and components

6 Collaborative skills
Ability to identify and assume divergent roles that maximize individual talents, and to cooperate with other students when working as members of a design team and in other settings

7 Human behaviour
Awareness of the theories and methods of inquiry that seek to clarify the relationships between human behaviour and the physical environment

8 Human diversity
Awareness of the diversity of needs, values, behavioural norms, and social and spatial patterns that characterize different cultures, and the implications of this diversity for the societal roles and responsibilities of architects

9 Use of precedents
Ability to provide a coherent rationale for the programmatic and formal precedents employed in the conceptualization and development of architecture and urban design projects

10 Western traditions
Understanding of the western architectural canons and traditions in architecture, landscape, and urban design, as well as the climatic, technological, socioeconomic, and other cultural factors that have shaped and sustained them

11 Non-western traditions
Awareness of the parallel and divergent canons and traditions of architecture and urban design in the non-western world

12 National and regional traditions
Understanding of the national traditions and the local regional heritage in architecture, landscape, and urban design, including vernacular traditions

Certification Board requirements in the margins of this chapter), but the emphasis and arrangement of each of these areas is very different from school to school.

Arranging Architecture Programs

One possible arrangement is that of a studio-centric education, in which all courses are arranged so that they apply directly to the design studio program. These arrangements react to the belief that other courses sometimes take students' time away from studio, and in order to avoid this distraction, the curriculum is reorganized so that the content of the courses applies directly to the explorations being developed in the studio. When combined with a program that offers 'option studios,' (where students choose their design studio before the start of a term), an educational system is created in which students are free to set the parameters of their own education and specialize in their own areas of interest. Students meet their course requirements by 'collecting' the required number of courses in each subject area (art, technology, design), but the choice of exactly which courses they wish to take in any given term is up to them.

"What they are trying to do is to integrate everything so it reacts to studio. It was so hard in the old program to have studio as the main class, but you were taken away to do a term paper or a technical thing. Now they are trying to really integrate those, for example, the technical course I take for credit is now just a part of my masters, and is directly related to my field of interest." -Masters Student

However, there is a greater responsibility placed upon the individual student in this system as a result of the freedom of choice. Some students may leave their education 'more well-rounded' having chosen a variety of courses over the time of their degree, where others may have limited themselves to only a few areas of expertise, and students in their first few years of study may find this level of choice intimidating. In the end though, there are many advantages
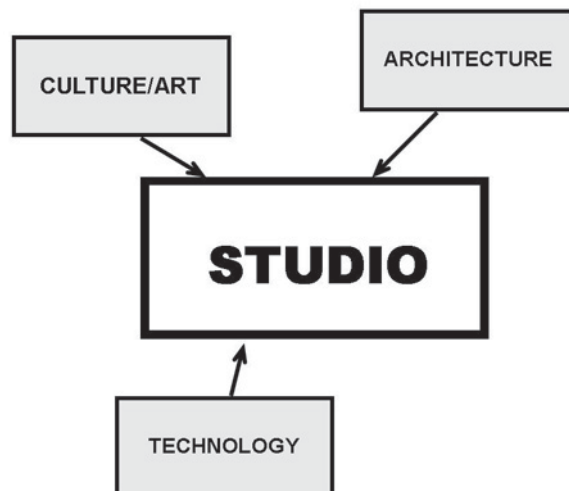
2.2.05: design-studio centric program model diagram

to this system, it creates a more individually motivated education, allows teachers and students of various backgrounds to interact and work together on the same projects, and gives students the feeling that they have more power over the education they are receiving.

The design-studio centric methodology is by no means a typical one, and in most cases schools have a program in which there is design emphasis in a constellation of both required and elective study. In this model, the design studio still takes precedence, but the courses in the areas of art and technology work on a parallel system, occasionally meeting ideologically with the projects in the design studio, but generally presenting a separate series of educational lessons. Each school is unique in its choice of compulsory and elective offerings; some schools may require students to study cultural history or engineering while offering design-build or digital media course as options, whereas others may require their students to take courses in design technologies or sustainable design. Depending upon the available faculty or the direction of the current administration, this emphasis will shift or change on an on-going basis.

"Schools are always changing; there is a stress now on materiality and an understanding of the five senses in their relationship to architecture. Materials lectures have been added and we are moving in that direction."
-Architecture School Director

"We offer a strong liberal arts education with a unique background in cultural history, communication, and critical thinking." -Architecture School Professor

"We emphasize architecture as a practical art that brings together the physical realities of building within the cultural conditions of our complex society. In our teaching methods we emphasize discovery through making, discipline through craft, imagination through drawing and other media arts, conviction through writing, and advocacy through public presentations."
-Architecture School Professor
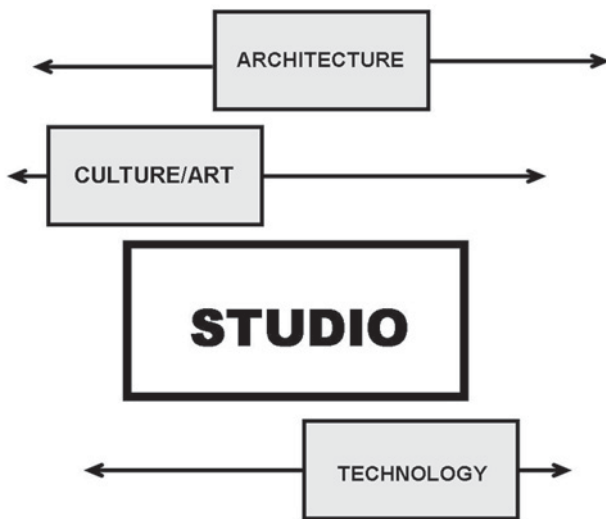
2.2.06: design-emphasis program model diagram

13 **Environmental conservation**
Understanding of the basic principles of ecology and architects' responsibilities with respect to environmental and resource conservation in architecture and urban design

14 **Accessibility**
Ability to design both site and building to accommodate individuals with varying physical abilities

15 **Site conditions**
Ability to respond to natural and built site characteristics in the development of a programme and the design of a project

16 **Formal ordering systems**
Understanding of the fundamentals of visual perception and the principles and systems of order that inform two and three-dimensional design, architectural composition, and urban design

17 **Structural systems**
Understanding of the principles of structural behaviour in withstanding gravity and lateral forces, and the evolution, range, and appropriate applications of contemporary structural systems

18 **Environmental systems**
Understanding of the basic principles that inform the design of environmental systems, including acoustics, lighting and climate modification systems, and energy use

19 **Life-safety systems**
Understanding of the basic principles that inform the design and selection of life-safety systems in buildings and their subsystems

20 **Building envelope systems**
Understanding of the basic principles that inform the design of building envelope systems

21 **Building service systems**
Understanding of the basic principles that inform the design of building service systems, including plumbing, electrical, vertical transportation, communication, security, and fire protection systems

22 **Building systems integration**
Ability to assess, select, and integrate structural systems, environmental systems, life-safety systems, building envelope systems, and building service systems into building design

23 **Legal responsibilities**
Understanding of architects' legal responsibilities with respect to public health, safety, and welfare; property rights; zoning and subdivision ordinances; building codes; accessibility and other factors affecting building design, construction, and architecture practice

24 **Building code compliance**
Understanding of the codes, regulations, and standards applicable to a given site and building design project, including occupancy classifications, allowable building heights and areas, allowable construction types, separation requirements, occupancy requirements, means of egress, fire protection, and structure

2.2.04

25 **Building materials and assemblies**
Understanding of the principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies

26 **Building economics and control**
Awareness of the fundamentals of development financing, building economics, and construction cost control within the framework of a design project

27 **Detailed design development**
Ability to assess, select, configure, and detail as an integral part of the design, appropriate combinations of building materials, components, and assemblies to satisfy the requirements of building programmes

28 **Technical documentation**
Ability to make technically precise descriptions and documentation of a proposed design for purposes of review and construction

29 **Comprehensive design**
Ability to produce an architecture project informed by a comprehensive programme, from schematic design through the detailed development of programmatic spaces, structural and environmental systems, life-safety provisions, wall sections, and building assemblies, as may be appropriate; and to assess the completed project with respect to the programme's design criteria

30 **Programme preparation**
Ability to assemble a comprehensive programme for an architecture project, including an assessment of client and user needs, a critical review of appropriate precedents, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and an assessment of their implications for the project, and definition of site selection and design assessment criteria

31 **Legal context of architecture practice**
Awareness of the evolving legal context within which architects practice, and of the laws pertaining to professional registration, professional service contracts, and the formation of design firms and related legal entities

32 **Practice organization and management**
Awareness of the basic principles of office organization, business planning, marketing, negotiation, financial management, and leadership, as they apply to the practice of architecture

33 **Contracts and documentation**
Awareness of the different methods of project delivery, the corresponding forms of service contracts, and the types of documentation required to render competent and responsible professional service

34 **Professional internship**
Understanding of the role of internship in professional development, and the reciprocal rights and responsibilities of interns and employers

2.2.04

In the design-emphasis system, students are given a broad architectural education where they receive instruction in a variety of subjects alongside their design explorations. The advantage of this process is that graduates have a diverse palette of inspiration, knowledge and philosophies from which to find their own style, and should they be involved with members of other fields in the future, they will be able to 'speak their language' because of their previous instruction. Like the historical architect, they will be a generalist in many fields, giving them the ability to deal intelligently with issues as they arise in each new project.

Increasingly in program arrangements, there is an acknowledgement that non-design courses should receive greater emphasis in the educational process, or be combined with the design studio more often. In practice, the importance of the integrated design process, where consultants (engineers, architects, building systems experts, etc.) work together to create a more holistic construction system, is growing, and in sustainable design especially, the overall success of the building is dependent on this mixing of disciplines. Recent educational debate has spoken of the need for promoting "collaborative tools," and a bridging of the "traditional divisions of technology and design instruction"[3] in order to provide the skills that students will need to work in an increasingly group-oriented workplace. Neither the studio-centric model nor the studio emphasis models fully respond to this need, but in both forms there is the opportunity for students and professors to allow for collaboration between courses to respond to the more integrated approach of emerging practice.

In architectural education there is an emerging trend towards a more balanced educational system, in which design plays one part of many instead of being the main focus. For example, in the ACSA Report for the Accreditation Review Conference in 2008, it identified four main areas of focus for the future: "Design Architectural Projects with Creativity and Technical Mastery, Lead Interdisciplinary Design Projects Ethically and Collaboratively, Be Active Stewards of the Environment, and Think and Act Critically."[4] Within these four categories falls all of the accreditation standards required, and the ideal educational system is represented as one that skillfully straddles all of these ideals. The current configuration is strong, and has been educating successful architects for generations, but as the face of practice shifts to more interdisciplinary situations, the arrangement of the curriculum and the attitude that some courses are more important than others will need to shift with it.

The Importance of the Professor

Regardless of the advertised ideology and the layout of the program, without a knowledgeable faculty, all of these ideals would fall flat. The professors found in schools of architecture are a diverse group of individuals with various backgrounds and experience, and it is through their teachings that students learn the skills necessary to become architects. The professor has a huge amount of influence on the future of the profession, and he or she is the primary source of the theories that are absorbed by students and used as the basis for

their future careers. Professors come from many backgrounds, and more increasingly, from all over the world. Some may be practicing architects, some may be full-time faculty, others may specialize in history, psychology or engineering, and many are mixes of these and other interests.

Though design teachers are rarely trained as educators, Architecture Professors are influenced strongly by the long history of architectural education, and use their own training, experiences in practice and personal passion for architecture to educate students following a series of techniques that their professors used and their professor's professors used, etc. They often develop their teaching methods over time, and act as an intermediary between the emerging trends of architecture and the students. And, as a result of their importance to what the students learn, they have "profound ...effects on design students and therefore on the design profession."[5]

"It is necessary for learners to discover and feel the inherent joy that is always ready to take hold of those who give themselves to the process of learning. The teacher's role in nurturing this discipline and joy is enormous." –from 'Voices in Architectural Education'[6]

Though the traditions present in the education of architects have persisted because they are generally successful in creating good architects, this traditional set of ideas has lead to a belief among some that there is no reason for them to change. In studies of architectural teaching styles, as well as during the site visits and interviews that were conducted for this work, the "non-response rate [for pedagogical inquiry] is considerably high"[7] from professors, which could be interpreted as an example of educators that have very little time to spare, or as a "negative attitude [or the belief] that their way of teaching is unquestionable."[8] The majority of educators spoken to were hesitant to respond when asked questions about their educational process, and those who would speak often responded with very general descriptions, or "consider[ed] the design teaching practice to be an intuitive process based on subjective viewpoints and personal feelings, rather than ...objective criteria."[9]

Admittedly, trying to explain one's teaching process in a clear way is a difficult task, especially during a short interview, but perhaps it should not be so hard. As the education of architects changes to meet a more collaborative working environment, instructors need to be increasingly aware of their own methodologies in order to develop and integrate them with other disciplines. As well, having a better understanding of their techniques can help professors to impart information to students in a clear manner.

"Be aware of your belief and value systems and the ideologies they support. An educational ideology is a reference point for the teaching... Confusion is minimized when teachers are explicit about their biases and values." –from 'Ideabook for Teaching Design'[10]

35 Architects' leadership roles
Awareness of architects' leadership roles from project inception, design, and design development to contract administration, including the selection and coordination of allied disciplines, post-occupancy evaluation, and facility management

36 The context of architecture
Understanding of the shifts which occur and have occurred in the social, political, technological, ecological, and economic factors that shape the practice of architecture

37 Ethics and professional judgment
Awareness of the ethical issues involved in the formation of professional judgments in architecture design and practice

2.2.04
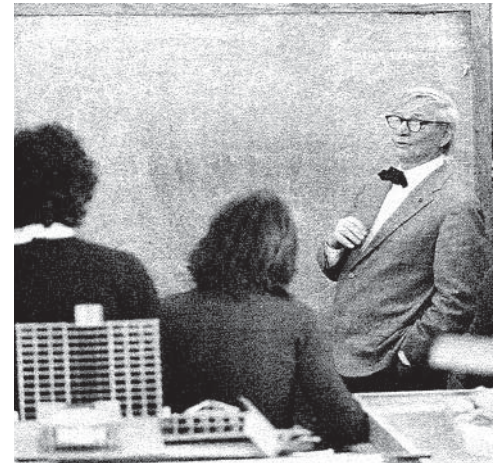
2.2.07

2.2.08

2.2.09

In interviews conducted at various schools, it was noted that students were most happy when their professors were open in explaining their own personal design methods, and visible as individuals who enjoyed their work. The overall attitude of the professor plays a direct role on student satisfaction, and in an ideal situation, the professor creates an environment where personal values are respected and students feel that they can voice their opinions without having to worry about whether they are right or wrong. This is often the case, and in an environment where one-on-one interaction is common, students are generally satisfied with the close communication they have with their professors.

"It has to be a kind of contract between the two – the teacher must be open to challenge and must be able to defend his position – the student, in turn, must be willing to suspend his disbelief, to give the teacher's suggestion a chance – to try the suggestion out." – from 'The Design Studio: An Exploration of its Traditions and Potentials'[11]

[1] *Frederick 2007, 21*
[2] *Kostof 1977, 230*
[3] *White Paper, 7*
[4] *ACSA Report, 6*
[5] *Quayle 1985, vi*
[6] *Dutton 1991, 276*
[7] *Salama 1995, 68*
[8] *Salama 1995, 69*
[9] *Salama 1995, 147*
[10] *Quayle 1985, 49*
[11] *Schön 1985, 57*

2.3: The Studio

The studio is undoubtedly the centerpiece of architectural education. Based on centuries-old Beaux-Arts 'ateliers,' and persisting within all architecture schools today, it is the environment where students learn how to design, develop life-long relationships with their peers and lay the foundation for their own practicing style.

"The design studio, the setting of most architectural design education today, is a complex and challenging experience. ... [Students] must present and defend ideas, conduct personal relationships with instructors and fellow students and learn new techniques and skills. The studio is more than a place to study; it is the situation in which the student is initiated into ...the culture of the architectural profession. It is here that students learn what is currently accepted as 'architecture', 'design' and the 'role of the architect'." – from 'Stuckness in the Design Studio'[1]

The studio is a format unique to design education, and has many advantages including the creation of an intimate culture and offering more social working opportunities than could be found in other, more traditional university classes. Students of architecture are provided with their own personal workspace to use as they see fit, and unlike many university programs, they are encouraged to work in an environment with their classmates instead of at home or elsewhere. It "is the space in which [architecture] students spend much of their working lives, at times talking together, but mostly engaged in the private, parallel pursuit of the common design task,"[2] and it proves its importance to students, professors and practitioners time and again as it is jokingly referred to, fondly reminisced about, or lived in for long periods of time. Studio is the driving force behind the cultural 'osmosis' that takes place in architecture schools, and students pick up social norms, behaviours and practices from their classmates and teachers in this collaborative environment. It is a place, an educational method, and the cornerstone for the common educational experience of all architects.

"Everyone had powerful stories of their studio experience. No one [is] indifferent. Studio has an enormous life-shaping influence on architecture students during one's school years and throughout one's life." – from the 'Studio Culture Summit Report'[3]

"Studios are not neutral sites, studios are integral parts of the social, political, economic and cultural relations of the [school's] society, ...[playing] a significant role in the selection, organization and distribution of knowledge." - from 'New Trends in Architectural Education'[4]

2.3.01

"There's a 'Family environment' between faculty, staff and students, lots of interaction between upper years and others." -2nd Year Student

"My favorite part of this school? one-on-one studio time with profs, small entrance numbers." -2nd Year Student

"It's like a family, and some of the people you also live with so we're close." -1st Year Student

"Best parts of the school culture? Feedback from everyone, collaborative environment, 1 on 1 time with profs." -2nd Year Student

"Everyone knows everyone, profs are pretty approachable, and it's an isolated, tight community." -Masters Student

"peeps around here are pretty tight and we have group hangs all the time." -4th Year Student

"It's a tight-knit community, you know everyone. Most of the interactions are with the class, but there is plenty of upper-year interaction as well." -3rd Year Student

"There are good interactions between students, very visible interactions as they spend 24 hours of their life here, building 'peer learning', as they get older and older, there is better and better interaction. -Architecture Professor

"You live here, you sleep here, but there's plenty of interactions." -Masters Student

"It's a tight knit community that's for sure, there's always someone to talk to, to ask for advice and support, so that's always good. Even at four in the morning." -Masters Student

"School culture? All years are mixed, even profs, you can talk to people, it's tight-knit, and everyone goes with the flow." -1st Year Student

"There's lots of interaction between the years, lots of people are interested in the bottom of the pile [1st Years], we're like a family, we don't really meet anyone else (in other programs), but it's a 24/7 enjoyable life, relaxed and fun, and we all know what each other is going through. Professors are more engaged than in other programs, they know you and they are interested, with you every step of the way, you're never alone." -1st Year Students

"It's really nice because you get a really good rapport with your studio tutor, and the groups are small about 15-20 people at the most, 10-11 studios total. The older students sort of help the younger students, and you get a really good sense of what other people are doing, and at the end of the year there is a big exhibition and a graphic publication. Which is nice to increase a sense of ownership, and also to find out what other people are working on as well as increasing a sense of pride." -Masters Student

"Professors often come in after hours or on weekends to check on students, recognizing that the architectural process is not a 9 to 5 experience. Communication between teacher and students, often there is a language barrier, but they are good one-on-one, there is more 'doing' and less 'teaching' which the students like." -1st Year Students

"Best part of the program? The fact that you can work with other people, and get to know other people. Unlike larger university programs we have student-oriented learning, we teach each other." -Masters Student

"Student Life: close community, 'got each other's back', it's a very supportive place, students are included in the organization of the school and sit on all faculty committees from hiring to furniture." -Administrator

"For architecture students, ...the studio occupies a special place in our hearts. The Studio can be more than just a space, but rather becomes a world of its own, bubbling with creative energies where students share ideas, tools, and techniques and develop a strong sense of community. It's where the magic happens." – from 'Spaces of Learning: Studios'[5]

The Studio as a 'Close-Knit' Community

The major advantages of the design studio setup are the close-knit community and one-on-one time with peers and professors, its success in teaching design practices, and the various interactions that it allows for in the school.

The close-knit nature is easily visible to anyone who wanders into the studio at any time, day or night. Students of all levels can often be seen laughing, talking, discussing projects, comparing notes, or joking with each other or their professors. Professors are often referred to by their first names, and students find them approachable, both in passing and in relation to school. In fact, so many of the student responses from the interviews conducted mentioned the 'close knit' or 'familial' aspect of the studio as its defining positive value, that in order to truly represent the popularity of this response, the many quotes have been listed in the margins of these pages.

"In few other disciplines do students have such strong one-on-one interactions with faculty and receive direct feedback concerning their work. The studio environment offers an unparalleled opportunity for creative discovery, exploration of ideas, critical discussion, and risk taking. Above all, students find that the studio environment offers a strong community where lifelong friendships are cultivated." – from 'Studio Culture in the Spotlight'[6]

The design studio's pedagogical techniques have been honed over the long duration of its existence in architecture schools, and the traditions it maintains for the teaching of architects have been passed from teacher to student for generations. Its primary strength as a learning technique is the ability to teach "reflection-in-action, problem-setting, ad hoc theory-building, [and] on-the-spot experimenting,"[7] wherein both professors and students create and simultaneously evaluate their designs. With its unique teacher-student relationship at the core, the studio allows for the development of individual working methods in a greater cultural whole as they are nurtured through one-on-one evaluation and self / peer reflection.

"The design studio is pedagogically solid. Thinking is an art. Studio focuses students on becoming knowledge creators and knowledge integrators. The environment of studios allows this to happen in the presence of more skilled persons as well as fostering learning from peers." – from 'The Studio Culture Summit Report'[8]

The Importance of Interaction to Studio Education

The design process for each student is rarely one conducted in complete isolation, and during the course of any particular design, it is presented, re-evaluated and assessed through personal reflection, meetings with studio instructors and discussions with peers. There is a need to belong to the group within the studio and the profession at large, and the studio provides a common thread linking the two, allowing for individuals to develop as architects and become the "product[s] of the groups to which [they] belong."[9]

"There is no recipe, [and] learning to judge well must happen by trial and error and is best done in the shadow of a master of that elusive art, and in the company of peers who aspire to the same ability. It is in the presence of others that we must learn to do our own. Studio offers that essential social context."- from 'Design Studio Pedagogy: Horizons for the Future'[10]

The interactions in the studio provide the foundation for many of the attitudes and theories of architecture as a profession, and have been referred to as the "Shared Design Life Space."[11] The Shared Design Life Space represents the collection of ideas and shared value system created by teachers and students through their various interactions. Like a Venn diagram, each student and teacher's individual values and techniques overlap with others to create a shared system of learning that can exist between two students, a student and a teacher, or an entire class. It is forged from "external factors such as peer pressure, external expectations, and related experience," and as each designer develops his or her individual "Design Life Space", the values of the shared system are used in various ways. They are "often used to justify and gain acceptance for design decisions," as well as being used to reduce the "risk associated with a particular task."[12] The theory of Design Life Spaces presents a simple way to understand the importance of interactions in the architectural learning process as ideas are passed on to students through their relationships with others in the studio. Because of the significance of these interactions to student development, the physical layout of the studio can have a large effect on how well they develop as designers.

"Clearly who students are tied to and how many [social] ties they have, affects the quality of sources to aid reflection and social comparison. The social nature of design learning leaves us cause to reconsider the environments in which learning takes place." – from 'The Social Aspects of Design Learning'[13]

In the following diagrams, various studio layouts have been drawn with their levels of interaction highlighted, with the darker zones representing the areas with higher interaction levels than the lighter areas. Many schools allow for interaction by providing 'gathering spaces' or 'traffic paths' where students are made to pass by one another as they travel to and from the studio (so that their desks are more private, but interaction is still available). In other schools, studios are closed-off areas and student interaction is made to occur elsewhere (if at all). Often in studio design, emphasis is placed upon the grand presentation spaces for final reviews, but
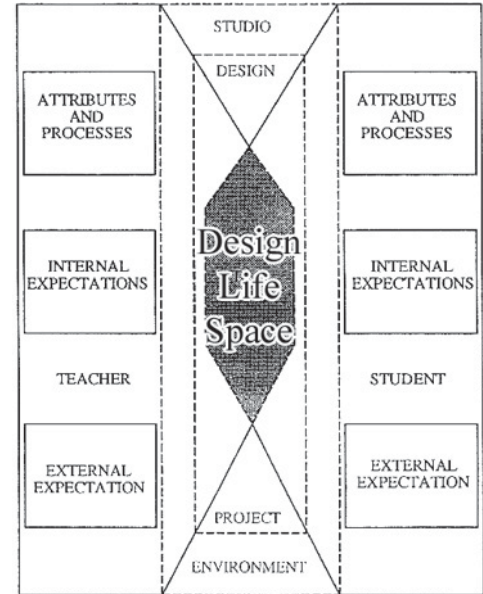
2.3.02

2.3.03: Carleton University School of Architecture

2.3.04: Dalhousie University School of Architecture

2.3.05: Carleton University Studio Interaction Diagram

2.3.06: Carleton University Architecture Studio

2.3.07: Dalhousie University Architecture Studio
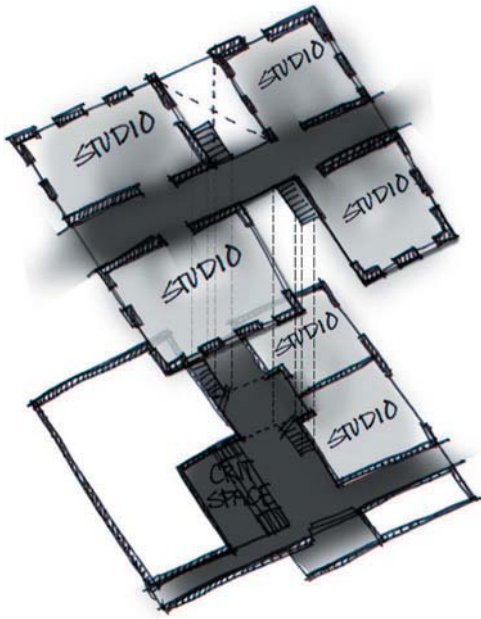
less recognition is made of the importance of less-formal interaction, or its effect on studio learning. This recognition is also important when considering the overall location of the schools, as more urban locations tend to draw students away from the environment, and when students 'commute' instead of living nearby, interactions can suffer as a result. Detailed descriptions of the layouts of the some of the schools visited and the effect they have on interactions are below:

Carleton University studios are located in a building that through its design supports a wide variety of informal interactions, as the major traffic patterns in both the main and second floors tend to converge on the central staircases, and in order for students to travel from studio to class or from the entrance to the studios, they inevitably 'run into' their classmates, professors and other students because of this layout. Also, the walkway between the two halves of the second floor allows for a visual overlook to the lower floor so that passersby can see if anything is going on in the presentation and lobby areas below. Desks in the studios are arranged into wide rows with ends facing the main walking paths, creating an informal atmosphere where most work spaces are visible simply by walking by, and students and professors consistently reported that these factors worked to provide good levels of interaction.

At Dalhousie University the studios are arranged predominantly in rooms with central gathering spaces, with desks placed on the surrounding edges in two layers; the main level and in an upper mezzanine. The greatest interactions in the building tend to occur in the stairwells approaching the studios, the student lounges, and in the lower levels of the studios. Due to the two-tiered configuration of the desks, there was minimal opportunity given for informal interactions, as upper level desks were raised above eye-level and hidden behind large wooden cupboards, and curtains were often placed in front of lower-level desks along with storage boxes and miscellaneous debris. Students spoken to stated that interaction between classes still occurred, but the studios were noticeably quiet during all the walkthroughs that were done to gather images.
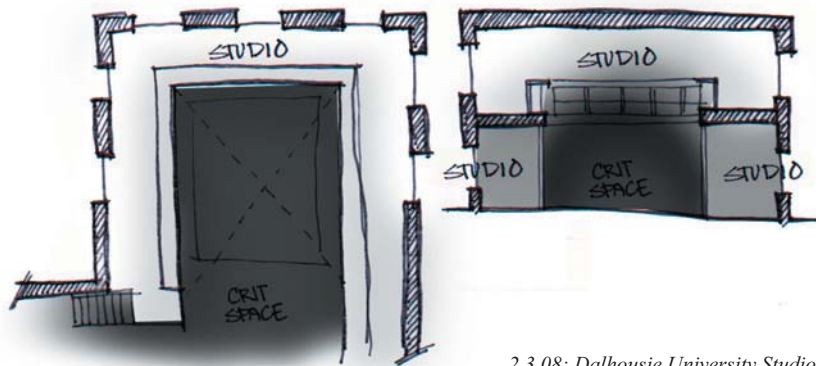
2.3.08: Dalhousie University Studio Interaction Diagram

At the University of Manitoba, most studios were located in long rooms with a parallel corridor and crit spaces adjoining. Additional studios were located in a basement level of another building (due to space constraints for the first year class), and in the perimeter of a third location. The majority of informal interactions took place in the corridors and stairwells of the two main buildings as students and teachers moved from room to room, and due to a wide walkway along the edge of the studios with desk rows facing it, all areas of the studio were visible to the passerby, further encouraging these interactions. Professor offices were also located across from the student spaces, establishing greater connections between staff and students.

2.3.10: University of Manitoba School of Architecture
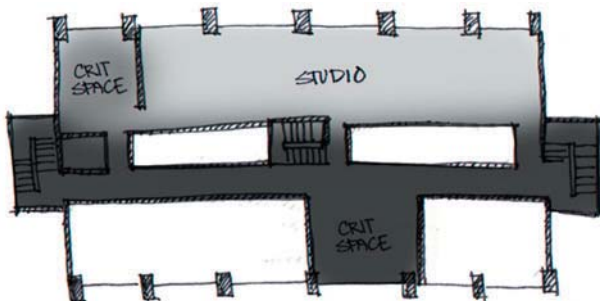
2.3.09: University of Manitoba
Studio Interaction Diagram

2.3.11: University of Manitoba Architecture Studio

At McGill University the studios are located throughout a historical building, and due to this layout, students and professors experience the majority of their informal interactions while moving from room to room, up and down the staircases, in the elevator or in the café. Inside each studio informal interactions were prevalent, but between classes this interaction was in part hampered by the fact that each of these studios was located behind locked doors or in some cases in hidden areas of the building. Professor offices were also located haphazardly throughout the historical layout, and effort would have to be made to engage in informal conversations beyond the most efficient path to and from these offices. In the studios, desks were arranged in clusters or rows according to student preference, but as the rooms were generally small, most desks were visible from the doors, an important feature when knocking is required to enter the room. Students spoken to pointed out the difficulties the building places upon interaction, and reported that, 'Students tend to keep to themselves' or 'stick to their classmates' as a result.

2.3.12: McGill University School of Architecture
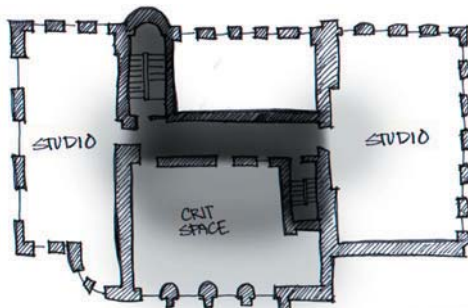
2.3.13: McGill University Studio Interaction Diagram
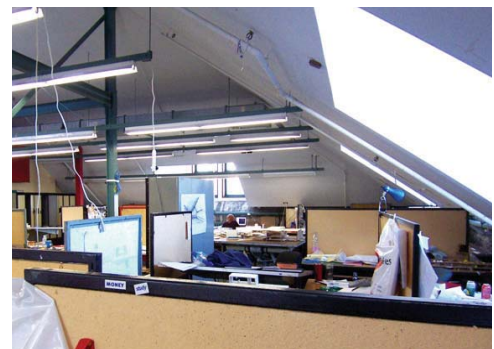
2.3.14: McGill University Architecture Studio

2.3.15: University of Waterloo School of Architecture

2.3.16: University of Waterloo Studio Interaction Diagram

2.3.17: University of Waterloo Architecture Studio

The University of Waterloo studios are located in two main areas, a large bank of studios on the third floor and smaller single room studios for masters students located throughout the building. Informal interactions occur mainly in the studios, but also in the atrium staircases and lobby spaces. Desks are oriented in fixed rows, but are aligned at an angle parallel to the main walkway through the space, so only the closest rows of desks are visible to the passerby, and the farthest desks are impossible to see without walking a fair distance into the studio. Masters studios are isolated in a fashion similar to that of the McGill studios, behind locked doors and hidden from obvious view. Professor offices are located throughout the building, but not close to the studio, also limiting the possible meetings of the two parties. However, despite this layout, interactions were reported as fairly consistent between students, and the café was noted as a main mixing point between students and staff.

Social Support Mechanisms in the Studio

Besides providing a rich source of interactions and ideas, the studios also provide social support. In psychological studies on stress in the work environment, it has been found that, "social support has been related to improvements in life stress in terms of less depression and anxiety, better physical health, and general psychological well-being."[14] Recognizing this advantage as it applies to the studio environment, schools encourage students to work in studios, both so that they can stay on target with their class and be available for discussion, but also to allow the class to 'self-regulate' its behaviours.

"There's people that support each other. There's a social network, there's a support network that exists and simply the fact that there is an architectural community that exists, I think is positive." -Masters Student

"The culture here is very enjoyable; frustration level is high but it is alleviated by the small size of the school, so that you can get close to and support each other." -2nd Year Student

Adapting to this unique culture can be a challenging one for younger students, but the social support that is offered in the studios does much to help them develop their own working style. However,
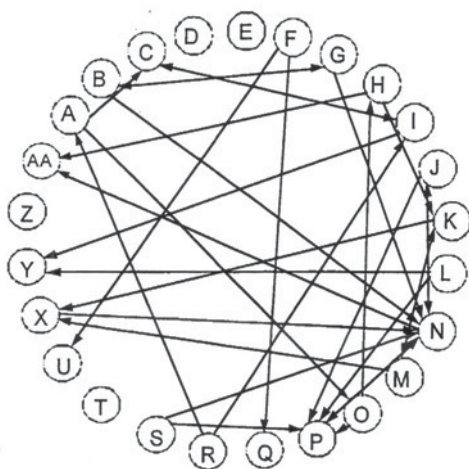
2.3.18 - Studio Student Interaction Diagram

this positive aspect of the studio could be even more applied if students from different years were able to interact within the same studios. In most of the schools visited, students were grouped in areas that were part of a single studio program, and usually they were grouped by year. Interactions with students from other years happened mostly outside of school, or briefly in the halls, but in general, students tended to 'stick to their own year.' This occurrence is somewhat unfortunate, as upper-year students possess a wealth of information and skills that are useful to students in the earlier stages of the program as they are learning to design.

"There's a lot more wisdom available from upper year students and faculty and staff than they impart. I mean they've all figured out how to balance their lives to one degree or another." -Architecture School Staff

"The more interactions you can form [between younger and upper-year students] the better people deal with the workload. There're things you did in 1st year that you wouldn't have done if you'd talked to an upper year." -Masters Student

Some of the schools visited have tried to rectify this 'need-to-know' attitude by mixing the students from multiple years in the studio, or by providing mentoring programs, in which all incoming students are matched up with masters students (usually in three or four-to-one ratios). As a first year student involved in once such mentorship program states, "not everyone uses it, but it's nice to be able to approach some older students." According to a professor at this school, the mentorship program is based on the premise that "younger students often drain themselves, [and] older students tend to be able to balance more." Upper year students and professors also represent the best possible choice for support networks, because, unlike contacts the students may have outside of school (parents, friends, etc.), they are familiar with the architectural process and what it entails. "Both supervisors and co-workers are in optimal positions to provide support because of their understanding of the workplace, ...offering suggestions and helping workers realize that they are not alone."[15]

Maintaining Balance 'Outside of Studio'

"Successful students both in terms of peer ratings and staff awarded marks, were not necessarily high attenders, indeed some of them attended the studio well below average for their groups. If students are using 'successful' peers as role models, this will suggest the lack of a link between attendance and success. Not finding the studio conducive to quiet work, students said they came into the studio to find out what was going on. This could be a search for information about the requirements of the project, to see the work that others are doing, to find information to help them generate or develop ideas or to talk to staff." – from 'The Social Aspects of Design Learning'[16]

Studios have always emphasized the importance of architectural design and the process of working through projects in an environment surrounded by other students and teachers. Good design gains a lot from this process, but increasingly there has
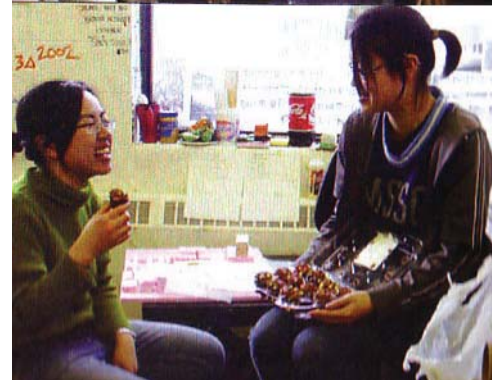
2.3.19

2.3.20

been a questioning of the studio's isolation from other inspiration, discussion, or knowledge. By creating a 'close-knit' community, the studio can sometimes become so appealing that students do not look much beyond its doors for inspiration, and a situation is created in which the architectural viewpoint may be construed as the only important one.

"Once, a long time ago ..., I had a friend who was studying architecture. This friend introduced me to other friends, who were also studying architecture. Then these friends had other friends who were architects – real architects doing real architecture. ... And these real architects knew other real architects and now the only people I know are architects." – 'Dear Architects' letter by Annie Choi[17]

"Studio …is in fact a detached and artificial environment, a hothouse in which strange values and forms are allowed to breed and mutate. …The result is ...an architectural education which effectively removes students from reality, instigating a denial of the ordinary in the pursuit of the extraordinary." – from 'Reality and Diversity: Reform in the Architectural Design Studio'[18]

As stated by Douglas Kelbaugh in his 'Seven Fallacies in Architectural Culture, "Any creative person is a sponge in denial"[19] and many architects or students of architecture admit to finding their inspiration in a broad range of both internal (architectural) and external sources. Architecture programs are beginning to establish relationships with other fields, sometimes sharing their resources with similar programs (fine arts, urban design, landscape design, engineering, or general arts) by offering courses that are not limited in their enrollment to only architects, and opportunities are sometimes made for students to take courses offered by other faculties. In rare cases, studio design courses are shared with the aforementioned related fields, allowing students to practice working on design teams with individuals of differing specialties.[20] Architects are good at mixing disciplines, and recent research and explorations in practice are demonstrating how adaptable architects are to increasingly complicated information and technology.

"We live in an increasingly non-linear world in which everything is connected. Twenty-first century architectural problems are complex, demanding multi-disciplinary responses and attention. If architects are to remain the generalist leaders of design teams, they need to be able to understand the language of multiple disciplines and of particular areas of expertise. Education needs to offer students a broader base of ideas from which to draw, different ways of knowing, different methods of research and analysis, and different approaches and attitudes" – from 'The Redesign of Studio Culture Report'[21]

"One thing architects are good at is information management. We are very good at moving. We can take statistics from one domain and can compare it with drawings from another or with models from another. We are promiscuous." -Mark Wigley, Dean, Faculty of Architecture, Columbia University[22]

This type of expanding knowledge is one that is beginning in the schools, but it needs to be increasingly emphasized. Practicing architects work with clients, engineers, contractors, material suppliers, planners, and many other sources in the creation of their designs, and through the encouragement of increased "interdisciplinary work" and "rich cross-disciplinary opportunities" students can be better prepared for the "challenges of current and future practice."[23]

The idea that architects in the information age are perpetual students of the world, arranging information to fit their own ideals, is a vision that is quite hopeful.[24] And as the educational system begins to forge an increasing set of connections with other programs and the practicing community, students and professionals alike will become more informed, more interested and more able to find their place in their own careers. Architects "operate in a continuum of design where we do our bit,"[25] and as a profession, only positive gains can be made from establishing links to other fields.

Accrediting Studio Culture

In the standards of the National Architectural Accrediting Board (NAAB), the body that determines the quality of all architecture programs in the United States, there was a condition added in 2004 requiring all schools to have a policy regarding the culture of their studios.

"The school is expected to demonstrate a positive and respectful learning environment through the encouragement of the fundamental values of optimism, respect, sharing, engagement, and innovation between and among the members of its faculty, student body, administration, and staff. The school should encourage students and faculty to appreciate these values as guiding principles of professional conduct throughout their careers. ...The school [must present a report showing that it] has adopted a written studio culture policy with a plan for its implementation and maintenance and provide evidence of abiding by that policy."[26]

Andrew Caruso, the current President of the American Institute of Architecture Students (AIAS), when asked about this policy and how it has been implemented since its inception, responded that forty-four schools have been accredited since the condition was added, and each has adopted a unique policy that responds to the culture of each particular school. In the upcoming accreditation conference in early 2009, these first attempts will be reviewed and re-evaluated in order to add some firmer requirements to the cultural conditions based on the best responses from these schools. The AIAS is currently compiling a report for this conference, surveying thirty-five administrations and inquiring how they have used their new policies for recruitment, professional development and incoming student awareness. This report should be available in the summer of 2008, and will focus on the efforts made to recognize the importance of the studio and its impact on the education and well-being of architecture students.

2.3.24

2.3.25

[1] Sachs 1999, 195
[2] Schön 1985, 32
[3] Studio Culture Summit Report 2004, 10
[4] Salama 1995, 107
[5] Zhou May 2007, paragraph 1
[6] Koch 2002, paragraph 3
[7] Schön 1985, 83
[8] Studio Culture Summit Report 2004, 13
[9] Ashton 2000, 70
[10] Salama 2007, 11-12

[11] Wendler 1995, 326
[12] Wendler 1995, 326
[13] Ashton 2000, 76
[14] Ray 1994, 358
[15] Ray 1994, 360
[16] Ashton 2000, 71
[17] Choi 2007, paragraph 1
[18] Beisi 2006, 22
[19] Kelbaugh 2004, 6
[20] Rüedi 2000, 120

[21] Koch 2002, 14
[22] Praeger 2004, 118
[23] NCARB Report, 4
[24] Salama 1995, 147
[25] Habraken 2006, 17
[26] NAAB 2004, 5

2.4: Crits and Criticism

If studio is the heart of architectural education, then the review (a.k.a. the 'critique', 'crit' or 'jury') is the heart of the studio learning process. There are desk crits, informal crits, interim crits, group crits and final reviews, and these can range in size from two people to over a hundred in attendance. A crit is essentially a discussion between the designer(s) and a critic, and is used to evaluate designs or works in progress. In the profession of architecture, the idea of criticism is both a positive and negative one; on one hand, it allows the designer to question their methods as they refine the project, on the other, it is a constant re-evaluation process that can be very frustrating for students.

The crit is not unique to architecture, and versions of it can be found in all design education and sometimes in other fields entirely. In the education of doctors, "medical students are presented with a patient, asked to diagnose the illness and suggest appropriate treatment. Students are then expected to justify their decisions to a reviewing panel."[1] Crits in architecture echo some of the situations that architects face in practice (such as making presentations to clients), and "reinforce the importance of meeting deadlines, provide a forum for students to see each other's work, ...encourag[ing] graphic quality, ...discussion, ...[and] new thinking."[2] The crit can also represent the "ceremonial culmination of each studio design project."[3]

The crit has long been a part of architectural education, and as far back as the Middle Ages, master-builders completed their education with the presentation of their 'master work'.[4] Presentation is a major part of architectural practice, and the ability to present complex design projects in a simple and brief fashion is an important skill for all architects to learn. The review process is also integral to the evaluation of student work, as commentary is one of the only ways that students can get a grasp on the marks they receive. If final projects were only handed-in and a number grade was given, there would be no understanding of why marks were lost, and no improvements could be made to the student's design process in future projects. The open debate of projects that takes place as part of the review process is essential to the growth of students as designers, as it lets them both defend their actions, and learn how to better their technique from a variety of opinions.

Of course, this same variety of opinions can also lead to some of the misunderstandings that come out of the critique process. As students are presented with a wide range of advice and commentary throughout the design process, they may be unsure which to follow, or what to make of contradicting items mentioned by different

2.4.01

2.4.02

professors or guest critics. In the final review, with information coming from so many respected sources, the student could also begin to lose confidence in their own opinions of their work.

"I would concur that at present the crit ...might even ultimately influence the underlying lack of confidence and negativity within the profession itself. The review of student work should be a positive event, recognizing endeavor rather than a criticism of missed opportunities."- from 'Letter: Mutual Respect'[5]
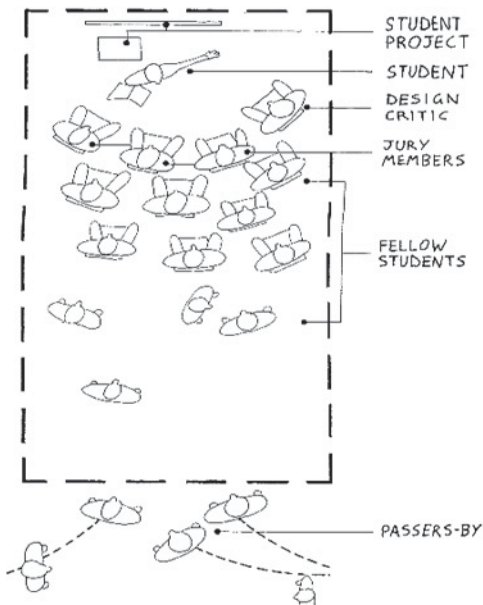
The crit process is both an objective and a subjective one. In its most objective analysis, it is usually a presentation where the student places his or her design work on a wall before which a panel of critics is sitting. The student explains the work, and the panel takes turns offering comments or encouraging the student to explain areas further. The student and the panel go back and forth, explaining and questioning, sometimes applying basic judgments and sometimes defending responses for a period of time, then closing remarks are made and the review is over, leaving the student to record the more striking comments as items to keep in mind for the next design. Throughout this process, other students or members of the school can sit and observe, pass by and glimpse, or add their own comments to the presentation. This description seems tame enough, but on the subjective side, the interpretations of the crit can be very different from what is actually happening. For the student, the crit is often a nervous experience, where, for better or worse, their work is evaluated in a public place before their teachers and peers.

STUDENT PROJECT
STUDENT
DESIGN CRITIC
JURY MEMBERS
FELLOW STUDENTS
PASSERS-BY

2.4.03

Unfortunately, your work did not reflect the motive and the theme you just described.

Are you crying??...

no...

2.4.04

"The first time I saw a jury [crit panel] was when I experienced it myself. My own performance aside, I truly felt as if I had arrived from another planet. Never had I witnessed teachers hurling out such vicious words across the room – except perhaps in the movies or on TV. Never had I seen students so publicly embarrassed and humiliated – except perhaps in second grade. Never had I sensed such an aftermath of confusion, powerlessness, anger and rage in a classroom setting. It was as if a tornado had just roared through the building." – from 'Design Juries on Trial'[6]
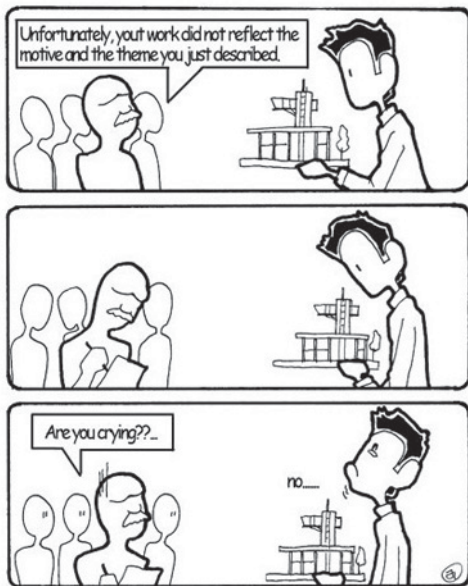
But why is the analysis of the crit so polarized? From an educational standpoint, it is a useful and important tool for teaching students how to present their work and gain the verbal and graphic representation skills they will need for the future. From the student's point of view during the crit, it is often interpreted as a negative personal event. Despite this drastic difference of opinion (and not all students share this view) there is a basic reason why crits are sometimes viewed in so negative a light. Criticism received during the review process can sometimes be "too personal, too vague and too destructive,"[7] and the overall experience is at times one-sided, and for the student it can become "endless, [as the critics] say the same thing again and again."[8] All these values reflect a general tendency for students to 'take it personally' and view the 'ordeal' as an emotionally distressing experience.

crits and criticism

However, the negative connotation of the crit as a 'waste of time' is one that can be easily rectified with a little preparation on the part of both the review panel and the student. Preparing for the crit is a step that is sometimes mentioned but not strictly enforced in the schools, and if the student takes the time to plan out their presentation, their design may be easier explained, and the opportunity for increasingly constructive criticism can be created. On the side of the reviewing panel, by discussing the overall goals of the studio and agreeing upon themes for commentary before the crit process begins, commentary can be focused on areas that will directly affect the student's future work, and more time can be spent directly addressing the issues of the studio instead of providing useful, but not always targeted suggestions.

As well, a major misunderstanding that occurs between students and professors is the misconception that the crit is going to be used for grading purposes. Students often assume that the comments in their crit make up the entirety of the marking process, and as a result, are often discouraged when all elements of their project are not addressed during the crit. From the panel's point of view, an attempt is made to speak to the more important aspects of the project during the short time allotted, while simultaneously speaking to some of the larger issues in the class (that may be of interest to the students in the audience). Topics are often discussed in their relation to other projects seen, and discussion of the individual's work may continue into the following reviews. Students should be aware that the crit is a useful process, but it does not represent the entire marking consideration, and that they can also learn from watching the crits of their classmates.

Another important lesson that all designers eventually learn is that there is never an end to design, and there is always some aspect that could be further improved. Crits can be frustrating because they tend to emphasize the 'could-have-beens' long after anything can be done to improve them. In the schools as well as the profession, designs must eventually be 'finished' or nothing would ever be built, and it is on this note that the most detrimental part of this culture of criticism can be found. If architects persist in becoming their own worst critics, and continual evaluation and re-evaluation of work is encouraged, how does this fit within a profession that is expected (and paid) to eventually stop designing and actually 'build things'? The process of designing is one that needs to be encouraged to create good work, but careful adherence to schedules, and the creation of good designs in a limited time allotted, are two skills that should have greater emphasis to prepare students for successful practice.

"Because of this constant desire to receive criticism and change, projects are always held to the last minute, and that causes a cascade of budgets in the professional world, and in the academic world, all nighters. ... Architecture students and practitioners [need to] learn that there should be a time for design and a time for production and execution." -Architecture Professor
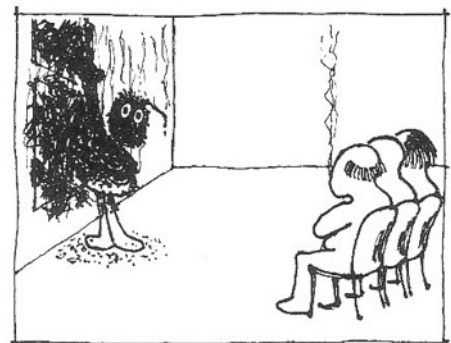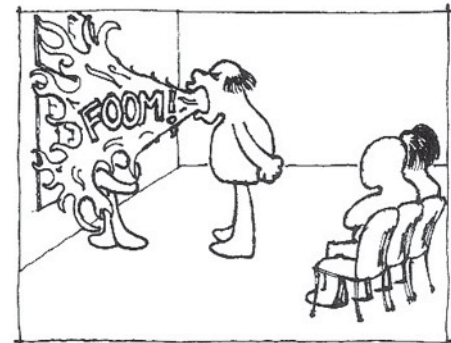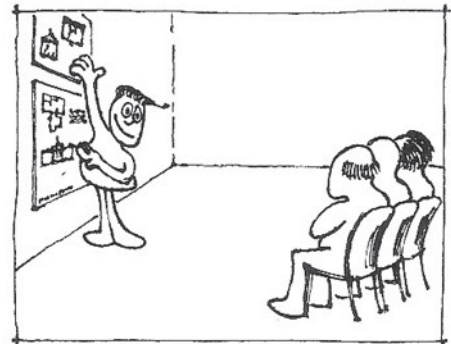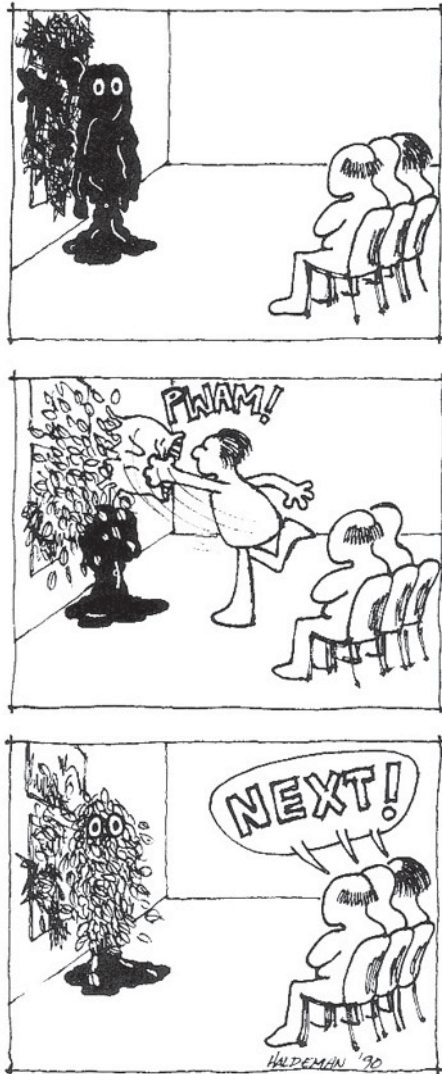
An essential skill for students to develop as they experience the various types of crits is the ability to assume an objective viewpoint of their own work. By 'taking a step back' from their projects they can reflect on the commentary and separate the emotional colouring of the experience from what can be learned. Lessons remembered from previous projects can often apply to future designs, and the ability to 'keep one's cool' under the pressure of a presentation is a valuable skill for a future in architecture. Students and practitioners alike should pay careful attention to the fact that it is "Your work, not you, [that is] judged,"[9] and that 'good' projects and 'bad' projects are created by everyone as they learn to design and work to find their own style. If a bit of perspective can be gained on the project, then criticism, good or bad, will be taken and stored away in its proper context, where it can be accessed for future work.

"Devastating moments always occur when one's work is not appreciated. I tend to be one of those people who accepts a certain degree of failure or rejection as being not necessarily healthy and not even necessarily well intentioned, but often, in the cool reflection afterwards, as being appropriate. It's hurtful for someone not to like your work, but it's also a part of life."
– from 'Design Juries on Trial'[10]

Students learn to design through a combination of technique instruction and trial and error experimentation, but when it comes to crits, there is minimal instruction given, and students are mainly left to find their own way. There are no classes or workshops given on how to best present verbally, and despite "students ...repeatedly point[ing] out this deficiency on survey after survey, ...[as well as practitioners] stress[ing] the same point, the emphasis is [still] almost exclusively on communicating visually."[11] Perhaps in the earlier years of the education of architects, workshops could be given on how to best navigate the crit process, either in a formal handbook or lecture, or informally through a discussion given by older students. If instruction is given at the start, much of the negative anticipation of the event could be avoided through awareness, and tips like those mentioned above (taking time to prepare, separating from the work, recording commentary, how to respond to comments, etc.) could let students hone their presentation skills throughout their education. These tools (workshops, informal discussions) could be used to help students better understand the process and their role in it, but careful observation and practice are still key – the student needs to actively take responsibility for being aware of the experience, so that they can apply the lessons they learn about presenting and discussion to future reviews.

"Despite its centrality, this 'vital learning vehicle' [the crit] (if you believe professors) or 'boring waste of time, ego-trip for staff' (if you believe students) appears to take place without the benefit of a student guide. Students are expected to learn the rules of the game without a rule-book and initiation into this ritual can be a painful rite of passage." – from 'Crit: An Architecture Student's Handbook'[12]

2.4.05

As well as giving students the tools to be better prepared and ultimately get more out of the experience, alternative crit methods can be employed to expose students and their work to different voices. In some cases, schools are including clients in the design studio program; by assigning projects with a specific client wish list in mind, or by bringing in user groups for lectures, design charettes or final reviews. These 'clients' represent possible user groups instead of real projects, but their input as community members is valid regardless of the theoretical format of the projects they are advising. Students who were involved in these types of projects responded in a resoundingly positive fashion, enjoying the interaction as well as the feedback that they received on their designs from the clients involved.

"I really enjoyed it when he [the professor] brought in people other than architects [business people and community members] for the crits, because they are all about positive feedback." –Masters Student

"I can design something, but I can't design something for the twenty or so people who are going to critique me in the end. I'm much better at designing for one person or one set of people that have a particular set of ideas, like a client." -Masters Student

By integrating the opinions of these 'clients' into the schools, students can develop their ability to communicate their ideas to the layman[13] as well as begin to introduce some 'real-world' constraints into their design projects.[14] This process as a whole can be very difficult to organize, but even the introduction of non-architect views in the initial phase of the project or the final review can be very valuable. Students can learn an immense amount from these interactions and can benefit greatly from the opportunity to expose their work to a wider audience.

"Design instructors tend to focus on issues important to an audience of fellow architects, rather than the requirements of clients or users." – from 'New Trends in Architectural Education'[15]

"I don't simply want to imagine a design but want to see it come to life. I enjoy the reality of my work, the possibilities and surprises it holds. The users of architecture enliven the structures we provide them with, they interpret them and change them in their own fashion. They are encouraged to enter into a creative dialogue with their surroundings. I like that." - Malte Just, Just.Burgeff Architekten[16]

Another alternative to the crit is the use of a final exhibition for the student work of each year, displayed during an open house for the community or prospective employers. This process was adopted by one of the schools visited, and end of year crits were combined with an exhibition, where classes would wander the school for brief presentations and commentary from staff and students as well as the designers of each project. A similar version of this idea is also discussed in Boyer and Mitgang's 'Building Community' where:

2.4.06

2.4.07

"Instead of separate evaluations of each student's work, for example, the entire studio's collective work might be displayed, almost like an opening night at a museum or gallery. Students would be required to prepare a brief written statement explaining clearly their goals and how they were achieved. Jurors and fellow students would be asked to write their reactions and suggestions concerning each project."[17]

Professors and students alike need to be aware of the tools that are available for the improvement of the crit process, and students need to take an active role in improving their own experience instead of just 'going with the flow' or letting the experience pass by without learning anything. If a bit more technique instruction is given, and a more objective viewpoint is established, changes can be easily made to improve the entire process for both parties.

"I do have memories of reviews that went well, but I have to admit that I don't remember ever learning much from the experience. I certainly never asked myself what reviews were for, or what I wanted to get out of them (other than praise, praise, praise!)" – from 'Crit: An Architecture Student's Handbook'[18]

[1] *Doidge 2000, 10*
[2] *Anthony 1991, 29*
[3] *Lewis 1985, 77*
[4] *Kostof 1977, 80*
[5] *Angus 2004, paragraph 3*
[6] *Anthony 1991, xiii*
[7] *Anthony 1991, 109*
[8] *Doidge 2000, 8*
[9] *Lewis 1985, 70*
[10] *Anthony 1991, 211*
[11] *Anthony 1991, 65*
[12] *Doidge 2000, vii*
[13] *Doidge 2000, 96*
[14] *Quayle 1985, 100*
[15] *Salama 1995, 147*
[16] *Praeger, 164*
[17] *Boyer 1996, 95*
[18] *Doidge 2000, xiv*

2.5: Theory vs. Practice

"Educators in architecture say debates over the appropriate balance between theory and practice have been going on for centuries. On one side, educators argue that graduate programs should not be technical schools but should teach students to analyze, design and think. Those taking the other side say schools have become so skewed toward theory that firms hiring interns have to start from scratch when training them." –from the article, 'For would-be Architects, Grad School is Like Boot Camp'[1]

During the visits to the Schools of Architecture at Dalhousie University, University of Manitoba, Carleton University, McGill University, University of Waterloo and University of Toronto, students, faculty and staff were asked, "From your experience, on what areas of architectural education does your school place most emphasis?" Responses to this question were various (and in some cases were wildly disparate even in the responses of a single school), but most seemed to focus on the crux that lies at the centre of architecture education; the school's position between the traditionally paired values of theory and practical knowledge. A compilation of these responses is available in the margins of the page.

As architects, the concept of balancing between two masters; the search for beauty, and the reality of construction; is not a new one. Vitruvius explained the importance of maintaining equal aspects of both in saying, "Architects who have aimed at acquiring manual skill without scholarship have never been able to reach a position of authority to correspond to their pains, while those who relied only upon theories and scholarship were obviously hunting the shadow, not the substance."[2] Too much practical knowledge and one could never hope to rise above the status of a labourer; too much theory and nothing solid would be built. 'Paper Architecture' is a recent term for the latter case, in which buildings are developed in drawings but are never built. This type of theoretical focus has been a part of the profession since Etienne-Louis Boulee and Piranesi, and continues in today's architectural discourse in the work of Zaha Hadid or Daniel Libeskind[3] who, though building some projects, have a well known body of drawn work. Regardless of the influence of these theoretical works to the field, architecture is, a "bimodal profession,"[4] and it requires its practitioners to have a feel for both good design and the infrastructure required to bring these to life.

On the side of a proper theoretical education, there is the belief that preparing students with the ability to think in a critical fashion allows for graduates to apply their minds towards a variety of careers, offices and roles. There is an acknowledgment that "there is a big difference between training and education,"[5] and that

"Emphasis is dependent on year, first year is more design and each year there are more practical things are added. Generally it's a well-balanced program." -1st Year Student

"Very theoretical, lots of emphasis on how it affects the people within the environment." -1st Year Student

"It's a strong professional program, with a strong research profile. Professionally oriented but, thesis, studio, etc. is more theoretical. It walks the line between the opportunity of building and the parallel requirements for a theoretical position, a critical position. The thesis is about a conversation, not one question, but it comes down to how an architect answers."- Architecture Professor

"It's a good, balanced education, with both engineering education and architecture." -Architecture Professor

"The third year studio, is an intense experience. Coming up with possibilities before the design, emphasis on the program instead of constraints, designing ideals." -3rd Year Student

"This is a top school, with one of the healthiest and most profound relationship between technical and arts at its most balanced, it's a realm of personal exploration, not just a search for abstract 'things'." -Architecture Professor

"I wish there was more emphasis on the practical, but it's a balance." -3rd Year Student

architecture schools are located in universities for a reason; students are expected to learn to explore a variety of solutions, not simply how to do something right instead of wrong.
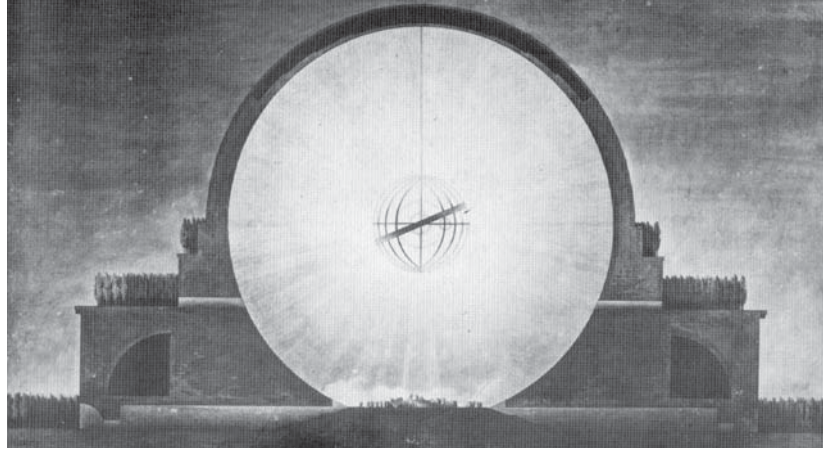
"We don't run a good technical program. A strong focus on tech would be a valuable component to an architecture school. Also more hands on building projects would be super beneficial." -2nd Year Student

"This school attracts a lot of people that don't want to practice conventional architecture, but I think generally everyone gives it a shot at least. There is definitely a big rift between school and practice. I don't know how to fix that, but it's there…" -Masters Student

"There's a difference between a technologist and an architect. Skills can be taught a lot easier than thinking can be taught. Architecture is so unique in that it's one of the last disciplines where you are expected to work in both an artistic and a technical world." -Architecture Professor

"This is a theoretical school, but that's a problem, a lot of emphasis on the studio course, on concepts and 'big thinking'. I enjoyed a 'design build course' for hands-on practical experience."-Masters Student

"I love the studio, pushing out of the box, it's awesome. [My school] is known for conventional projects, practical design, not out there. But this year it's about doing something because you want to, theoretical exploration." -3rd Year Student

"In our program we encourage 'critical reflection', or the balance between reading and critical understanding and action, by fostering an understanding of why we do things instead of just how. People leave the program asking the right questions to become architects." -Architectural Professor

"This is more than 'practice for practice'. It's about in-depth study, a culture of intensity, and by creating an environment where you devote yourself to it, and train students how to think instead of training them how to be working professionals. The skills I'm getting by being taught how to think through an idea, are much more valuable than learning how to render a 3D model." -Masters Student

"In purely practical terms the problem [of purely theoretical discourse] lies beyond the jurisdiction of the Association [Ontario Association of Architects]. After all, any person who deals with theory and never practices cannot by definition even belong to the Association. Why should the OAA even be interested? But this view might, on reflection, prove to be unduly narrow. …there have been times when the Association has been revitalized by views expressed in opposition to the prevailing outlook."- from 'Ontario Association of Architects: A Centennial History'[6]

Architectural research and design exploration is a growing field in the profession, and because of the fact that all architects are now graduates of academic institutions, this new knowledge can make its way directly into the professional dialogue. Architecture is being discussed in its relation to disciplines ranging from psychology to aerospace engineering, and the development of architectural research has provided ample opportunity for students to explore these links in the less constrained reality of the schools. However, some students, mainly those who wish to contribute more to the built world than to research, are concerned about the widening rift that this focus on research development has placed between the schools and the profession.

"Some of my classmates will make great professors. This school sometimes feels as if they are grooming professors instead of practitioners, so if you are interested in practice you kind of have to get it on your own. I've worked in the summer, I've taken technical electives, but not everyone bothers." - Masters Student

"It's tough because for those of us that have had some work experience, we know what's missing, but there are so many people who just go naïvely through the program and don't realize that they really aren't prepared. I wouldn't want a grad from this school working for me… It's bad, and even the architectural associations locally have raised the fact that 'these student's aren't prepared'." -4th Year Student

"I don't have a clue how to draw a detail, and I'm scared by this. I wish there were more learning about materials and how they go together. I would prefer to understand everything first and then push it with my creativity. Right now we're just asked to be creative, but nothing else." -Masters Student

"A program in which students were encouraged to consider their architectural education in a global manner, and which was instituted at the school [the University of Toronto] in the early 1970s, had met with considerable concern at the OAA [Ontario Association of Architects]. The advantage of such a program was that students often attained a very wide knowledge base; the disadvantage was that they did not immediately fit well into architectural offices in that they frequently graduated with insufficient knowledge of technical matters and professional skills." – from 'Ontario Association of Architects: A Centennial History'[7]

From the side of the profession, there is a belief that students should be trained less in research techniques and more in the areas of practical skills. "They feel that a graduate who comes to seek employment should already know the practical side of the profession and be able to produce drawings and other documents for actual construction."[8] However, it is unreasonable to expect that the university should train students for all the skills they will need to work in a firm, and the profession needs to recognize that becoming a fully qualified architect is a process that extends well beyond the school. Architecture has a long history as an apprenticeship-based career, and even though the primary instruction is now located in schools, there is simply too much to learn in a four or five year process.[9]

"Schools have a responsibility to educate, not merely train, and to support as well as challenge existing practice. At the same time, no school can afford to neglect its continuing obligation to the profession. The profession, while understandably preoccupied with the daily imperatives of practice, must be more supportive of schools of architecture, understand better the realities of the academic setting, and demonstrate a wide-scale willingness to continue the education of graduates through supportive, educationally sound internships."[10]
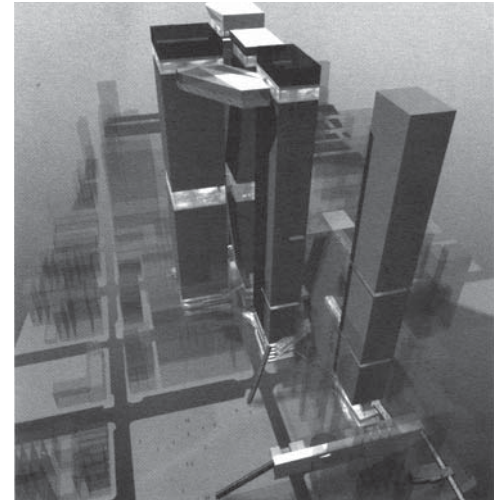
Kent Yiu
thesis: next-generation high-rise in hong kong
supervisor: Christine Macy
advisor: Frank Palermo

Over the past century, the city of Hong Kong has been transformed into one of the world's most vibrant cities in finance, professional service, transportation and communication. High-rise concentrated urban developments have played a large role in the city's development, creating its characteristic streetscape of extreme intensity and density. The thesis uses Hong Kong as an experimental site to explore new public space typologies that take advantage of this city's high-rises and extreme vertical density. The goal is to create a high-rise built environment that is more habitable and humane. Ultimately, the project may offer added complexity, urban richness and livability to high-rise developments and possibly serve as a prototype for the design of future generations of high-rises in the urban centres.

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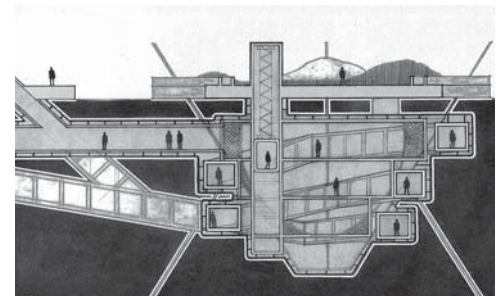
2.5.03: student work from Dalhousie University

2.5.04: student work from the University of Waterloo
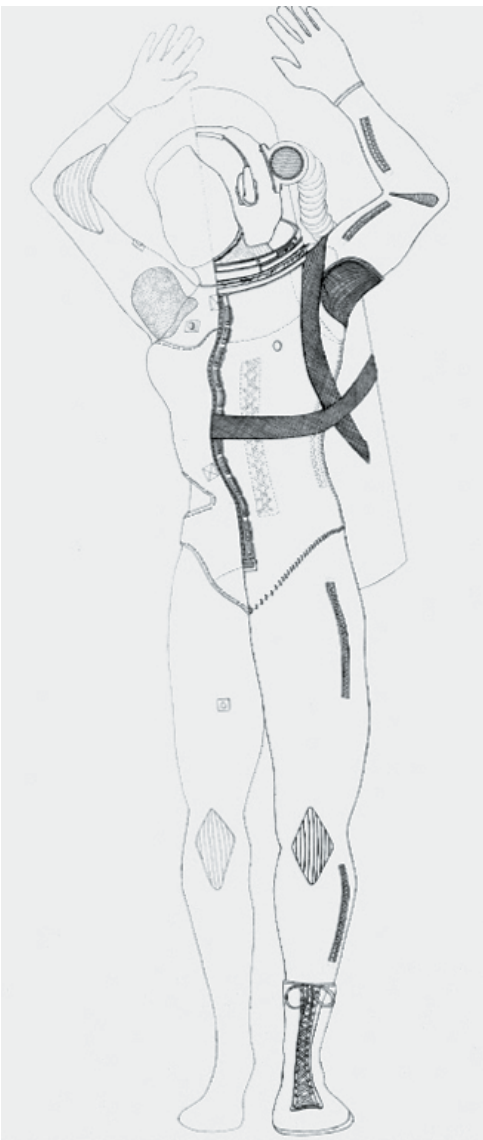
2.5.05: student work from the University of Manitoba

"One innovation is taking place at the Georgia Institute of Technology. A local architecture firm, Niles Bolton and Associates, has sponsored the development and offering of two explicit leadership courses that are designed to teach more advanced leadership skills [for practice]. This is but one example of the profession and academy working together toward a common goal."[11]

One of the first connections students make with practice is from their professors, many of whom have had practical experience with architectural practice at some point. There is generally a mix of professors who work primarily as academics, professors who toggle between practice and teaching, and adjunct professors who primarily practice architecture but choose to teach or help out for brief periods in the schools. The variety and mix of these types varies from school to school, but interviews with students and available documentation[12] pleads for an increase in the adjunct practitioner/professor, in order to increase the exposure that students have with the profession while in school, and at the same time improve awareness of the school's research work in the profession. Though practicing adjunct faculty are often the hardest to maintain and coordinate (as they must juggle their practice and their teaching) there are some new methods being adopted by schools to attract more professional interest: "Conscious of changing pressures and needs, schools that boast a roster of well-known designers are helping to redefine a more workable studio, through new models like short, intensive workshops and studios with teams of designers who teach in serial rather than simultaneous format."[13] At the same time, existing faculty should be encouraged to remain knowledgeable of the professional environment, being careful to stay connected and continue to develop their own education regardless of whether they are actually practicing, or have tenure, or if their research interests lie elsewhere, as this connection is integral to their relevance for students.

"Very few of our profs practice, it's a very incestuous faculty, and there's a lack of connection to the working world. So there's no one around that 'knows what's going on'. Something's gone awry.... something's missing. I wish there was more overlap with people in practice." -Masters Student

"The educator/practitioner plays an increasingly important role in the academic setting by providing more meaningful appreciation and respect for knowledge-based practices and processes. Architecture programs should have a balanced and diverse faculty. The education and licensure of practicing architects makes them an essential part of that balance. As knowledge-based practices begin informing architectural curricula more fully, licensed educators will become increasingly essential to professional programs." – from the 'NCARB Draft Position Paper for the 2008 NAAB Accreditation Review Conference'[14]

One of the most popular methods of integrating the profession into the educational process is the use of work placements, internships and design-build labs. Academic credit is given for work terms

completed or design-build projects finished, or students are given opportunities to interact with practice through work or volunteer placements in their summer time off. The advantages of these programs are obvious: a better understanding of day-to-day practice and the ability to experience different positions in firms; on-the job training and skills; financial benefits in helping with study costs; and in many cases, the opportunity to travel. The disadvantages lie in the lengthening of the period of study (to fit the work terms in, degrees often take longer), possible pigeon-holing of skills (students may jump to conclusions on exactly what it is that architects do based on their limited experiences as student architects), and not all work placements are perfect (in some cases students may be turned away from the career because of a bad experience). However, by providing invaluable 'real world' experience to students before they graduate, these few drawbacks are easily overcome. Graduates of programs that offer work placements are generally more confident in their ability to find employment upon graduation, and have a better idea of what types of firms suit them, how their skills apply to different work, and how best to present themselves through the use of portfolios and interviews. In school, they are able to directly apply what they learn in studio to the field, and on their return to classes, they can integrate their acquired workplace knowledge with their studies, and learn techniques from their classmates that were picked up in other jobs.

"Getting beyond the studio can contextualize social issues through alternative forums, increase the diversity of viewpoints students are exposed to, and increase their ability to see the impact of design within the broader culture." – from the AIA 'White Paper for the 2008 Accreditation Review Conference'[15]

2.5.06: student work from the University of Waterloo

Another way that theory and practice are married is in the accreditation requirement for schools of architecture in the United States and Canada, to have a final project that challenges students to design past a schematic solution, in order to integrate various practical concerns. The Comprehensive Design is a requirement for current accredited programs that works to ensure that graduates possess at least a base-level of technical skill:

"Comprehensive Design: Ability to produce an architecture project informed by a comprehensive programme, from schematic design through the detailed development of programmatic spaces, structural and environmental systems, life-safety provisions, wall sections, and building assemblies, as may be appropriate; and to assess the completed project with respect to the programme's design criteria."[16]

Of course, too much practical learning has its disadvantages as well. In a typical architecture program, and ideally in practice, architects should never aim solely for 'the bottom line.' The ideals of 'pushing the envelope,' or aiming for solutions that are extraordinary, are the backbone of architecture as a profession and are concepts to be encouraged. Simply giving the client what they ask for gives no credit to a profession with a long history of innovation, and architects are respected for their ability to take simple requirements
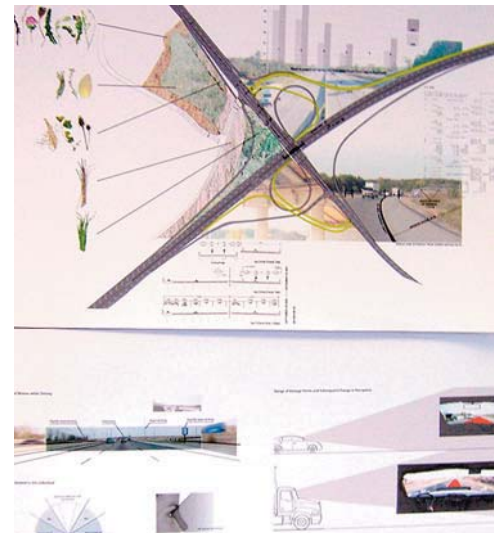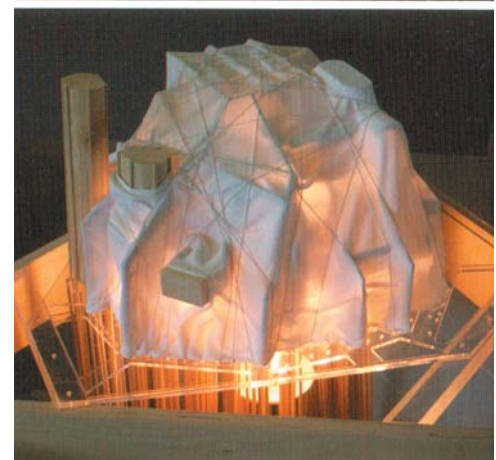
2.5.07: student work from the University of Manitoba
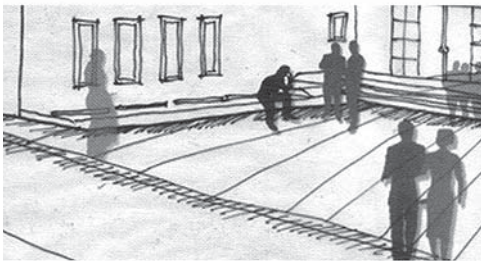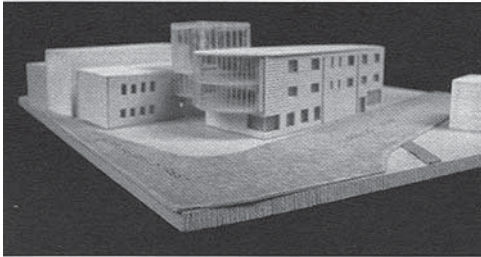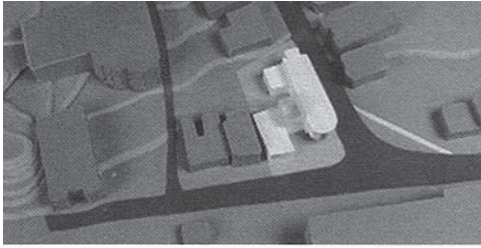
2.5.08: student work from Dalhousie University

and turn them into meaningful results. Many of the archetypes of the profession speak to this striving for better, and the Hero, the Moral Crusader, the Starchitect and even the Good Architect never aim for average. In the act of creative design they are all striving for personal expression and hope that their design will act as a positive change to the existing environment, and without a theoretical foundation and the practical ability to pursue these goals, they would not be successful in realizing their visions.

Students want to know more about practice, but only to act as a balance to their experiences with architectural research and design theory. They consistently recognize the importance of a wide theoretical footing for their development, while at the same time they are thirsty for greater links to the profession at large. The profession can only benefit from increased relationships between the two sides (education and practice), and by establishing relationships early, more students will consider the profession as a career upon graduation (as they will be more aware of its opportunities) and graduates will be more confident in their ability to transition to work. As well, by establishing increased links with the schools, practitioners will be able to provide increased innovation in their designs because of their exposure to the cutting edge of design research.

In the professional world, successful architects are those that design while thriving within the constraints of the day-to-day business of architecture. Every architect or student of architecture eventually finds his or her own balance of theory and practical concerns, and in the end, there are positions in the profession all along this continuum, from architectural researcher to project manager. Students need to be exposed to all aspects of the profession in order to understand where they may fit upon graduation, but must still be encouraged to push their designs above the 'bottom line.' Through the use of research instruction alongside professional skills, a good start is made towards maintaining this careful balance.

"By starting at the architectural schools with a well balanced 'meal' of education and training by qualified career teachers and practicing architects, continuing the joint effort at the intern architect level by offering supplemental courses by the universities, and maintaining the dialogue between faculties and practicing professionals after registration, we may find that we are doing a better and more meaningful service to architecture."
– from 'Education vs. Training? Should Architecture be Taught by Career Teachers or Professional Architects?'[17]

[1] *Temkin 2002, paragraph 8*
[2] *Vitruvius 1.1.2*
[3] *Smith, paragraph 2*
[4] *Schön 1985, 30*
[5] *Studio Culture Summit Report 2004, 13*
[6] *Simmins 1989, 182*
[7] *Simmins 1989, 229-230*
[8] *Kainlauri 1980, 1*
[9] *Kainlauri 1980, 2*

[10] *Boyer 1996, 126*
[11] *White Paper, 5*
[12] *Cuff 2000, Richards 1987, Temkin 2002*
[13] *Cuff 2000, 149*
[14] *NCARB REPORT 5*
[15] *White Paper, page 5*
[16] *CACB 2005, 28*
[17] *Kainlauri 1980, 12*

Part 2 Summary

An architect's education has a direct effect on the type of practitioner he or she becomes, and therefore, the schools have a direct effect on the profession of architecture as a whole. In order to understand the education of architects, the systems that exist need to be explained, and in this section the methods, rituals and curriculums of architecture schools have been explored in depth. By breaking the process down into parts, these elements can be analyzed and in some cases improved upon to provide more focused, balanced or relevant lessons to future practitioners.

2.1   Choosing Architecture:
- individuals choose architecture for a variety of reasons ranging from pre-conceived notions of the profession to the advice of teachers and guidance counselors
- there are many ideals for the qualities that good architects should have before starting school, but generally there is an agreement that the answer lies in a combination of both innate skill and the a willingness to learn

2.2   Educating Architects:
- programs are made up of courses in three categories: culture / art, science / technology and design, and the arrangement and emphasis of these varies from school to school
- studio and design courses have traditionally been central to the curriculum, but increasingly more integrated approaches are being explored
- the professor plays an important role in the success of these courses, and the ideal instructor should be aware of their own methods and be able to clearly explain them to students

2.3   The Studio:
- the studio is an important part of all architectural education programs
- studio provides a close-knit community, as well as social relationships and support systems
- informal interaction is very important to the learning process, and the layout of the studio directly affects this interaction
- outside influences are invaluable to the development of individual interests and inspiration

2.4   **Crits and Criticism:**
- the crit has both positive / negative values and very different objective / subjective interpretations, and the ability to 'step back' from these observations is an important skill to develop
- the successful functioning of this process is the responsibility of both panel members and students, and both need to prepare carefully for reviews
- there are alternatives to the traditional review such as the integration of 'clients' or the use of a final exhibition that can be used to offset some of the 'finality' of the current arrangement

2.5   **Theory vs. Practice:**
- a careful balance must be established between theoretical and practical skills
- a mix of professor types (adjuncts, practicing architects, academics) is essential to this balance
- work placements, guest lectures, firm-run workshops or studios are good ways to bridge the gap as they increase awareness of the profession in the schools and knowledge of research in the workplace
- architects should ideally be neither too theoretical or too 'bottom line' oriented, and each individual must find their place along this spectrum as part of his or her learning process

Part 3: Less-Tangible Curriculum

3.1: People are Different

"Every man is in certain respects (a) like all other men, (b) like some other men, (c) like no other man." – from 'The Personality Puzzle'[1]

Though the title of this chapter may sound a bit like a truism, there is an important lesson to be learned for architecture from the recognition that 'people are different'. There is no right or wrong answer to what an ideal architect is, and as mentioned in previous chapters, architects are themselves unique combinations of a set of prevailing values, various methods of instruction and personal beliefs. Architecture is a field that is designed to encourage differences, and this differentiation is part of what sets it apart from other fields of study. As seen in the many student workspaces that illustrate this chapter, each individual organizes and approaches projects in very different ways.

"A fundamental difference in design instruction to other forms of instruction is the predictability of approaches and outcomes. In the traditional didactic setting, good teaching and learning are recognized when a group achieves the same desired end, often by a select process. In design instruction, ineffective design teaching and learning would be recognized if all students reached the same conclusions." – from 'The Design Life Space: Verbal Communication in the Architectural Design Studio'[2]

From the beginnings of the profession uniqueness was encouraged as part of successful practice, and from 'flagship buildings' to just 'good architecture' no project would be the same if completed by another architect. Design studio specifically aims for a wide variety of projects, and students bring with them various personal skills, beliefs and abilities that mix with the preferences of their professors to create the interesting mix of ideas that develop with each project.

"Education is not neutral; the exchange between teacher and student does not take place in a vacuum. People bring with them their cultural experiences and expectations. … Learners enter into the process of learning not by acquiring facts, but by constructing their reality in social exchange with others." – from 'Voices in Architectural Education'[3]

However, despite architecture education's general level of success in supporting a variety of design ideas, it is understandable that at times it may not support all possible outcomes. For some students, the natural way they design fits easily into the acceptable and taught norms, and because of this they tend to perform very well, both academically and within the social structure of the class. These top students may alternate from term to term depending upon the established preferences of the professor and the type of projects assigned, but after all of this maneuvering in the limited length of

3.1.01-04

3.1.05-09

the program, there are some students who never achieve this level of acceptance. For some, academic performance varies widely from term to term, for others it remains a predictable average, and at the end of the process, students may sometimes feel that they have yet to 'crack the code' or achieve the level of mastery that they should have developed. One of the main theories behind this discrepancy is that perhaps they just 'worked differently.'

"I've always felt that the studio supports one particular way of designing, and that if you don't subscribe to that, or work better in another way that you suffer for it. And as someone who prefers to work on details instead of the 'Grand Idea', I've always felt that I'm somehow behind just for playing to my strengths." -Masters Student

"Sometimes I feel as if as a student I am always looking up to those students on the two poles, the designers with the big ideas or the designers who are so competent at details… And as someone who resides somewhere in the middle, my designs always feel as if they're just …not enough." - Masters Student

The correct response to this call for increased diversity is certainly not to arrange terms in a way that allows students of all mark ranges to be the top of the class at least once. That would be a ridiculous proposal, and its implementation would defeat the whole purpose of academic performance. Instead, what could be learned from this common complaint is that more emphasis should be placed on supporting and encouraging the process of working instead of focusing predominantly on the end result. For students who find themselves questioning their own methods against other students, often all they have as a means of comparison is the final product, or the beautiful documents pinned on the wall. They are not taught how to get there, and even if they were, the working methods of one student would not necessarily be a method that would be best for them.

"Each [student] is different and has to do what he or she is capable of doing. Students are always searching and groping. That's a necessary part of the process. That's why they're in school. The educational process is one of supporting, reacting to, improving, encouraging, and structuring their ideas. That's really the nature of the educational process." - Richard Meier[4]

"Some people love to draw. Others are really good at talking about their work. Some can describe the most wonderful things to you, but they find it impossible to draw anything. Some love to make models and others just like to stew on things and not start until the creative pressure builds up inside them. … Everyone has his or her own way of creating." – from 'The Inner Studio'[5]

It is difficult to expect professors to alter their teaching methods to focus on how individual students develop designs; there are many students to remember, and a lot of styles that are 'tried on' by students for a few weeks, and then abandoned altogether in the process of defining personal working methods. But through a general awareness of how they (the professor) work, and by

people are different

cultivating an ability to explain why they prefer this particular method, students can begin to question their own actions and develop their own style, simply through the act of understanding that their professor is presenting an option for them to try, not a rule.

"There is a need to switch the mode from teaching (how to teach and what to teach) to learning (how the students learn and what they learn). There is a need to encourage individuality and initiatives from the students."- from 'Reality and Diversity: Reform in the Architectural Design Studio'[6]

A Multitude of Career Options

In architecture there are many types of designers, and many types of buildings. In architectural offices, there are many different jobs that employees have including design, coordination, project managing, presenting, detail development, etc. In an ideal situation where all employees are working in areas that they enjoy, a variety of employee types would be needed to fulfill all the needs of a successful practice. More detail-oriented individuals would be required for some jobs, others would require the more practical, and some projects would need big thinkers that possessed the charisma necessary for successful client interactions. There is a place for all types of individuals in the profession, and by encouraging individuality in the schools, a more diverse workforce can be created to fulfill these requirements.

"Not being a stellar designer doesn't mean that you're a failure or that you're no good. Everybody in medicine doesn't have to end up being a surgeon. … The same thing happens in architecture once you start practicing. There are many other elements of the practice that are equally as important and respected as design. But most schools are clearly centered on design. That, I know is a problem." - Cesar Pelli[7]

There needs to be an understanding in the schools of a profession that recognizes, and in fact needs, all types of graduates to fulfill the responsibilities available. It's easy to look only at marks as a symbol of personal worth, but mid-range and average students need to be aware of the important lessons they are also learning, even if their final products do not bring in the high academic standings of some of their peers. These students need to continue to feel that their education is valuable so that they remain confident in their abilities as they transition into the field. If they become discouraged because of their marks, they may consider leaving the profession all-together, regardless of the fact that their unique qualities may be in demand. "Frequently in architecture schools, students without the ability to produce the 'best looking' projects are marginalized and undervalued. In reality, the creation of architecture involves many individuals who all have important ideas to share and roles to play."[8]

"What is the relationship between academic performance and professional performance? …In law, for example, there is the old adage that the 'A' students become professors; the 'B' students become judges; and the 'C' students make all the money." In design, some have argued that the A students teach, and the B students work for the C students."- from 'Design Juries on Trial'[9]

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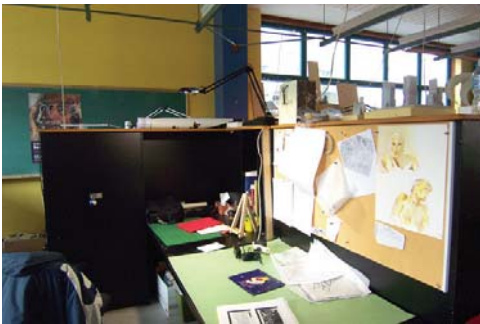
In the end, this recognition of different working methods is important to the profession, but it is also valuable for students who sometimes end up in a variety of different careers. The profession is changing, and the skills that are offered by architectural schools extend beyond the limits of the design of buildings. Some graduates leave to enter multi-disciplinary firms, where they begin in architectural departments, but may ultimately dabble or transition into related fields such as graphic, landscape or exhibition design. Some students choose to work in completely unrelated careers upon graduation, and others return to continue their studies in architecture or other fields. Of a group of forty graduate students who were asked 'what do you want to do when you graduate?', only fifteen, or nearly 40%, specifically stated that they wished to work in architecture. Of the remaining 60%, twelve expressed interest in related design fields, eleven wished to do something 'completely different', and two wished to teach or continue their academic studies.

"Over the same time period [last twenty years], ...the number of students enrolled in architectural programs [in the United States] has held steady or increased. Some 37,000 students are now enrolled, of which, only one in eight will graduate with a degree in architecture; and of these, only thirty percent will go on to pass their registration board examinations." – from 'The Design Studio: An Exploration of Traditions and Potentials'[10]

Not every student will become an architect, not every student who becomes an architect will choose to act as a design-architect, and not every design-architect will design in the same fashion as another. Students entering architecture programs come with a unique subset of values, cultural influences and skills, and each school lends their own teaching methods to this mix. And though it could be argued that the schools graduate unique individuals, regardless of how they teach, the strength and confidence of these individuals could be greatly increased by maintaining a self-aware attitude to the teaching of design, where professors are simultaneously conscious of their own preferred methods and the emerging preferences of their students.

At the same time, while encouraging a more diverse educational system, students still need to receive a general education where they are developing strengths in areas other than their natural predispositions, so that they will continue to have options after graduation or if they wish to become a single practitioner. Like the 'Renaissance Man' concept, architects must be proficient in a variety of skills and disciplines in order to be successful, and when combined with an increased knowledge of their inborn skills, the lacking areas can be improved as existing preferences are used to their best advantage.

[1] Funder 2004, 92
[2] Wendler 1995, 334
[3] Dutton 1991, 265
[4] Anthony 1991, 202
[5] Levitt 2007, 146

[6] Beisi 2006, 29
[7] Anthony 1991, 93
[8] Koch 2002, 12
[9] Anthony 1991, 20
[10] Schön 1985, 1

3.1.15-19

people are different

3.2: Experience

In architecture, students are expected to learn to design through the act of designing, a practice that assumes that "designing, like swimming, ...cannot be learned theoretically."[1] The basics can be explained alongside examples of how it is done by others, but in the end, the student must 'learn to swim' on their own, taking this knowledge and developing it into a form that works for them. In this way, the entire experience of an individual's education becomes of prime importance, and every lesson, field trip, adventure and interaction combines together to create the overall educational experience. Learning to be an architect is not an exercise based solely in memorization or repeatable actions, it is an all-encompassing phenomenon that both challenges and expects the use of a student or practitioner's mind, body and spirit.

"Those who have studied architecture undoubtedly have vivid memories that characterize their design studio experience. Late nights, exciting projects, extreme dedication, lasting friendships, long hours, punishing critiques, unpredictable events, a sense of community, and personal sacrifice all come to mind. Those aspects are not usually written into the curriculum or even the design assignments, but they are likely the most memorable and influential." – from the 'Redesign of Studio Culture Report'[2]

Besides the fact that the act of design is demanding of the whole individual, there is another factor that creates a situation in which students are willing to give their entire experience over to the pursuit of architecture. Individuals enter into architectural programs due to a high level of commitment, and they remain there because of a devotion to the practice of architecture. This expectation and devotion stems from the general prestige and mystique that envelops the profession, from the brochures and acceptance letters that are issued to students, and from the individual's personal drive. "No one sets out in an architectural education to achieve mid-range goals, mediocrity"[3], and students are often chosen because of their level of interest in the program.

"Life changing news, yes, I am going to the university of [   ] for architecture. Here come the most stressful and intensely rewarding years of my life! ...I still can't believe I got into the program at all, and it hasn't really sunk in yet that I'm moving out in a mere four weeks. I am excited, though. I can't wait to get to know the other students. ...I've still got a lot of packing to do, and I swear the anticipation is killing me. Will I have all the supplies I need? Will I fit in with the 'highly dynamic individuals' of the architecture department?" -1st Year Student Blog

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"Congratulations and welcome to Architecture!
Your studies in the School of Architecture will almost certainly be a departure from your previous academic experience. From the moment you enter, you'll be part of a class of talented and highly motivated students from across the country. You'll be working closely with them in the design studio and elsewhere: drawing, designing, constructing, computing, reading, writing and traveling. We're aware that the program is taxing, but it will also be immensely rewarding as your skills and knowledge grow and are applied in the design process."
 -Student Acceptance Letter

"Welcome back to the Architecture department, or if you are enrolled in the department for the first time, a very big welcome. We are raising expectations year on year and we expect to ramp up the standards again this year. It is an exciting time at the department and I hope you are ready for a really productive year! A reminder also that this is a full time course and requires your full attention. Most students find they need to work on their projects over the weekends to get the most out of studio. If you need to find employment to support your studies, we have a long summer. We expect students to concentrate entirely on their studies at the University during the term and will not accept any excuses for lateness, absence or poor performance related to employment outside the University, even when arrangements are changed at short notice. I hope you all are having a good summer and have charged your batteries for the new academic year." - Architecture Director in his' Welcome Back' letter to students

Becoming an Architect as a Heroic Journey

One of the early concepts that comes from these ideas is the idea that becoming an architect is an exceptional exercise, or heroic journey, and that in order to complete architecture school, one must 'earn his or her way' through the process.

"Presented with deadlines that are unachievable. Burdened with a disproportionate ratio of earned hours versus contact hours. The mentality that an all-nighter means dedication. Brandishing scars from X-acto blades like wounds attributed to heroic battles. Architecture schools have become the battlegrounds of survival." – from 'At What Price'[4]

From this mentality rise several more specific beliefs: that architecture is a process of initiation, that it is a required rite of passage, that the process is necessary to weed out failures, and that, in the end, coming out whole on the other side is a badge of honour. These ideas are certainly not unique to architecture, as many educational and training processes believe strongly in similar principles, but, as these issues were so often raised in both the gathered research and the interviews conducted, they do play an important role in architectural education. Architecture students feel that they are a part of something greater than themselves, and they are willing to devote their lives to the pursuit of these ideals. As evidenced in many of the archetypes of the profession, this drive is a credit to the profession, it pushes designs beyond the ordinary, and individuals that are part of this process attain high levels of satisfaction from the completion of difficult tasks, and overcoming obstacles. Most students are 'in it for the long haul' and are willing

experience

to push themselves in order to created exceptional final results. Being a Hero is an admirable quality, and even though it may also be the source of many inner detrimental elements when taken to the extreme, the pursuit of more, better, and greater ideals can make for stronger architectural results.

Initiation and Hazing Rituals

"Listen to design students after a typical jury – one of the classic rituals of design education – and this is what you are likely to hear: It was a firing line! We were crucified! … Our work was ripped to shreds! … Even some faculty liken design juries to the hazing rituals that young men undergo during their induction into fraternities." – from 'Design Juries on Trial'⁵

"Architecture is ALL about saying "No!: no to partying, no fun, no sleep, no eating healthy, no life, NO relationships, NO SYMPATHY!, NO MONEY, NO SANITY, NO DIGNITY, NO END." -1ˢᵗ Year Studio Wall Writing

Like 'initiates' into a guild, architecture students often view their education as a series of tests that they must pass in order to come out changed on the other side. The process suits this description well, and offers up a "complex and challenging experience. The [school] is more than a place to study; it is the situation in which the student is initiated into [what has been] called the culture of the architectural profession."⁶ There are many lessons to be learned, skills to be developed, and personal and professional adjustments to take place, and from the point of view of a younger student, the process may seem a daunting one.

Students sometimes jokingly compare their educational experience to reality television shows (such as 'Survivor' or 'Big Brother') where participants are carefully observed as they compete against one another, performing seemingly insane challenges for the entertainment of a viewing audience that delights in personal dramas amid a quest for some barely tangible reward. These students see themselves as being part of some malicious process in which they are simultaneously trying their hardest to win and being observed with amusement for their painful struggle.

"The professor … is ruthless, like a dressage master – they call the breaking of horses to the immaculate, unhorselike movements of the dressage 'schooling' as well." – from 'What is Architecture?'⁷

"The profs gathered and they thought,
There's no way that we'd get caught.
If we experiment with them without them slightly catching on
We were the guinea pigs, this is the song I sing
The profs are all laughin'
It was a conspiracy, to call this a good degree
Cause I don't know nothing" – Graduate Song Lyrics⁸

This concept of the 'mad scientist' professor is of course, false, and in general, students are aware that the process of their education is not one that is designed to be a negative one. At the same time,

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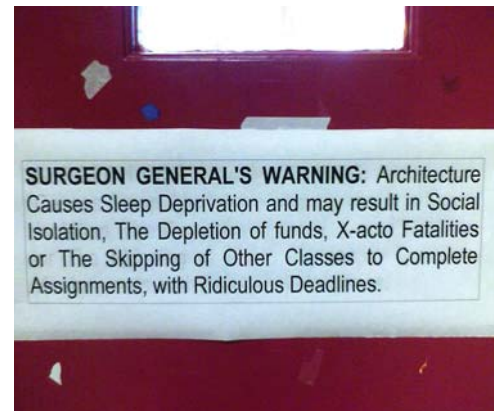
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students develop a level of camaraderie from these negative attitudes, and older students often band together through stories of their experiences, and connections are made through jokes or complaints of hard work and the level of their respective dedications to 'the cause'. On the other hand, many see the process as a personal challenge, in which they strive to 'push harder' or beat their own personal bests, like the mentality of a marathon runner, warrior, or another competitive individual. In this case the struggle is seen as a positive element, and the feeling of 'being tested' is just part of the overall meaning of the journey.

Out of these ideals a belief can develop that with hard work anything can be achieved, and this positive aspect plays directly into the idealism that the profession is so often credited with. Creative hopefulness is needed in a situation where unique solutions to complicated problems are needed every day, and the educational method, though at times intense, is very successful in its instilling of this very value in its students.

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However, if the best work comes after overcoming impossible odds, what is to keep this future practitioner from believing that good work *only* comes from a high degree of self-sacrifice? The rite of passage then becomes a necessary element in all projects, and because this behaviour is encouraged as part of joining the group, there is little incentive to attempt more balanced or sustainable methods. It is unreasonable to assume that this type of devotion can be given to all projects, and if it were, the individual could probably not continue at such a pace forever. There must be a balance developed between aiming for innovation in design, and recognizing one's own limits.

"[Architectural Jargon Definition] "Appreciate": the critic acknowledges the fact that you have spent the last week(s) cutting, gluing, drawing, and measuring, ad nauseam instead of sleeping or eating, to the point where you have no social life away from the drafting table and your friends and family members truly believe you have gone missing. He / she might also 'appreciate' in combination with a sly smile, aware that another body is being enlisted into the masochistic profession that is architecture. Misery appreciates company." – from 'Architorture Survival Guide V: Jargonary!'[9]

"The number of nights without sleep becomes currency of great symbolic worth, a currency of devotion, whereby [students] demonstrate to the studio master that they are coming to love the game". ... This slow and elaborate process of gaining membership serves to protect the status quo of the profession: its sense of identity, distinctiveness, and survival." – from 'Design Studio Pedagogy: Horizons for the Future'[10]

"In relation to our fellow men, we also quite consciously use work as a means of securing their pity – we "work ourselves to death," or "into an early grave" – and of gaining their approval; and as a means of outdoing them in competition." – from 'Confessions of a Workaholic'[11]

experience

The close relationships formed and strong ideals will remain, even if some of these experiences are moderated somewhat, and in general "architecture schools should be places for growth and prosperity, not environments where students 'put in their time,' learn 'how to survive,' or complete an experience that could be compared to ritualized hazing."[12] Nevertheless, these basic attitudes are extremely hard to change, especially considering the importance that the profession, schools, and the basic mythos of architecture places upon self-sacrifice.

It needs to be understood that there are other positive ideals to aspire towards besides the Hero, such as the 'Good Architect,' and that devotion can be measured in other currencies than that of time, such as innovative projects developed within set deadlines, or the ability to maintain connections with the community, family or outside interests and successfully integrate them into an overall architectural career.

There is honour to be had in overcoming obstacles or developing good designs within tight constraints, but students need to keep in mind that viewing this process as heroic or as a system of struggle may set a precedent for their future experiences. As well, the interpreted hazing process of the educational system is very different than the situation that exists in most practices, and as an ideal, perhaps it needs to be reconfigured to better reflect the every-day heroism of the '9 to 5'.

"As a parent of an architecture student, I have always thought that the rigors of the program are insane. My daughter had a job this past summer working for an architect. She in no way had to work anywhere near as hard as she does in school. What is the purpose of giving so much work?"[13]

Mastery and Mystery
Another piece of the experience is the element of mystery that the schools create for students as they try to master the architectural process. Arising from the fact that architecture is not an easily definable profession, there is a certain amount of insider knowledge or mystery that is present in the schools. Trying to 'understand the unexplainable' presents a very different type of initiation, in which students are asked to temporarily put aside their previous perceptions in order to move forward.

"I can tell you there is something you need to know, and I can tell you that with my help you can probably learn it. But I cannot tell you what it is in a way that you can now understand. You must be willing, therefore, to undergo certain experiences as I direct you to undergo them so that you can learn what it is you need to know and what I mean by the words I use. Then and only then can you make an informed choice about whether you wish to learn this new competence. If you are unwilling to step into this new experience without knowing ahead of time what it will be like, then I cannot help you. You must trust me." – from 'The Design Studio: An Exploration of its Traditions and Potentials'[14]

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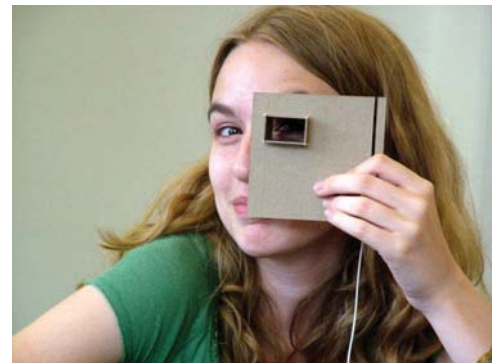
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"It's like a magic trick. … god, that's beautiful, how did that… how did I make that happen? … where did that come from? … what are people going to think?" – Frank Gehry[15]

In nearly all fields, there is a certain amount of knowledge that the 'outsider' would understand, and there is another branch of knowledge that is considered privileged to only those within the profession. For some careers, entering into the field is as simple as reading a manual or learning the ropes under the instruction of a co-worker, but in architecture, the mysteries of the profession are more complicated. "Students do their best to fathom it, along with everything else in their curriculum. The hint of secret knowledge, of initiation, is [an] echo of architecture's 16th-century roots as a guild."[16]

When exposed to this new knowledge, students react in a variety of ways, but the two major trends are to become frustrated by the mysterious aspects or to enjoy the process of searching for it by 'diving into' the process. In many cases, students experience a mix of both these feelings, and they may see their lack of knowledge as a symbol of their own journey while at the same time wishing that someone would just hand them the 'user's guide'. However, part of the reason they chose architecture in the first place was to pursue 'something special,' and most students are more than willing to suspend their disbelief for the duration as they work their way through the program. Mystery is part of what makes architecture interesting and the variety of experiences available to the individual reflect the nature of the career. On the other hand, there are perhaps some areas that could become more transparent so that students, while appreciating that they cannot know everything at once, could at least be given some useful information as they progress.

This project wants to be about a complexity of multiplicities

But certainly a multiplicity of similars would better reflect the perturbance of the modularity, given the particularity of the language established by the axial relationships
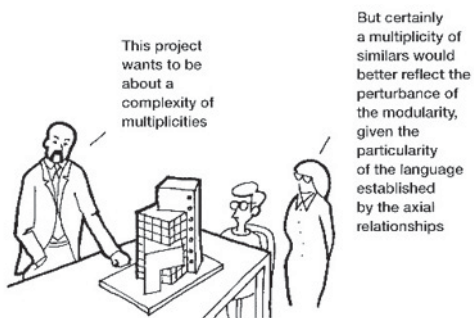
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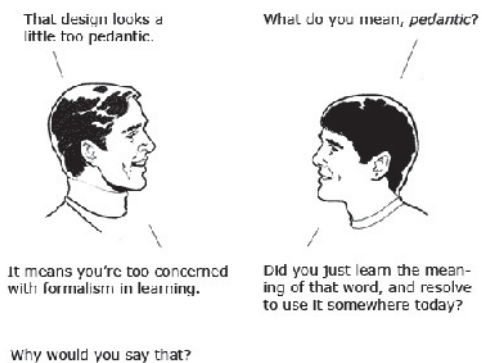
Part of this transparency could be developed in the area of communication, as sometimes language is used in ways that a new student may not understand. This new language, often referred to as 'architectural jargon' or 'archi-speak' is a way of communication that students must traditionally learn from experience. In architectural jargon, some words are used in ways that are counterintuitive to their true English definitions, and others have meanings which are specific to a single professor but mean something completely different when used by someone else. Examples of the students' perception of these unique terms are listed here:
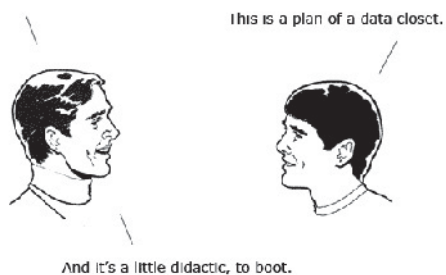
"Architectural Concept: primarily a contradiction: the ideal one would be simultaneously complex and yet simple. The right mixture of contradiction, complexity and simplicity can garner a specific feeling that you must learn to identify like second-nature for its identification harbors your future success. Keep all sensory processors peeled." – from 'Architorture Guide V: Jargonary![17]

"Incestuous: I have heard this used to describe varied but overly repetitive elements, especially materials, in a building, and sometimes to spaces which are stuffy or too intimate due to size or juxtaposition. May also be used in a

That design looks a little too pedantic.

What do you mean, *pedantic?*

It means you're too concerned with formalism in learning.

Did you just learn the meaning of that word, and resolve to use it somewhere today?

Why would you say that?

This is a plan of a data closet.

And it's a little didactic, to boot.

3.2.12

experience

positive sense to indicate an almost obsessive, but still admirable, dedication to consistency among all aspects of a building. Architectural Synonyms: nauseating." –3rd Year Student

"When I started at the firm I'm working with now, we had a long discussion about how you can throw pretty much any word you want into a crit and make it make sense. For example, one of the first words in the dictionary chosen at random: Aardvark. "The building acts much like an aardvark, tunneling down into the earth, and pulling pedestrians inward in large groups, like ants."-4th Year Student

"Words that don't quite mean anything (due to extensive overuse) and also mean everything: concrete (not the material), resonance, machine, tension, relevance, juxtaposition, dichotomy, effervescence, conversation (obviously as relates to built elements)"- Masters Student

"There is an unholy verisimilitude to your rendering."
"You need to de-contextualize all the information in your matrix so you can re-problematize."
"I see this [referring to a plan of a single storey dwelling] as an existential complaint."
"There is a perverse cruelty in your work, it's almost evil." –Masters Student

Of course, though confused, students do not often question or ask for a clearer meaning from their instructors, for fear of exposing their lack of understanding (and therefore lack of integration into the group), and this lack of communication on both sides can quickly develop into a situation that is shrouded in mystery. In this mutually confusing situation, students can unfortunately fall into the belief that their professors are purposefully holding out on them.

"But it's frustrating, there's a surprising lack of communication from profs, they are hesitant to lend expertise, yet contain a fortune of knowledge."-3rd Year Student

"There is something I don't know
that I am supposed to know.
I don't know what it is I don't know,
and yet am supposed to know,
And I feel I look stupid
if I seem both not to know it
and not to know what it is I don't know.
Therefore, I pretend I know it.
This is nerve wracking
since I don't know what I must pretend to know.
Therefore, I pretend to know everything.
I feel you know what I'm supposed to know
but you can't tell me what it is
because you don't know that I don't know what it is
You may know what I don't know, but not that I don't know it,
and I can't tell you. So you will have to tell me everything."
- from 'The Design Life Space: Verbal Communication in the Architectural Design Studio'18

The opening up of exactly what architecture involves requires significant effort on both sides, as well as large doses of patience. Professors may be forced to spend more time explaining their techniques or beliefs instead of charging forward, and students will need to make an effort to put words to what they don't yet understand completely. Architecture is hard to explain, its technology and motivations are difficult to define, and the actual act of designing is especially challenging to pin down into a clear explanation. However, regardless of the complicated nature of a design education, a careful dialogue between the two parties is surely preferable to the situations described here:

"Some studio masters feel a need to protect their special artistry. Fearing that students may misunderstand, misuse, or misappropriate it, these instructors tend, sometimes unconsciously, under the guise of teaching, to actually withhold what they know. Some students feel threatened by the studio master's aura of expertise and respond to their learning predicament by becoming defensive. Under the guise of learning, they actually protect themselves against learning something new."[19]

"'What I want you to do is re-experimentalize all of your data'… what are you saying? We built a truck stop and you want us to 'delaminate all of our data so that we can reinterpret all of the essential forms?' It's the intentional jargon that drives me crazy – 'normative materials, mythologies and methods'? I can't understand the words that are coming out of your mouth!" -Masters Student

In Frederick's '101 Things I learned in Architecture School', he recommends a very simple exercise for improving communication, professing that, "If you can't explain your ideas to your grandmother in terms that she understands, you don't know your subject well enough."[20] Even though design concepts are difficult and admittedly hard to explain, architects have to be able to explain their concepts to non-architects (if they want to get something built through a paying 'layman' client). By establishing this skill as a part of the education process, students will be able to better explain their work (both to their professors and to their future clients), and professors will be able to clarify their intentions and properly explain their methods to their students.

In order to set a strong foundation for later behaviours, there is a need to "demystify the learning process ...[and] the design process itself. …Teachers have a responsibility to clearly explain the design process, to encourage students to practice it, get closer to it, and work with it."[21] Design, though hard to explain clearly, is not a concept that is completely un-definable, and it is a process that *can* be broken down into understandable parts.

"80% of buildings could be completely quantifiable, that you're required to know as an architect anyhow, ...I could ask you what makes a good building, and you could say, 'It is a building that meets the site, it is a building that has good circulation, it is a building that meets its program

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needs, it is a building that has a sensible structure, it is a building that meets code requirements, and finally, it's a building that is environmentally friendly.' And lastly, you could say, 'And it's beautiful'." -Architecture Professor

Reflecting on Experience

Architectural education is made up of an infinite number of experiences, and these concepts of initiation and the mysterious values that can result are just the beginnings of an understanding of the whole picture. It is impossible to contain all the various projects, designs, field trips, work placements, lectures, competitions, and other experiences that make up the individual experience of each architect or student of architecture in one chapter. Besides the fairly common experience of being 'initiated' into a school, or encounters with 'mastery and mystery', there are just too many other items to list that make up each student's education, and the importance of these various items is also entirely dependent on the individual experience.

However, in an attempt to emphasize how lessons can be learned from individual experience, it should be noted that experiential learning happens in two phases; first, the experience itself, and second, the act of reflecting upon it. In the interviews conducted, many students recalled past terms, projects, and lessons learned in relation to the experiences they had at that time. In the following example, a fourth year student was asked to sum up the first thought that came to mind for each of the eight terms in their previous experience:

"... racing with classmates to catch a bus back from the site to campus ... the professor giving a speech to the class about how disappointed he was with our initial stab at a project ... thinking to myself before a crit, "if you tell them the parts you haven't completely thought out right at the beginning, then they won't bother you about it later" ... watching a gigantic full moon set behind a lit-up pavilion ... printing out what had looked beautiful on my monitor but terrible in paper-form and getting blasted in the crit for the representation ... staying up all night while running a fever and having no voice, building a model and taking cold and flu pills every six hours ... sitting on a bench facing down the street towards the Vatican and three old tourists watching over my shoulder while I sketched the view – they offered to buy the sketch but I needed it for my class ... being told that my atrium perspective was terrifying..." -4th Year Student

These memories are a mix of both positive and negative experience, but in all cases they are vivid and oft-returned to, whether to reminisce, obsess over bad commentary, or to reach back for lessons learned. This mix of events and learning demonstrates the importance of the experience to the student's education, as important lessons are made more memorable by the situation in which they were learned, and enthusiasm for future projects is generated from the hopes that were developed in previous terms. For good or ill, there is no separating experience from learning, and for students, their reactions to these moments and their later reflection can have a significant effect on their future work.

"[experiential learning is not a one time thing] it is possible to learn from that experience at different times, ie. learning from an event at the time it occurs; learning from the past event when reflecting on it later; learning more about a past event when thinking about it further; reinterpreting the past event differently in the light of further experiences; analyzing future scenarios." – from 'Experiential Learning: A Best Practice Handbook for Educators and Trainers'[22]

[1] *Salama 2007, 234*
[2] *Koch 2002, 4*
[3] *Architecture Professor*
[4] *Lunz 2001, paragraph 1*
[5] *Anthony 1991, 3*
[6] *Sachs 1999, 1*
[7] *Shepheard 1994, 4*
[8] *Li 2006, 046-047*
[9] *Zhou 2007, paragraph 6*
[10] *Salama 2007, 68*
[11] *Oates 1971, 6*
[12] *Koch 2002, 22*

[13] *Lunz 2001, paragraph 8*
[14] *Schön 1985, 57*
[15] *Sketches of Frank Gehry 2005, 1:18.01*
[16] *Monaghan 2001, paragraph 23*
[17] *Zhou December 2007, paragraph 8*
[18] *Wendler 1995, 334*
[19] *Schön 1987, 119*
[20] *Frederick 2007, 48*
[21] *Quayle 1985, 118*
[22] *Beard 2006, 35*

experience

3.3: Emotions

"Implicit in all of the architect's activities is the force of human intellect. But human emotions operate as well in all that we do. For architects the marriage of intellect and emotion is manifest in the impulse to be creative, to think, feel, do, and make."- from 'Architect? A Candid Guide to the Profession'[1]

Emotions are as much a part of the experience of becoming an architect as are the courses students take or the projects they develop, and often the lessons that a student learns in any given term are very closely tied to the emotions that were prevalent for them at the time. These emotional shadings become a part of each individual's knowledge base, and they are at times strong enough to retain their vibrancy even many years later.

"While teaching one day, I was drawing a graph on the blackboard of the 'Emotional Life of a Design project'. It plotted – in a pseudo-scientific manner – the emotional roller-coaster ride of the student experience in design studio projects. I described the novice's almost certain confusion between the value of the design and the value of the designer. I became engrossed in the lesson and illustrated the main points with examples from my own time in studio. Telling these stories out loud made them very lucid and personal. I felt like I was a student back in studio. What happened next surprise me. When I finished the diagram and turned back to face the class, most of them were in tears and I was close to it. It was astonishing to realize so little had changed in the intervening 30 years."- from the 'Studio Culture Summit Report'[2]

Emotions are obviously a big part of the subculture of the architectural school, and many other fields are also beginning to recognize the influence emotions have on the learning process. "General intelligence is often said to account for between 10% and 20% of success, leaving about 80% to 90% of it to be explained by other factors. …More emotionally intelligent individuals might succeed at making their workers feel better, at communicating in interesting ways, and at designing projects that are infused with feelings and aesthetics."[3] However, at the same time that emotions are being understood as playing an important part in creating successful, well-rounded and intelligently functioning individuals, there is still a lack of awareness of their importance in education.

Why are Emotions Important to Architectural Education?

"Emotions may be aroused in the design studio by challenges such as: dealing with creative assignments and solving 'wicked problems' [problems with no clear answers or methods of solving them]; the never-ending reconstruction of practical knowledge, concepts, beliefs, identity, and the

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like; changes (actual or potential) in the position of the agents involved in an event (ie. survival issues); changes in self-esteem, professional identification, social evaluation, comparisons with others, and the like; student-instructor relationships (expectations, behaviour, judgment, and so forth); and the relationship among design students." - from 'Design Studio Pedagogy: Horizons for the Future'[4]

There are many situations in the studio environment that provoke strong emotional responses, and anyone who has been through architecture school will recognize that the most prevalent of these positive and negative emotions are anger, fear, regret, pride, gratitude and hope.[5] Emotions play a part in how well students are able to work, and intense emotional experiences of either positive or negative value inevitably subtract from the amount of time that can be directed toward school work. Emotions also "influence the student's motivation,...goals, and values,"[6] and can vary in length, ranging from quick reactions to long emotional experiences that are reevaluated, revisited and reconstructed after the fact.

"How's Architecture going? I don't know. You see last term I had so much fun and this term, well... I don't know. You see, we had a lecture today where we were basically told: You were chosen out of eleven hundred applicants because you had something special, but so far – we haven't seen it." -1st Year Student Blog

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"When the semester was over, students reevaluated it and adjusted their emotional attitudes towards it. Usually there were one or two dominant emotions that colored the entire experience of the semester. At this point, gratitude and pride were much more common. In some cases, however, anger or regret was intensified."- from 'Design Studio Pedagogy: Horizons for the Future'[7]

The Relationship Between Thoughts and Emotions

Emotions are an important part of learning, but what does this realization mean for the improvement of architecture as a profession? Emotions can hardly be eliminated, and in a creative profession all the heart would leave the work if this were even considered. However, the ability to understand one's own emotional reactions and the knowledge that these emotions are an important part of creative work, are valuable concepts that could aid in the development of more balanced and self-aware design professionals.

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But how is self-awareness of one's emotional state achieved? There are certainly times when individuals are very aware of their emotional response, but in general, these feelings seem to be elements that are beyond personal power to contain. There is no such thing as perfect control over emotions, but there are tools available to make their functioning more transparent, and these skills can ultimately help individuals to achieve a better grasp of their responses to events.

emotions

To begin this process, the important connection between thoughts and emotions needs to be made. Though sometimes viewed as two separate entities, emotions and thoughts often feed off of one another, as negative thoughts can build up to create negative emotions, or positive emotions can create positive thoughts.

"Thoughts help define which mood we experience in a given situation. Once a mood is present, it is accompanied by additional thoughts that support and strengthen the mood. For example, angry people think about ways they have been hurt, depressed people think about how unfortunate life has become, and anxious people see danger everywhere. In fact, the stronger our moods, the more extreme our thinking is likely to be." – from 'Mind Over Mood: Changing how you feel by changing the way you think'[8]

Most of the time thoughts pass by unmonitored, as individuals go about their daily routines, but sometimes there are moments where they are very aware of their thinking, as admonishments are given or silent encouragement is used. This inner dialogue that takes place is called 'self-talk,' and is a behaviour that all individuals engage in, whether they are aware of it or not. However, if individuals make a conscious effort to notice this self-talk, and as a result begin to analyze it, then a greater understanding of what is going on during intense emotional experiences can be had. Since thoughts directly affect emotions and vice versa, by becoming aware of the thoughts that feed them, emotions can begin to be viewed as controllable elements or at least as things that don't happen by accident.

"Inner speech plays a decisive role in self-regulation, in problem solving, and in planning. … Studies have also linked self-talk to alcohol consumption, performance in sport, reading, effectiveness of counseling, and creativity. … what we say to ourselves represents a cornerstone in the way we think and act." – from 'Self-Talk and Self-Awareness: On the Nature of the Relation'[9]

'Monitoring self-talk about oneself or what are often called 'automatic thoughts' is a mainstay technique that has been used in cognitive-behavioural treatment of emotional disorders for the last several decades. ... A successful therapeutic outcome often entails becoming more aware and modifying distorted thoughts and self-talk that were once automatic and primarily negative in emotional tone so that they are relatively more balanced, positive, and realistic." – from 'Self-Talk and Emotional Intelligence in University Students'[10]

These basic self-awareness tools can be helpful to individuals in any career, but for architecture specifically, this recognition of automatic thought processes can be applied directly to design or learning techniques, as the thoughts that help with working methods are brought to light alongside the ones that distract them from creative output. Sometimes called 'reflection in action', this process is present in architects who are able to both design and think about how they are designing so as to recognize the methods that work best for them.

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"The most effective, most creative problem solvers engage in a process of meta-thinking or 'thinking about thinking.' Meta-thinking means that you are aware of how you are thinking as you are doing the thinking. Meta-thinkers engage in a continual internal dialogue of testing, stretching, criticizing, and redirecting their thought processes." – from '101 Things I Learned in Architecture School'[11]

This recognition of self-talk can also be used one step further, allowing designers to separate themselves from their work so that they can try new things without committing to any particular solution. Many solutions are explored in each design problem, and different levels of emotional attachment are felt by designers to some of these options, regardless of their respective merits or feasibility. By allowing themselves to engage, if only for a brief period, in self-reflection or an awareness of why they may be attached to particular decisions, architects and students can develop the ability to objectively try out new options even as they are working to make their favourite ones work.

There are many benefits of increased emotional and self-awareness, least of all being the increased self-knowledge that can be achieved from the exercise. The more that individuals recognize their own values, attitudes, and resulting behaviours, they more emotionally balanced they will become, and for designers specifically, the better they will understand their own creative abilities.

"In the back of his mind, even as he pursues his committed strategy, he reserves the right to see and do things differently. The process of reflection-in-action ...is an essential part of the artistry with which some practitioners sometimes cope with uncertainty, uniqueness, and value-conflict in all domains of professional practice." – from 'The Design Studio: An Exploration of its Traditions and Potentials'[12]

Increased self-awareness can also lead to a better understanding of how others behave, and can help to explain some of the challenges that develop in interactions with others. Through a clearer understanding of one's own emotional situation, a certain level of empathy can be developed for others, and this empathy, within architecture specifically, can become a valuable tool for interactions with clients, classmates or co-workers.

The school environment is an ideal one in which to develop client-relation skills, as students are exposed to a variety of personality types through working in close quarters with others and developing social relationships. Class sizes in architecture are small, and over the course of their degree, students will come to know the majority of their classmates very well. Through this close interaction, empathy (recognition of another's feelings, motivations or unique situation) is often developed.

In workplace and client relationships there is much less time given to understand each other's personality, but if the practitioner can draw on his or her knowledge of the different personalities from their experience, an educated initial guess can be made on how best

3.3.06

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86 emotions

to interact with a particular client. This perception will change over the course of their working relationship as they 'get to know' the client, but if the practitioner is continually knowledgeable that this type of analysis is useful while forging relationships and working with others, he or she may find that the collaboration process runs smoother because of this insight or empathy.

"Your client management plan must address the unique needs and preferences of both the individuals with whom you will be dealing and the organization within which they work. ... If the client is a particular personality type, recognize it and address how you plan to deal with it."
– from 'Project Planning' in 'Mastering the Business of Architecture'[13]

"Emotional intelligence is the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional meanings, and to reflectively regulate emotions so as to promote both better emotion and thought. …using emotions as one basis for thinking, and thinking with emotions themselves, may be related to important social competencies and adaptive behaviour." – from 'Emotional Development and Emotional Intelligence: Educational Implications'[14]

The profession of architecture is one that is constantly shifting and adapting to new technologies and individual needs, and the educational system understands this, often speaking of teaching students not skills, but how to learn.

In order to remain able to change, students must learn about their own functioning and emotions. "The professional must also be able to act according to his microtheories of action and reflect on his actions,"[15] and self-reflection can be used to better understand the design and learning process while creating more personally knowledgeable practitioners. Integrated into the overall learning process, these valuable skills can be just as important as understanding what methods the individual prefers for the completion of projects. As well, increased knowledge of one's own emotional responses can inform the various decisions that are made as new lessons are learned. Whether formally taught as part of the educational instruction, or presented as working options in workshops, guest lecturers or handbooks, this idea of self-knowledge and emotional functioning could become an integral part of architectural education and practice if it is allowed to develop.

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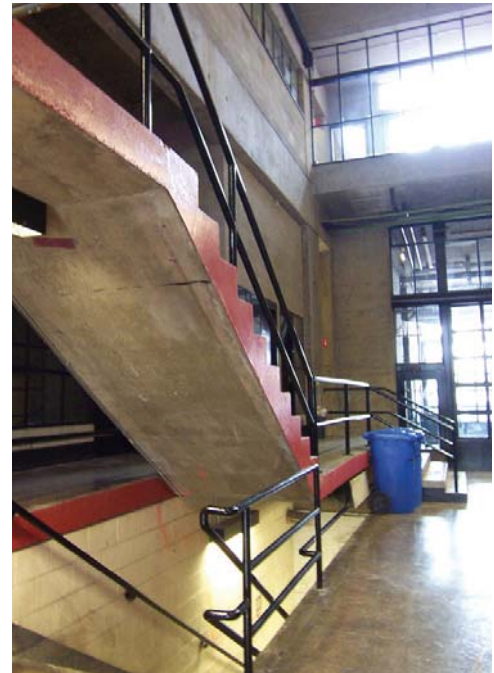
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[1] *Lewis 1985, 11*
[2] *Studio Culture Summit Report 2004, 22*
[3] *Salovey 1997, 17-18*
[4] *Salama 2007, 234-235*
[5] *Salama 2007, 239-240*
[6] *Salama 2007, 242*
[7] *Salama 2007, 241*
[8] *Padesky 1995, 16*
[9] *Morin 1993, 223-224*
[10] *Depape 2006, 5*
[11] *Frederick 2007, 32*
[12] *Schön 1985, 52*
[13] *Ontario Association of Architects, 303*
[14] *Salovey 1997, 22*
[15] *Argyris 1974, 157*

3.4: Attitudes

"In simple terms, the hidden curriculum refers to those unstated values, attitudes, and norms that stem from the social relations of the school and classroom as well as the content of the course."- from 'The Redesign of Studio Culture Report'[1]

Architecture schools are very social environments, and as a result, there are many lessons in the profession that are learned but are never lectured upon. One's ability to absorb the attitudes and values in the school is an important part of 'fitting in' with the educational process, and this 'cultural osmosis' is an element that has been a part of architectural education for as long as studios have existed in schools. There are many attitudes that combine to create the educational culture, and the prevalent ones as listed, though by no means meant to be all-encompassing, will be discussed in this chapter.

Ambition

Architecture is a complex field, and in order to successfully complete large projects, a healthy amount of ambition is essential. Students are required to complete years of education, architects have to work hard for their work to be recognized, and underneath all of this a basic desire for creative expression on a large scale. There is a basic wish behind many projects to 'change the world' through good architecture, and students are encouraged to apply their own personal vision to their work as part of their education. All of these qualities are valuable ones, and their integration into the profession of architecture is one of its major strengths.

However, this ambitious nature can also lean towards elitism, and sometimes the 'good architect' with personal vision can become the architect whose ambitions are 'grander than anyone else's'.

"I showed my idea to two friends, both fine architects, before I submitted it. 'Daniel,' they said, 'you'll never win! You've broken too many rules. They will disqualify you.' But I've never followed rules I don't believe in, and I couldn't start following them now." – Daniel Libeskind[2]

Society, though still regarding architecture as a much respected career, can in some cases also believe that designers consider themselves to be better than the general public, a quality that the schools may be at least partially responsible for. "Young architects [are] kept ignorant of the tastes, values, and perception of the client group they will be serving, [and] they are also intentionally trained
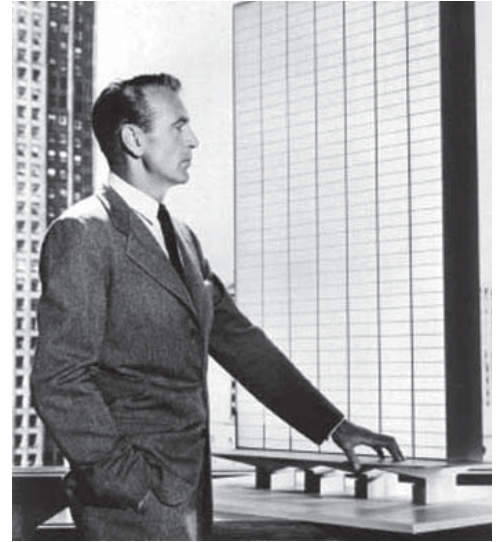
3.4.01: scene from 'The Fountainhead'

3.4.02: the 'Chicago Spire'

to develop values which are antagonistic to them."[3] The attitude is sometimes formed that 'clients don't really know what's good for them', and that 'if you are a good architect, your job is to teach them what it is that they really want'. This belief can also grow into the concept that great ideas are more important than building, that grand schemes will get built if they are 'strong enough,' or that not pursuing design ideals is a form of 'selling out'.

"What you do is you forget about the building thing. Just concentrate on the ideas and make the ideas so strong that people will listen. And maybe if people listen, you get a chance to build them. If you don't want to go the experimental direction you go the professional way, then you go and work for a big architect and then you hit towards building but you are more likely to hit towards boring building. Again, that's the way the system is set up. If you want to be boring, you will be successful. It's really easy." - Mark Wigley, Dean, Faculty of Architecture, Columbia University[4]

Innovation in ideas is very important to the continued development of the profession, but architecture is, in the end, a 'service' oriented industry. One can be ambitious and respond to the desires of its clients at the same time, and ideals need to be maintained in careful balance with reality to avoid the development of qualities that could be detrimental to the status of the profession.

"Design students often held a pejorative view of architects – considering them egotists, elitists, insecure and indecisive. ... [And there are also some] disturbing attitudes [that] architecture students harbor about clients. Some students advocated cooperation. Others suggested 'educating' the client, while still others wished they could 'eliminate' the client altogether – in effect, designing without compromise or constraint. Finally, some students spoke of 'beguiling the client' with various kinds of 'sneaky behaviour' to deceive clients into thinking their wishes were being fulfilled." – from the 'Boyer Report'[5]

Drive and Persistence
"When filmmakers want their characters to demonstrate a sense of determination, drive, direction, passion, self-motivation and perhaps a certain sense of arrogance, the suitable profession is that of an architect."- from 'Architecture & Film: Editorial'[6]

Due in part to the emphasis on ambition and working to 'see projects through,' architects are well credited with a large stock of both personal drive and persistence. The educational process and practice can be difficult at times, but usually due to a belief that the process is 'worth it', students and practitioners alike 'reach deep' into their abilities to make sure that their designs 'come to life'. Individuals stay in the profession because they enjoy the challenge that it presents, and the feelings of accomplishment that can come out of hard work. The successful practitioner is one that genuinely delights in his or her work and is able to 'get it done', and though the working situation may be hectic at times, it does produce results.

3.4.03

In the past, a working style that thrives on challenge has been defined as the 'Type-A' personality, and it is interesting how many of the traits of this type that can apply directly to the hardworking individual that has just been described.

"Type A behaviour is generally related to occupational prestige, education and income. Type A persons work harder and experience physiological arousal when a task is perceived as challenging. Type A persons describe their jobs as having more responsibility, longer hours and heavier workloads than do Type B persons. Type A persons tend to work quickly and to show impatience and decreased work performance if forced to work slowly. Type A persons experience time pressures because they underestimate the time required to do tasks. Type A persons ignore, suppress or deny physical or physiological symptoms while working under pressure, and report symptoms only when the work is finished. Type A persons, along with hard-driving and competitive behaviours, express hostility and irritation in response to challenge or threat. Type A persons need to be in control of the immediate environment to such an extent that a lack of control may elicit a hostile, competitive response." [7]

3.4.04

In reading the list, it is not difficult to notice that many of these characteristics are qualities that are held dear by the profession of architecture. As discussed in the mythos chapter, architecture is considered to be a prestigious profession, and it encourages the myth of the hero architect who fights against insurmountable odds in order to achieve his vision. The Type-A personality definition was developed for individuals of all careers, but as so many qualities seem to overlap with some of the basic myths of architecture, the lessons that have been learned from this type could also be of interest.

The Type-A individual is known for his or her large degree of involvement in their chosen profession, and this involvement is in part a good thing, as it encourages achievement, but this high commitment can also result in high levels of stress. "Stress had its greatest effects on the hard driving, involved Type A person. …These highly involved persons obtained greater emotional rewards from their successes, but they also paid a greater psychological price when they faced prospects of failure in their work roles." [8] However, when these traits are combined with a general disposition towards persistence and overcoming obstacles, the effects may not be so drastic. Architects are resilient, and by encouraging the use of personal drive throughout the educational process, they have many opportunities to discover their own limits and learn to work within them. The lessons to take from the Type-A personality are to be mindful of the negative attitudes it may form, and to use its positive values of success-orientation and challenge-fulfillment to their best advantage instead of towards a stressful lifestyle.

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Idealism
In a similar vein to the pursuit of a challenging work-style are the idealistic attitudes that are prevalent in the profession and the schools. There is a general belief that good design can have
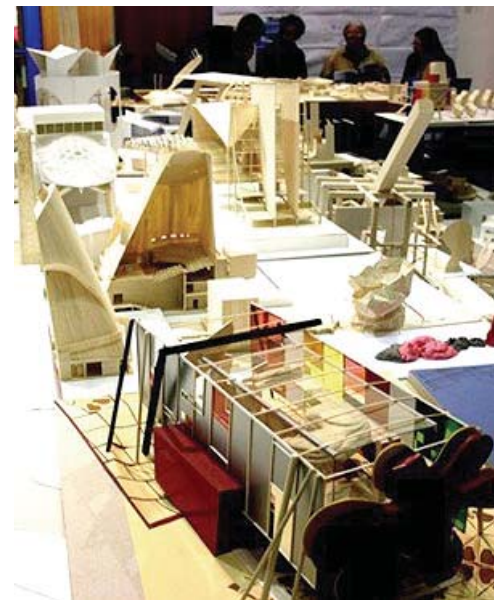
major benefits to society, and that the profession of architecture is very important in maintaining the quality of the built world. This is a very important attitude to encourage, both for students and practitioners, because it plays a big role in supporting personal ambition and drive. Without an idealistic point of view, architects would lack the confidence to propose socially conscious designs, or to follow through on their ambitious projects, and students would lack the desire to push projects toward greater and greater refinement.

Architecture is a hopeful profession at its best, and throughout its long history it has created much beauty through experimentation, the support of encouraging clients, and the pursuit of various ideals. This element continues today, and as students are educated and practioners work in an ever more connected environment, it is imperative that this attitude remains strong so that designs do not get dragged down into too pragmatic a result. Realistic concerns are an integral part of any successful construction, but a larger focus will continue to make sure that architecture is an art practiced for the better, not for the maintenance of the status quo.

Striving for Perfection
"God is in the work, so, you see, it has to be perfect, it can't be impatient." *–Louis Kahn[9]*

The ideal of creating something that is inscrutable and thought out in every aspect is a beautiful one to aspire towards, and striving for perfection is the impetuous that can push designs to greater and greater refinement. Designs are never wondrous in their first draft, and it is only through carefully applied criticism, revisions, and reworking that they can appear to be effortless and beautiful. Perfection is a beautiful ideal to aspire towards, but it must be carefully balanced with the understanding that true perfection is an impossible value to achieve. In the profession, with so many requirements to consider (client interests, contractors, banks, building codes, engineering concerns, etc.) and a limited time frame in which to develop a design, the building is an element that is in constant flux, and this change continues through to its construction and long into its occupation and life cycle. Because of this dynamic nature, the final result, though it can be beautiful and successful and enjoyable, can never, ever, be perfect.

For the perfectionist designer, the pursuit of a perfect building is one that seems possible, and careful attention to every design task appears to be the road to this perfection. "The perfectionist is a person who has problems setting priorities, and often ends up spending equal amounts of time and effort on tasks irrespective of their importance."[10] Whether it is a door-frame schedule or an elevation, each needs to be thoroughly refined, no matter how long it takes. "[The] workaholic is a real perfectionist. He is merciless in his demands upon himself for thoroughness, mastery, and peak performance."[11] This pursuit of perfection often leads individuals, especially students, into an ever-increasing scope of work; for if an alteration is made to perfect a single item, this change cascades

3.4.06

into other elements of the design, other drawings, and other parts of the building, and the list of tasks to perfect next increases at an exponential rate. This impossible equation ultimately leaves the individual in fear of making another move because of the result it will have on other work.

"I see a much higher prevalence here of the 'paralysis of perfection', [there are] students [in other programs] who are stuck about how to write a paper or do a project, because they think it needs to be perfect before they go on. But I see a lot more of it here [in the school of architecture]." -University Counselling Staff

In the profession, some jobs are inevitably worth more than others. Sometimes clients want a basic solution, perfect or not, and they are not willing to pay for the time it would take in order to make something perfect. "Do the quality standards on this project call for two design alternatives from which the client may choose or should you just keep working until the design is 'perfect'? Do the quality standards demand that every detail be designed from scratch, or does the budget only allow for the reuse of standard details?"[12]

In the end, striving for good design and working towards increasingly 'perfect' solutions is not wrong. Working hard to make something work is not wasted time. But this positive searching for better solutions needs to be balanced with the knowledge of personal and business limits, and students need to know what degree of devotion is appropriate for a given project (or at a given time in an individual's life).

Insecurity

Though insecurity is the polar opposite of many of the previous attitudes discussed (idealism, ego, elitism, optimism and self-confidence), it nevertheless plays a similarly large role in the mindset of the architect. Like all creative professionals, architects are sometimes doubtful of their worth, and they perform the roles of both their own worst critic and best supporter. Everything is a balance, and too much or two little of either side of the spectrum can have unfortunate results, as overly confident designers become egoists, or insecure students doubt the quality of their own work. This insecurity is a part of any individual, and in architecture it even extends to its most notable practitioners:

"My absolute inability to bring even the simplest design to paper is casting a shadow on many otherwise beautiful things and often makes me worry about my future profession. I am not capable of drawing a straight line. I could draw much better as a twelve year old. … It gets worse every day. In my darkest hour, I had never feared that things could be so hopeless."
- Walter Gropius in a letter to his mother, 1907[13]

Entering the architectural profession can be a bit of a jolt to self-esteem, and students who were formally the 'top of their class' or who developed in situations where they felt that they had all the answers, are suddenly placed in an environment where they

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are surrounded by many other bright, talented individuals. It is a jarring experience to realize that there are now others that they can learn from instead of just having others to praise them, and for some it can be a difficult adjustment. Add to this the element of mastery and mystery that is present, and you have a situation that easily breeds self-confidence issues or ego vulnerability. At the same time, there is a certain dignity that can arise from this doubt, and as students realize that 'the more they know, the more there is to know,' an increased maturity can be developed through this realization.

"[It's] all very much like becoming a child again. In such a predicament, he is likely to be vulnerable to anxiety. The magnitude of the loss the student feels he is experiencing, the scope of the risk he feels he is taking, and the depth of his anxiety, have much to do with what he brings to the experience. If he has a relatively weak sense of his own competence and confidence, so that he is easily threatened by their temporary surrender, then his sense of loss, risk, and anxiety is likely to be high. Not so if he is confident of his own competence and independence." – from 'The Design Studio: An Exploration of its Traditions and Potentials'[14]

Placing Too Much Focus on Past Errors

Because of this initial insecurity and the importance of experience (and reflection on experience after the fact) to the learning process, students may spend an unhealthy amount of time reflecting on errors that occurred in the past. Spending large amounts of time focusing on past mistakes can lead to disorders such as anxiety or depression, and though not everyone will develop these conditions, when looked at in their initial forms, they can still be useful to understand.

Most examples of anxiety disorder involve an obsession over a negative future danger or harm. For students, issues may develop due to an obsession over a mistake they made in the past and fear can develop of repeating that experience in the future. Anxiety can also develop around certain situations or environments, simply because a painful event took place in such a location or at such a time. Regardless of whether the situation is directly related or not, the individual may still react with a degree of fear or anxiety simply because he or she is forced once more to recall the hurtful event.

In the case of depression, the negative past event is seen as a situation that has painted a filter over all present and future events. Worry is not aimed at a future repetition, but is instead focused on the original situation. Though depression is about much more than thought processes, students of architecture could learn from how a negative focus on past events can spread to affect their present or future outlook, as is seen in some depressed individuals. Both disorders contain the predominant element of obsession, or the replaying and reevaluating of a situation or event until it has lost most of its original intention.[15] It is important for architects in general to understand how an inordinate focus on past events can affect their attitudes toward future or present events. An understanding of this impact can also assist them in moving forward toward more positive goals.

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"After my third year in the program I was on my summer vacation, and the day before I was to fly back home to go back to school, I was out for lunch with friends and, out of nowhere felt incredibly ill – my heart raced and I couldn't breathe. I excused myself, took a moment in the bathroom, and the feelings went away. Two days later I was home, in a mall shopping for my last few back to school items and it happened again, but this time it was much longer, and I ended up in an ambulance. Just after arriving at the hospital the feelings disappeared again, and I was declared perfectly healthy. I was instructed not to waste their time on an anxiety attack in the future and sent on my way. How was I supposed to know it wasn't something life-threatening? I'd never experienced or really heard of anything like that before. I know much better what sets me off now: mainly refusing to acknowledge when I'm feeling stressed... But until something major happened I never really thought about it." -Masters Student

"I remember speaking rather fondly about a project in a job interview, shortly after I had finished the term and had put together the drawings I felt most proud of in my folio. It was a small firm, and during the interview, one of the partners stopped me and said "did you redesign this at the last minute or something? It doesn't seem like the 'design' was really developed". Later on, at another interview, I got more positive feedback on the work from a different firm, commenting directly on the level of development...needless to say I got the job at the firm that liked my work, and did not get the job at the firm that was directly critical of it, and looking back, was quite happy with my work experience at the firm that hired me...nevertheless, I still feel a certain inferiority because of the comments made by that architect at that smaller firm that didn't see the 'design' as good enough... why am I rambling on? I guess I can't help but feel that one of the main reasons I don't know if I want to be an architect is because of comments like those..." -Masters Student

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Students are only human, and every individual will put his or her own spin on the situations that make up their past. Nevertheless, if more education is given towards understanding why certain values are applied to these situations, perhaps students could look back on events in a more balanced manner and learn more about their own reactions while developing skills that can aid them in the future. There is much that can be learned from past experiences, whether they are positive or negative, and the analysis of these events has a major effect on future attitudes. More emphasis needs to be placed on learning lessons from mistakes, remembering the good moments, and nurturing the positive aspects that were gained through the development of past projects. There is always a positive aspect to be gleaned from every design, and in learning from their mistakes, students and practitioners alike need to keep in mind these positive aspects.

3.4.11

Self-Deprecation
Another unfortunate side effect of this insecurity is the attitude of apathy or self-deprecation that can arise from it. Often seen in architecture schools, and occasionally in practice, these attitudes can lead to a profession that tends to downplay its own importance or value, or that is downplayed by others.

"So maybe we are wrong. We are thinking that we are needed, but we are not. … We are absolutely un-needed. I tell you, if all the architects of the world, the boring ones and the interesting ones, die tomorrow, nobody will take notice." - Mark Wigley, Dean, Faculty of Architecture, Columbia University[16]

"I have a friend who is a doctor. He gives me drugs. I enjoy them. I have a friend who is a lawyer. He helped me sue my landlord. My architect friends have given me nothing. No drugs, no medical advice, and they don't know how to spell subpoena. One architect friend figured out that my apartment was one hundred and eighty seven square feet. That was nice. Thanks for that." – from 'Dear Architects' by Annie Choi[17]

Why architects and students of architecture engage in this type of devaluing is a hard question to answer. Is it a reaction against a perceived society that doesn't value their skills, or a defense mechanism for criticism? Or does it come from something else? Either way, these attitudes, adopted by most for at least some period of their professional education, do little to help the status of the individual or the profession at large. Why would a client hire an architect that said his work wasn't actually that good?

Disillusionment

"All of the roadblocks, risks, and uncertainties can produce severe frustration and disillusionment, perhaps the greatest overall risk in becoming an architect. When architects have met the demands of professional preparation, paid their proverbial dues, mustered their talents, and then found their aspirations and ideals compromised, or their ideas rejected, disillusionment may be inevitable." – from 'Architect? A Candid Guide to the Profession'[18]

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Architecture is not a simple task; it is a complex system of trades, art, and ever-increasing responsibility, and by no means is it meant to be a career tailored to the unique values and desires of every student that chooses it. Not all students who enter architecture school will become architects, and many graduates may actually end up in different fields. However, even in the group that does enter the profession, and in large numbers in the schools, there is a degree of disillusionment that is unfortunately prevalent.

"When students begin school, they are typically full of energy, passion, idealism, and optimism. However, years of grueling work, negative critiques, disconnection from the practice of architecture, isolation from family and friends, and disengagement from serving communities have left many students burnt out and disenfranchised." – from the 'Redesign of Studio Culture Report'[19]

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With similar origins to many of the elements that relate to insecurity, disillusionment is the feeling that one isn't meant to succeed, or that the educational and professional situation just isn't 'what they signed up for'. Disillusionment is an attitude that can creep into even the surest souls at times, but its prevalence in the schools is a concern, as

attitude

it may push individuals who could in fact make very good architects out of the field before they even have the chance to experience it as professionals.

However, disillusionment can actually be easily remedied through increased knowledge. The more students know about the architectural profession or educational process before and during their education, the greater chance that they will know what they are getting into, and as a result, the less opportunity that will be available for unfortunate surprises. Also, if schools continue to support a variety of working methods, the chance that students will find their unique place in the profession will be increased, helping to eliminate the belief that that they are the 'odd one out', or the only one 'not getting it'.

Increasing Optimism

"You can be a melancholic musician and compose in a minor key. You can be a writer with a tragic view, a filmmaker obsessed with despair. But you cannot be an architect and a pessimist. By its very nature, architecture is an optimistic profession; you have to believe, every step of the way, that from two-dimensional sketches, real and inhabitable three dimensional buildings will emerge." – Daniel Libeskind[20]

In order to combat some of the more negative attitudes that are present in the profession, it is important to encourage a general culture of optimism. Optimism is a quality that is needed to encourage ambition, perseverance and good projects, and it could be said that it is a vital part of the career of architecture.

There would not be a profession without a great deal of optimism for the future. Buildings take a long time to build, becoming an architect takes a similarly long time, and without a certain degree of optimism neither of these objectives would ever be achieved. All students and practitioners will have their insecure moments, but by recognizing these attitudes for what they are, and by cultivating the skills required to understand them, individuals can develop a greater feeling of control over their own reactions.

"If students leave school well motivated, competent and energetic about their profession and they are still eager to learn, teachers have done their job well." – from 'Ideabook for Teaching Design'[21]

Tenacity

Optimism is all well and good as an attitude, but in order for it to be successful in practice, it must be combined with a large degree of tenacity in order to sustain through long projects. Perhaps the most important attitude for successful architects to establish, tenacity is both the belief that the journey is worth the trouble, and that the individual has the ability to face challenges and overcome them. To be tenacious is to be persistent, have a purpose, and literally to 'stick to it.'[22] As an attitude it is a powerful one in architecture, and perhaps it is the only successful way to navigate the challenge of both becoming an architect and practicing as one.

Architecture is an exercise in attitudinal extremes. While the negative values are of major concern, the positive [3.4.14] drives that keep students in the schools and practitioners in the field are similarly significant. Being an architect is an exercise in careful balance, and the educational program is unique in its ability to bridge this large span of emotions and attitudes. The experience of the profession can swing widely from end to end, but in general, there are attitudes available to maintain the balance, so long as individuals are aware that they can use both sides to their full advantage.

[1] Koch 2002, 5
[2] Libeskind 2004, 82
[3] Salama 1995, 61
[4] Praeger 2004, 120
[5] Boyer 1996, 22-23
[6] Toy 1994, 7
[7] Burke 1988, 451-452
[8] Caplan 1979, 719
[9] My Architect 2003, 7.56
[10] Powell 1990, 121
[11] Oates 1971, 58
[12] Ontario Association of Architects, 302

[13] Anthony 1991, 91
[14] Schön 1985, 59
[15] Caplan 1975, 718
[16] Praeger 2004, 121
[17] Choi 2007, paragraph 8
[18] Lewis 1985, 36
[19] Koch 2002, 21
[20] Libeskind 2004, 269
[21] Quayle 1985, 2
[22] 'tenacity', Webster's Revised Unabridged Dictionary 2008

3.5: Dysfunctional Behaviour

"We believe, in short, that the relatively good morale we discovered among many students is encouraging, but tells only part of the story. Most of those contented students are, after all, the survivors of architecture education, not the many who decide to leave school for one reason or another."- The Boyer Report[1]

The 'what' of dysfunctional behaviour is easy: all-nighters, stress and the physical symptoms that arise from working day to day in an environment that supports these behaviours. The 'where' is simple to see, since picking up common methods in a close-knit community is natural. But where, specifically, does a 1st Year Student get these ideas from? In some cases, students have a fore-warning or previous knowledge of the rigorous education of architects, "You hear that architecture is such a hard program,"[2] and in others, it is felt that they pick it up from their interactions with their profs: "he [the director] sends out a letter at the beginning of the year, and never says that you're going to sleep [at school], but it's kind of implied that you won't be able to get a part-time job etc."[3], "there's an expectation that is felt from instructors, that you guys can do better! You've worked hard, but they want harder."[4] Acceptable behaviours are presented to the students through their relationships with staff, professors, and other students, and also from the pressure they put on themselves.

All-Nighters
The first common experience for most students as they assimilate these new behaviours is that of the 'all-nighter', which can be described as working through the night in order to meet a deadline. In a group of fifty students, when asked how many all-nighters they 'pulled' in their first year of architecture school, the results were as follows:

Seven students: none (14%);
Twenty students: 1-5 all-nighters (40%);
Fourteen students: 5-10 all-nighters (28%);
Nine students: more than 10 in their first year (18%).

From these results, 86% of students were involved with at least one all-nighter over the course of their first year of architectural education, and almost half of the students pulled more than five during the eight months of that year of study. The all-nighter is a part of architectural education, and though it is seen as unreasonable to those outside of the profession, it is considered to be a necessary evil by many within it. Its practice is as much a tradition in the schools as the design studio or the crit, and it has been around for decades, if not centuries.

3.5.01

"The 'all-nighter' is a common phenomenon in schools of architecture. … The famous École des Beaux Arts had a word for it in the 1890s, 'charette' [usually a 24 hour or short-duration project]. Students worked in attic rooms around Paris and their projects were collected by hand-cart, a charette. As it clattered down the cobbled street, even if you had been at it all night, there was always something last-minute that still had to be done."
– from 'Crit: an Architecture Student's Handbook'[5]
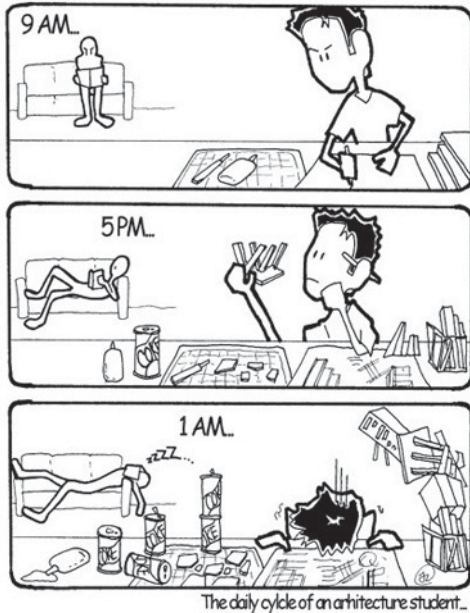
In architectural education reports from as far back as the 1930s, the prevalence of this behaviour has been heavily criticized. In a 1932 report, a description of school life stated: "Go through, of an evening, any university campus containing an architectural school. That school can be spotted without fail. It is the one brilliantly lighted attic."[6] More recent descriptions are eerily similar: "Late at night, the world outside is dark, and everyone is asleep, and you walk into [studio] and it's all light, and everyone is all over the place, and it's just this insane little bubble of non-reality."[7] Even the most famous of practicing architects are known to enact this behaviour in practice: "I remember now that Lou[is Kahn] had a little carpet that he would roll out when he was too tired to work anymore."[8] This behaviour needs to be questioned, and issues regarding its use need to be raised. Does this behaviour improve the quality of an architect's design work? Does it bring additional prestige to the profession at large? Does it provide students with sustainable behaviours that they can apply to their work beyond their education? And lastly, if the all-nighter doesn't provide any of these positive qualities, why is it so prevalent in architecture?

"As new architecture students, we are getting mixed opinions on sleep. No one student knows the right approach. The sane, organized, and / or maybe the lazy don't believe in such a life style, whereas others believe that the more time they are in studio the more dedicated / enthusiastic they will be perceived and their work will be of quality. 1st years are slowly dividing up and following the herd! … If we are to follow the advice of our young and inexperienced instructors, our body will accept this as a way of living … and later when we have to start living like normal human beings, this will be hard a habit to break." – 1st Year Student online discussion posting[9]

Besides the most basic of reasons, the perception of not having enough hours in the day, there is a perceived relationship between all-nighters and the level of devotion one has given to the architectural profession. Regardless of the quality of work that may or may not result from the behaviour, there is an element of competition and pride that goes hand in hand with the behaviour, alongside the belief that the harder a task is to complete, the more meaningful it becomes. There is little evidence to suggest that all-nighters are actually helpful devices for individuals, but that fact is meaningless in relation to the perception of dedication that it may give to the student in their relationships with their peers. In a profession where devotion is one of its shining values, the all-nighter is the opportunity to prove commitment to the craft, both socially and personally. In many cases, students who choose not to engage in these behaviours experience adverse reactions (teasing, disapproval, etc.) from their peers, whereas those students who

The daily cylcle of an arhitecture student.

3.5.02

3.5.03

dysfunctional behaviour

do stay up all night in the studio are more respected or 'part of the group'. In such a socially dominant environment, perhaps this aspect, more than the completion of work, is one of the driving factors behind these behaviours.

"Architects love to discuss how much sleep they have gotten. One will say how he was at the studio until five in the morning, only to return again two hours later. Then another will say, oh that is nothing, I haven't slept in a week. And then another will say, guess what, I have never slept ever. My dear architects, the measure of how hard you've worked and how much you've accomplished is not related to the number of hours you have not slept. Have you heard of Rem Koolhaas? He is a famous architect. I know this because you tell me he is a famous architect. I hear that Rem Koolhaas is always sleeping. He is, I presume, sleeping right now. And I hear he gets s**t done." – from 'Dear Architects' a letter by Annie Choi[10]

"At a party he (or she) will inevitably tell others how early he came to work or how late he remained. The difference here is that instead of getting worried about such an individual the community usually begins to compare him with Thomas Edison or some other genius. This person may begin by spending the hours of a regular working day drinking coffee (to counteract having lost the sleep the night before), in bull sessions, etc. Then he is forced to use the hours other people use for parties and for sleeping to catch up on work left undone during the day. … However, this is not the picture given in conversation. Instead, the person boasts about how early he arose or how late he stayed up or how little sleep he got." – from 'Confessions of a Workaholic'[11]

The belief that all-nighters do little for architects in the long run may be reasonable in theory, but to many in the profession, who have been 'trained' to these behaviours, the statement is scoffed at as impossible in practice. Many students, professionals and professors see alternatives such as time management or prioritization as unreasonable expectations to be placed upon the creative process, and many actually believe that the all-nighter is a necessary part of the educational experience, and is a value to be proud of. In order for any changes to be made, realization must be made of how closely the all-nighter is linked with social development, and emphasis needs to be placed on the opposite effect that it often has on work, opposing the popular belief that it allows more time for 'better' projects. There is nothing significantly wrong with the all-nighter as a social device, but it should not be confused with an ideal way to work, and its practice should be carefully discouraged so that it does not carry on into the practicing environment.

Stress

It is important to discuss stress in architecture, even though it is an issue that affects all careers and walks of life. Stress appears to lie at the heart of many of the dysfunctional behaviours developed by architecture, and as a result, it plays a major role in many of the elements discussed in this chapter.

Stress is defined as "a perceived substantial imbalance between demand and response capacity, under conditions where failure to meet demands has important perceived consequences."[12] As

3.5.04

individuals face a situation in which they must use their personal abilities to complete the tasks given to them, they may experience some level of stress as they rise to meet these demands. "Stress moves through a three stage process when it comes upon us. First, our whole system goes into a state of alarm. Second, our system mobilizes our emotional, spiritual, and physical stamina to resist stress. The third stage is the exhaustion of those resources."[13] Some people never reach this third stage, and they use their stress to finish what is required before returning to a more calm state after their work is completed. For others, they may find themselves reaching the end of their reserves only once or twice in their course of study, and for still others, they may reach this point repeatedly.

In all cases, it is important to understand that without any stress nothing would get done, and to propose an elimination of all stressors would be proposing the end of any completed projects or assignments. Like many of the elements that make up a life, or an architectural education, this is just another element that needs to be maintained as a careful balance. "Stress is like heat in your body or in the engine of your automobile. Some of it is vitally necessary to the proper functioning of your body or your car. Too little or too much is equally threatening."[14] Each student, practitioner or professor has to find their own balanced level of stress independently, in some cases finding their limit by taking on too much, or in others through a careful awareness of one's reactions to stress. The perfect level of stress for any given person is called 'eustress'.

"It's an optimum amount of stress that gets enough energy, enough adrenaline, enough brain activity going, that it stimulates ideas. Once you pass that – on the low point of the curve there's not enough stress to make you do anything - over here, it's deadline time and your optimum level of productivity is not happening either. It's productive but it's not creative."
-Architecture Counselling Staff
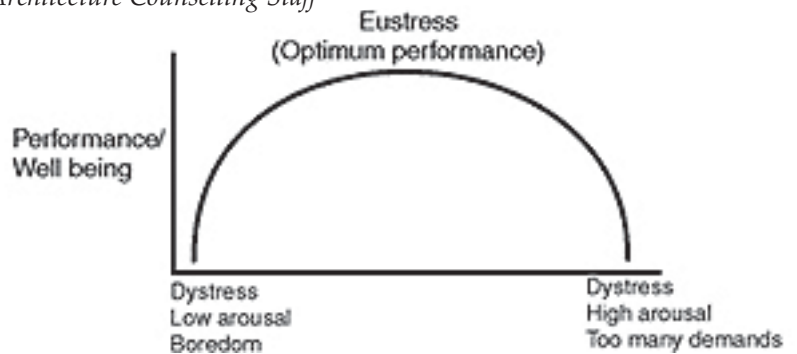
3.5.07: eustress diagram

Everyone has a stress level that is best for them, and the stereotype of the architect who only thrives under insane levels of pressure is perhaps accurate for some individuals, but is certainly is not an ideal state for all.

"*They say life is going to be stressful, anyways, so... the more exposed you are to stress, to me its better. It's not unreasonable; so far it's not unreasonable.***"** *-2nd Year Student*
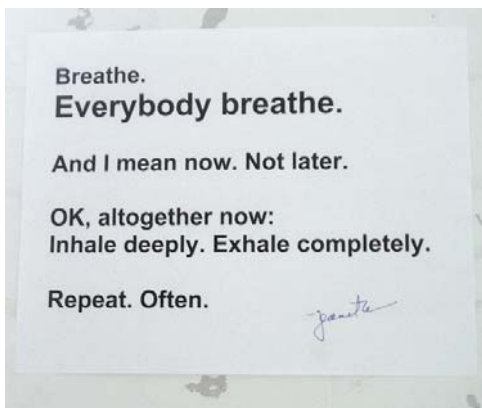
3.5.05: poster placed in studio by school counselor

3.5.06: student desk with the remains of eight coffees, soft-drinks and garbage

dysfunctional behaviour

"I think [stress] does help, it gets me to spit it out, otherwise I'd procrastinate, but then you have to know when to stop as well. You have to find the healthy medium. -Masters Student

"It's all about balance – and like everything else in life, we all require a certain amount of stress in order to achieve, and deadlines are good for that, stress at work is good for that as a way of keeping yourself motivated. But at a certain point in school or in the world, there is a breaking point where stress becomes too much, it becomes counterproductive." -Architecture Professor

Many over the course of the interviews conducted spoke of this balance and their full or partial success in achieving it. However, these individuals were also those that managed to find the time to volunteer to be interviewed in their busy schedule! The unspoken voices in this equation belong to the individuals that never have time for anything, and consistently have difficulty controlling their stress levels.

"For workers, job-related stress may result in physical and psychological problems, substance abuse, and low morale. … These negative consequences are likely to be exacerbated when the chronic stress results in burnout. Burnout, a 'wearing out' from chronic job stress is characterized by physical, attitudinal, and emotional exhaustion. … Three dimensions of burnout: (a) emotional exhaustion, characterized by a loss of feeling and concern, a loss of trust, a loss of interest, a loss of spirit, (b) depersonalization, or the negative shift over time in response to others, and (c) a sense of reduced personal accomplishment, or a loss of a sense of efficacy on the job." – from 'Social support, home/work stress, and burnout: who can help'[15]

"A young university professor has a black out… A young social worker suffers a severe anxiety attack… the work addict regards these crucial symptoms as something that will go away with a little rest. …he takes that little rest, but makes no basic changes in his life." – from 'Confessions of a Workaholic'[16]

Physical symptoms are a big part of the stress process, and are perhaps the most visible part of this issue within the schools. Stress has physically affected architects and students for centuries, and examples have even been documented as far back as the École des Beaux Arts:

"The competition [for the Grand Prix de Rome] was as mentally devastating as it was physically grueling. In 1827, Théodore Labrouste, ...became so violently ill in the night that he barely finished. He reported to his brother Henri afterwards that, unable to eat, 'I did nothing but vomit throughout the night ...They had to take me out of the room to let me breathe the fresh air ...I had several times given up ...doing the sketch.' Feeling better by dawn, however, 'I took courage again ...but I did not have time to add wash to my sketch.'" – from 'The Beaux-Arts and Nineteenth-century French Architecture'[17]

3.5.08
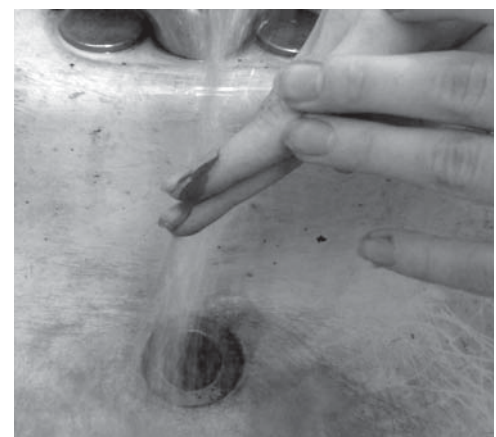
3.5.09: student nursing a bleeding finger

3.5.10: studio deadline 'aftermath'

3.5.11

Cuts, colds, anxiety attacks, general malaise, lethargy, and accidents (falls, spills, etc.) can happen to anyone, in any field, but in the educational environment of architecture, there seems to be an unusual prevalence of these types of ailments. Do students simply possess poor immune systems and an over abundance of clumsiness, or could there perhaps be some other cause?

"In a day when antibiotics are supposed to do everything for us, we expect them to instantly cure the cold and fever that throws us. Yet colds are, in effect, one way nature has of reminding us that we have not taken a day off for weeks. Our un-enjoyed weekends are catching up with us. The voice of illness is persistent and should be heard. When it does come, the person wrongly related to work will find himself making decisions he should have had the good judgment to make earlier: he leaves certain tasks undone, he gets someone else to – or lets someone else – do others, and he finds that a few were of no consequence to anyone anyhow!"- from 'Confessions of a Workaholic'[18]

"We are not machines. Our nervous systems are heavily used when we are making creative decisions. Many creative people live in a state of heightened perceptions and the intense use of our senses means we are running the equivalent of a creative marathon when we work intensely. … We feel guilty when we put our needs for health ahead of the task we have been given; … We think we should be able to solve every problem. If we pause, we risk losing the respect of some colleague or peer or parent. … Exhaustion is like a fire – difficult to extinguish if we wait too long to notice it." – from 'The Inner Studio'[19]

If, as a profession, we continue to devalue the symptoms of our bodies, there is little hope that lessons can be learned for the coping strategies of current and future architects. Is it impossible to imagine healthy architects, who though working in a stressful environment are simultaneously knowledgeable of their obligation to the project and to their lives? And if these architects are healthy, they will be able to produce and develop concepts for longer, and work to complete all of their other responsibilities without feeling overly drained.

Students, professors and practitioners alike need to be aware of their own limits, and they must all actively work to develop the skills they will need for their encounters with the normal stress of life. The voices of the body are not to be downplayed or trifled with. Life is going to be stressful, so why not develop skills that can be used in this environment? In the schools specifically, these tools can be as in-depth as offering workshops and training, or as general as encouraging self-awareness in a supportive environment that produces students who feel they can ask for help. And lastly, perhaps the most difficult but potentially most powerful addition that could be made to current programs is the increase of balanced role models who through their own visible healthy habits, organization, and emotional well-being, set the standard for future students, just as the current culture encourages the situation as it is now configured.

dysfunctional behaviour

"I see it, I see that they live here, and that's not healthy at all. They have to understand that they have a choice. You can use your personal life to find the drive to continue. There's this herd mentality, that you have to do this, and when you're in a group and if you start having a personal life, the hard-core people won't help you because you're not always there. If you have a problem, and you need some time, the teachers understand, but many don't even consider that there might be another way to approach things." -1st Year Student

Architecture is an intense program, and individuals who enter its ranks are devoted, energetic and driven individuals who are willing to commit to it, regardless of the obstacles or challenges they may face. Despite these behaviours, students tend to remain, and attrition rates in the schools are very small. Students want to be architects, they want to express themselves creatively, and all in all, they find the experience exciting and often invigorating, even in its most stressful instances. There is much to be said for the positive behaviours that are gained in this process (design confidence, ego strength, commitment, etc.) and graduates, though sometimes carrying the baggage of other attitudes and behaviours are generally well able to cope with their experiences in the future. These issues are also affected greatly by the types of students that schools select, and factors such as program length and student age or level of maturity ('fresh out of high school' vs. mature students) also play a part in how well students adapt to the process.

However, there is something behind all of these detrimental or dysfunctional behaviours that is ailing. Besides the many reasons that have already been discussed, there is another product of these elements that needs to be mentioned, if only to add a sense of urgency to the need for changes to some of these values. Negative behaviours have driven students to leave the program or to seek other careers, and there have been times when even successful students have doubted their ability, or graduated without the enthusiasm they entered with. But greater in severity to any of these cases are the few times in which students have not been able to try something else at all:

"Last semester, a student at an East Coast architecture school, who had been putting in long hours to complete his final project, drove home to change for the jury, lost control of his car, and was killed. One wants to say that such a senseless loss was an isolated incident. But for those of us who survived architecture school's 'five-year fraternity hazing,' as one New York architect recently called it, we know that abuses of the body and mind were legion and that any one of us, exposed to the same hazard near the end of a semester, could have suffered the fate of that student."- from 'Patterns of Exploitation'[20]

"Last November an architecture student was killed in a car accident during finals week because he fell asleep at the wheel after pulling many all-nighters on his studio project. As a result the AIAS initiated the Studio Culture Task Force, which investigates the variety of unhealthy and dangerous practices that exist in educational institutions across the country. These included sleep deprivation, injury, and drug use. Some

3.5.12

3.5.13

students, professors, and practitioners already believe the current studio culture (encouraging long hours) is unreasonable. Others view all-nighters and exhaustion as a necessary rite of passage. We must put an end to this misconception in the best interests of students and the future of the profession." – from 'The Perils of Studio Culture'[21]

"I don't know if you knew but there was a suicide here last year in architecture. It was very somber for a few weeks and I feel as if there should be a plaque or something… and it made us all think, but it didn't change much. If there had been counselors… who knows?" – Masters Student

"Thousands of stories have been told of cut fingers, damaged cars, life-changing critiques, friends lost, and lives changed. All for an education in the art and science of architecture. There is honour in providing shelter for the world. It is easy to justify rigorous training for those who would be responsible for such a solemn duty. Yet the education of an architect, as it has evolved, has too many stories of good people driven away or deeply wounded in the formal process of learning."- Studio Culture Summit Report[22]

[1] Boyer 1996, 106
[2] 1st Year Student
[3] Architecture Staff
[4] 1st Year Student
[5] Doidge 2000, 25
[6] Boyer 1996, 20
[7] Monaghan 2001, paragraph 4
[8] My Architect 2003, 1.20.24

[9] UW-SA 2007, paragraph 1
[10] Choi 2007, paragraph 6
[11] Oates 1971, 7
[12] Blau 1981, 280
[13] Oates 1985, 7
[14] Oates 1985, 9
[15] Ray 1994, 361
[16] Oates 1971, 10

[17] Middleton 1982, 74
[18] Oates 1971, 99
[19] Levitt 2007, 62
[20] Fisher 1991, paragraph 1
[21] Baldermann 2001, 23
[22] Studio Culture Summit Report 2005, intro

3.6: Work and Life Balance

"All remaining applicants will be required to return to their homes and collect all images, phone numbers, and addresses of their friends and family. This contact information will be given over to the School of Architecture to be destroyed at the 'Architecture Is Your Life Now Ceremony,' wherein the successful applicants will start their careers as Waterloo Architecture students." –'The Galt Gauntlet', article, student newspaper[1]

Though the above quote is meant to be taken 'tongue-in-cheek', it aptly represents the common attitude that balance is difficult in architecture. Thirty students were surveyed, and when asked "What's your philosophy on balancing work and life?" the responses were as follows:

Fourteen said, "I make time for life, no matter what."
Seven responded, "I have difficulty balancing, but try my best."
Nine said, "I work very hard, but when a project is done I take time for me."
Six said, "I wish I could find more time, but seem to spend most of my time working."
One stated, "work is my life, and I'm okay with that."
And three believed that "it's unreasonable to assume the two can be balanced at all!"

The spread of results is diverse, but it is interesting to note that some students are willing to make efforts to achieve balance in their studies, 'no matter what'. On the other hand, perhaps coming out of the ideal of commitment to study, there is an emphasis on the value of work over life that is present. Regardless of which end of the spectrum individuals find themselves on, the skills needed to achieve balance are essential to all architects.

"It's a constant struggle, it's impossible" -4th Year Student

Balancing Work and Outside Interests
In a profession so dependent on personal drive and inspiration, it is important that students and practitioners alike are able to have interests outside of architecture. Students that are chosen by the schools are often multi-talented individuals, and there is sometimes the feeling that their talents are being 'put on hold' for the sake of their education. Many students make time to continue with these activities, but it is important that institutions are supportive and provide opportunities for this to happen, if only so that the students can have a balancing interest to their education that can hopefully carry on into their practicing careers.

How are you doing this week?

I'm totally slammed.

I've got a spec to write for a duplex that starts site work this week, drawings to prepare for a land use amendment meeting, a stack of shop drawings as thick as my head to review, a community open house to conduct, half a dozen consultants to hound, and a development permit to extract from the purgatory of City Hall.

Later today I have to come up with townhouse plans and elevations for a client meeting tomorrow morning, and I still have to squeeze in two site visits this afternoon. Meanwhile, our office administrator keeps hounding me for my timesheets, and I truly believe I need a haircut in the worst way.

I'm not sure how I'm going to survive this week.

We call that Death by Architecture. It's quite honourable.

You're very comforting.

Like *hara-kiri*, with carpal tunnel.

3.6.01

3.6.02

3.6.03

"All those things that made me a good candidate for this program are the things I no longer have time to do. I no longer have time or money to travel – it would be really nice. And I don't have time to exercise or spend more time with my family, or spend time involved with the community, which I think is huge for what we do. But it's hard to get involved when you don't have time." -Masters Student

"Some offices believe that their employees should live and breathe architecture. Some would even say, 'that's what you have to do to be a good architect.' My belief is that you're going to burn yourself or your people out pretty quickly. ... If you're a professional, you need to have balance;"- 'Studiomania' article'[2]

There are of course, two sides to this debate, and there are convincing arguments that can be given from each perspective. On the side of allowing more time for extracurricular and outside involvement, it is believed that students will become better-rounded, have a lower stress level, and be able to establish interests, relationships and inspirations that will aid them both through their educational process and in their future careers. From the other point of view, there is the fact that if more time is given to outside interests, less time must be given to architectural education, a process that already operates in a limited time frame given the large cross-section of subject matter required.

However, an over-arching argument could also be made for both: that even if the choice is made to devote all available time to architecture, there are still unrelated situations that will require student's time. These situations take the form of family issues, other relationships, health concerns, general responsibilities, and even just the day-to-day tasks of buying groceries or remembering to eat and sleep. Life cannot be removed from the equation, and in architecture as with any other field, eliminating these 'distractions' is impossible. Because of this, balancing skills become a very important part of this intense profession, and the earlier that they can be encouraged and taught, the better.

"If we want professionals to lead balanced, healthy lives, we should not expect them to put off practicing that mindset until later in life." –from 'The Redesign of Studio Culture Report'[3]

"I have a family, I have things in the community that I'm involved with… and I've made choices that would have been a lot easier if I was single. I think that I feel obligated to spend time with my family, and school takes that away a bit, and some people view this as a distraction that I'm going home to see my kid… but for me it's a relief to take some time off, and a wife who loves me, and I can't imagine what others go home to, just a bed and nothing." -Masters Student

Placing a Value on Time

"We're used to having to do things again, we're used to doing things immediately. And this lack of value on time is a detriment to our education." -Architecture Professor

Architecture is a profession in which the value of the individual and the payment for their services is based on labour, and not on a product. Architects design buildings, yes, but they do not build them. They 'design', 'facilitate' and 'coordinate' buildings, and the worth of all these skills and services is based on labour and time. Time management is very important for this type of career, where in order to put a price on a service, one has to know how long it takes to do things. However, despite its obvious importance to the profession, and the fact that in the interviews conducted 'time management' was often spoken of as a sort of panacea for all of the architects' issues, no school formally taught these skills.

"Well, I think there's always a problem in architecture, as a profession where the biggest commodity is labour. It's hard to measure labour, it's hard to say this will take me seven hours, I think there's always a problem with that in architecture." -Architecture Professor

"This idea that you should be locked up on the upper throngs of some campus building is dangerous and shortsighted. But there is another negative as well. As a result of that seclusion, we lose consideration for the value of time."- 'Studiomania' article[4]

Valuing time is a basic element of time management, because if no value is given to the time spent on a task, and if no value is applied to the time used to do other things, there is no need to manage it. Time management becomes important when individuals value their time as something precious, and wish to use it to its full worth. If one hour or ten hours of work means something in comparison to the same amount of time spent with friends, sleeping, working on a hobby or playing a sport, then these hours would be used to their full potential and in the most efficient way possible, so as to allow more time for the other activities. If time has a value, then 'what' an individual spends their time doing becomes important, and more emphasis is placed on how efficiently they are doing it (whether it be efficiently working, or efficiently living). Even the hour spent thinking about how one is working, and planning what should be done now and what later, is an hour that could save ten more hours down the line that could be spent redoing something that was done in the wrong order.

"'Sir,' he [the hired woodcutting helper] said, 'I'm working harder and harder, but I'm afraid I'm disappointing you'. 'Why do you do so little?' the boss asked. 'I'm really trying sir,' was the boy's response. 'Have you taken time to sharpen your axe, boy?' enquired the boss. The boy answered, 'No sir, I really haven't had time because I've been so busy working."-example from 'Anxiety and Stress Management: Strategies for Mental Health[5]

3.6.04

3.6.05

WHERE DOES YOUR TIME GO?

3.6.06

3.6.07

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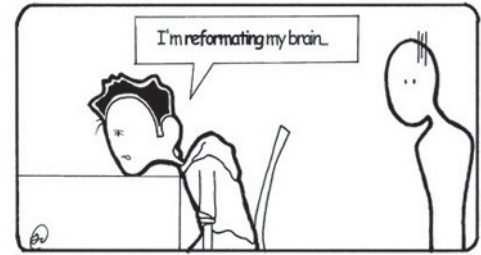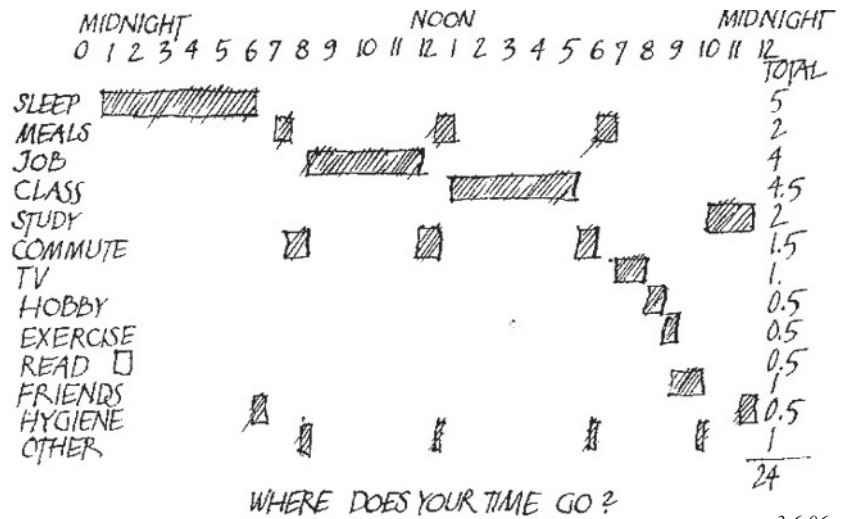
"If your plate seems too full, you have a few choices. You can 'just say no' and reject some of the demands, … or you can take control of how much time you spend on each activity, such as limiting the time spent watching television or hanging out with friends. Cutting back on frivolous activities is one obvious choice. Reducing the time on required tasks is another, but it would mean learning how to work more efficiently, unless you are willing to sacrifice quality. Or you can keep complaining. It's your choice." –from 'Time Management for Architect's and Designers'[6]

It should not be assumed that architects operate without any concept of how to organize their time, and out of thirty-seven students who were asked, "What's your 'time management' philosophy," the answers were as follows:

Ten students said that they "take it as it comes" without planning.
Three students firmly stated that "planning and designing were never meant to mix."
Twenty-two were "somewhere in the middle", agreeing that "I can't control how long it takes, but I do have a list of what to do."
And two students considered themselves to be "obsessive," using "to do lists, schedules, and time-lines."

However, though the majority had some idea of what they wanted to get done, they were, in general, not employing any methods beyond a simple list of the final documents in order to complete projects. With only two students who were taking time to strategize, over 94% of the students surveyed considered a to-do list or less to be all that they would need to get from 'point A to point B'. This general strategy, though not hopeless, does lead well to the oft-spoken belief that creativity is something that cannot be organized.

"The nebulousness of architectural instruction is largely necessary. Architecture is, after all, a creative field, and it is understandably difficult for instructors of design to concretize lesson plans out of fear of imposing unnecessary limits on the creative process. The resulting open-endedness provides students a ride down many fascinating new avenues."- from '101 Things I Learned in Architecture School'[7]

the challenge of balance

The opinion that creativity will inevitably be lost underneath an organizational system is a strong one in all creative fields. Even some of those interviewed who mentioned time management as an ideal to aspire towards simultaneously believed that organization was an impossible element to achieve. This misconception stems mainly from the opinion that organization invariably entails limiting and setting rules. However, this does not always have to be the case. Organization, especially as it applies to creative pursuits, is not a device that is meant to restrict, but is intended to help clarify the steps that need to be taken, and in what order, to achieve the desired end result.

"The Myth of Creative Chaos: The widespread notion that being organized somehow stifles creativity is a myth or an excuse. Many creative people are surprisingly well organized. They have come to recognize that being organized helps to remove obstacles, giving them the space in which their creativity can grow and unfold." –from 'Time Management for Architect's and Designers'[8]

3.6.09: balancing organization and creative chaos

One example of a system unique to the creative process is that of imagining the project as a whole instead of as a series of sequential tasks. By holding an idea of the entire project in mind, each piece of work to be completed becomes part of a larger picture, and as the project develops, so too develops the overall plan, changing, but still imagined whole until the project is finished and brought to reality. This type of organization is not a step 1, step 2 process, but a dynamic situation in which the project is 'organized' as an entirety, but is added to, changed, and developed throughout its completion. Instead of being merely a to-do list, or a set of drawings, it is understood as an overall system where the designer can go forward or backward depending on what is needed at the time.

The advantage of being able to imagine the entire process is that designers can begin to prioritize and properly value their time. Once they can imagine the entire project, they can break down what is most important and begin to work on these elements first, devoting the majority of their time to them. Later they can work on the less important tasks in relation to the configuration of the design as a whole. This can help designers to avoid the problem of working on minor tasks before major elements are solidified. Organizing the project as a whole may in the end lead to time saved that may have otherwise been spent on minor tasks, or the repairing of minor elements that were completed too early. As well, the designer is not locked into one version of the project, but as the design changes and develops, their overall view can be redeveloped to maintain this understanding of what is important. Unlike the stereotypical tools of time management that jump to mind (an organizer, schedule, calendar, etc.), this method in combination with some of these elements suits the malleable design process, and encourages greater creativity by allowing more time for the important parts of the project to be developed.
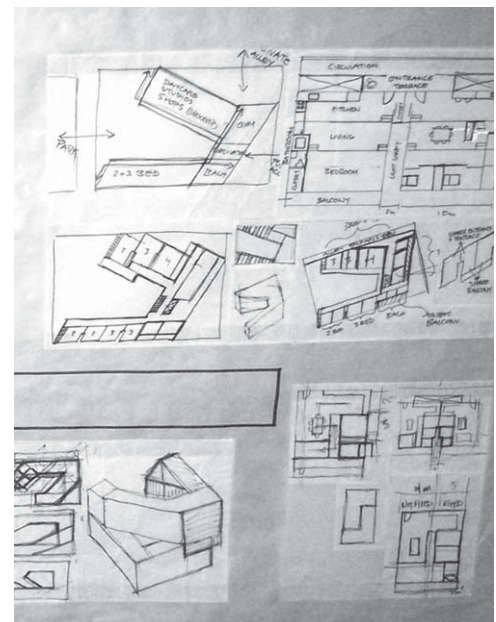
3.6.10: planning out a project as a whole

Time Management Values in Schools

"Many responses to our task force have also proposed that a major solution to several of these issues would be to teach time management skills. Most schools place little emphasis on teaching these skills, and even fewer have classes directly dedicated to this topic. Students who manage their time well typically perform much better than those who do not. Good time management usually leads to stronger design projects due to a more balanced work schedule and allowing time for reflection. Also, good time managers have more successful reviews because they have allotted time to sleep as well as prepare for their oral presentations." –from 'The Redesign of Studio Culture Report'[9]

In the most recent accreditation requirements from the National Architectural Accreditation Board (NAAB), a requirement was added that schools "should have a studio culture policy that would specifically address issues of time management on the part of both the faculty and students."[10] This accreditation element speaks to some of the issues that have been discussed in this chapter and the importance of time management to students and professors in order to support work / life balance. However, having a policy on time management is just one step towards changing the prevailing attitudes in the schools on how time management should be taught to students. Each student will work differently, and as a result, needs to develop their own methods. Professors and other architectural role models do not need to take time with each individual student to figure out how each would work best (the time needed to show this much care would be ludicrous!), but if they become more conscious of their own time management methods, they could present them as suggestions for students to try out and use to find their own working style. Professors are important as role models, and if they present a chaotic attitude towards design, deadlines and schedules, this attitude will inevitably be passed on to their students.

3.6.11

"[the professor says] 'You can turn the project in tomorrow, but I'll have to take points off for its being late.' [he goes on to explain that] 'in the real world, late submissions aren't acceptable and sometimes even carry financial penalties.' But he fails to provide any useful advice about what the student should do to 'get organized.' The student walks away, rolling her eyes, having heard this story before." –from 'Time Management for Architect's and Designers'[11]

"If I had to rate what is the most important part of education, I'd say communication and an understanding of time. Graphic ability would obviously come in a close second, but [time is] a lot more critical than a lot of people understand." - 'Studiomania' article [12]

In existing programs, faculty and administrators in architecture schools often spend time at the beginning of the term organizing the deadlines of the many courses so that they do not overlap, reducing the pressure experienced by students. There is also an

3.6.12

the challenge of balance

increasing push to consider the deadline time of day for projects and the effect it may have on student well-being. For example, having major deadlines the evening before the presentation instead of in the morning gives students time to rest and prepare.

However, despite careful organization and planning on the part of the administration, there continues to be an issue of respect for time management throughout the programs – as professors or students, though realizing that the schedule has been arranged for good reason, will after the fact 'push deadlines,' or ignore these schedules to suit individual concerns. This practice in the schools does not do much to help students (as it pushes due dates for projects closer together) and it creates a questionable precedent for future projects. Professors need to be more aware of how the actions of their particular course respond to the needs of the entire curriculum for the student and their colleagues.

"I think many of them just ignore it [the pre-planning] anyway. How many times have I asked / begged studio faculty not to have a hand in the morning of reviews, the day after students have had six to ten hours of core lecture classes. It only infers that they will be expected to stay up all night. The professor objects because to have them hand in at the end of their studio day is a 'waste of their studio day.'" –Architecture Professor
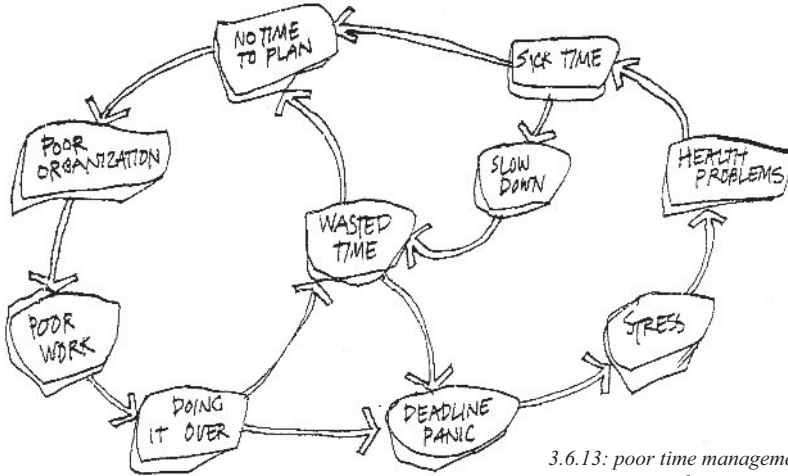
3.6.13: poor time management interacting symptoms and consequences

Time Management Values in the Workplace
"On project after project, design professionals spend more time, more money and more effort than they ever need to because they fail to plan their work. Although it's almost impossible to measure accurately, it has been estimated that the average project spends between 25% and 50% of the project budget on: tasks which have already been done once, but must be done over; work which is not within the scope; re-doing work which has not been properly coordinated between the disciplines; exploring even more design options when the budget only allows for limited design work." – Ontario Association of Architects, 'Project Planning'[13]
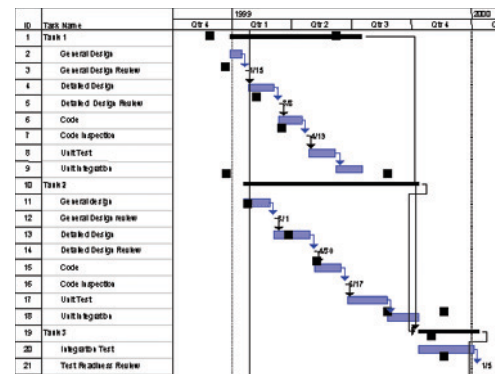
3.6.14: project schedule

Organization is easy to stereotype as boring and ironically, a 'waste of time,' and it is understandable how this conception can become a popular one in the schools. What is odd however, that this attitude tends to persist in the workplace, long after graduates have transitioned to the 'world of business'. As a direct result of the attitudes that students develop during school, some behaviours from the studio are transferred to the workplace, where the fit is much less appropriate. For example, in studio, students are encouraged to try many options for a project and to redo things until they get it right. Designs are constantly being reworked in order to push the envelope and develop the best design possible in the time given, and as a result, everything is available to question, and elements are constantly changing. In the workplace, working for the best design possible is still a valid pursuit, but in this situation not everything can be questioned, and in some cases, the development of multiple solutions to a design problem is sometimes not suited to the budget or client intentions.

"We need to do some reprogramming in terms of this, and so many of us are programmed to say 'studio deadline' and we start laying out our sheets, we start working towards that deadline, instead of the engineer's response to that which is how am I going to get paid? And we have to de-program ourselves because our response is always directed to a project instead of saying what is our value." -Architecture Professor

Time needs to be recognized as something that has value, and in school, the workplace and life in general, if time has no value, than nothing can be planned. Creativity is something that can be managed, and time management does not mean that the final result needs to be limited. By developing the ability to prioritize aspects of one's work *and* life, better thought-out designs can be possible, and more well-rounded individuals can be created.

In the end though, it is up to individuals to choose to develop this value, and their time management methods must reflect their unique styles of working. [14] In order for these individuals to be successful in finding their ideal working system, they must have access to positive role models and possible techniques to try out, so that they can find one that works for them. Time management is not a skill that is taught explicitly in architecture schools, but, as it is linked so tightly to the practice of architecture, perhaps it should be. As the profession begins to expand toward an interdisciplinary design method that will be, by nature, hard to coordinate, these skills will become more and more important.

[1] *Murphy 2007, paragraph 4*
[2] *Quinn 2000, paragraph 6*
[3] *Koch 2002, paragraph 4*
[4] *Quinn 2000, paragraph 2*
[5] *Powell 1990, 119*
[6] *Mann 2004, 30*
[7] *Frederick 2007, Authors Note, 1*
[8] *Mann 2004, 35*
[9] *Koch 2002, 9*
[10] *NAAB 2004, 5*
[11] *Mann 2004, 9*
[12] *Quinn 2000, paragraph 11*
[13] *Ontario Association of Architects, 284*
[14] *Mann 2004, 150*

Part 3 Summary:

In this final section, understanding of the overall profession and educational system was applied directly to the process and individual experience of becoming an architect. Important concerns are understood in their relation to the overall system, and positive value shifts can be realistically proposed because of this in-depth understanding.

3.1   People are Different:
- 'people are different,' and there is no right or wrong answer to what the ideal architect is
- understanding should be had of the different career options that are available for graduates, and education should be balanced between specialized training and generalist learning

3.2   Experience:
- the experience of becoming an architect is just as important as the lessons learned, and many concepts can only be understood through the act of doing them
- the ideals of the experience as a heroic journey, initiation process, or hazing ritual have both positive and negative aspects, and recognition of the careful balance between these two qualities is important
- to avoid the misunderstandings that occur in the 'mastery = mystery' equation, communication skills should be further emphasized
- developing an objective viewpoint when reflecting on past experiences is key to learning from them

3.3   Emotions:
- emotions are inseparable from architectural experience
- by developing awareness through awareness of self-talk, better understanding can be had of emotional responses by paying attention to the thoughts that emotions are connected to
- this self-awareness can also be applied to the design process, as 'reflection-in-action' or 'meta-thinking' is used to understand designing as it is happening
- emotional understanding and empathy can also be used to work with clients, allowing for a 'smoother' collaboration

3.4   Attitude:
- attitudes are internalized differently by each individual, but by looking at the more prevalent ones (ambition, drive and persistence, idealism, striving for perfection, insecurity, optimism and tenacity) these learned values can be brought to light and understood in their proper context
- by occasionally stepping back to take a look at these attitudes, recognition can be made of some of the more destructive qualities, and by using an optimistic viewpoint, positive changes can be explored

3.5   Dysfunctional Behaviour:
- all-nighters have always been a part of architecture schools, and play a large part in the culture of the profession as a socially acceptable norm
- understanding stress and the stress process is important in order to find each individuals' ideal level of stress for optimum performance
- students remain in architecture programs regardless, but better understanding of these behaviours is important to their future careers

3.6   Work and Life Balance:
- commitment to architecture can lead to difficulties in balancing work and life, but distractions from work will occur whether they are desired or not
- developing the ability to balance these different factors is important for all
- creativity is something that can be 'managed' using design-specific organizational techniques that are able to change alongside the design process
- time management values need to be taught so that individual methods can be developed

Summary of Recommendations Proposed:

Education plays a huge part in what makes up architects today; it is often the first exposure to the profession that students are presented with, and because of this first impression, it greatly influences the student's perception of what architect's are and what they do. The methods that are used in the schools have remained similar for centuries, but increasingly, innovations are being developed to create an educational process that more closely responds to the current professional situation. However, there is always room for improvement, and a bit of distance needs to be created from the attitudes, archetypes and behaviours that come out of this culture so that positive changes can be made. Throughout this thesis various recommendations have been proposed, and the following list is a summary of these points.

Small Changes to Start With:
1. the process of designing should be valued at a level similar to that of the final product
2. alternate review techniques should be mixed in with the more traditional model to expose students to alternative voices (client group inclusion, student exhibition)
3. the outside world is not something that can be ignored, and time management values are an important skill for students to develop
4. all-nighters should be understood for their social implications instead of merely from the point of view of bad planning, and the question should be asked of whether they are actually improving the profession or if they are harming it
5. emphasis should be shifted from complex results that are mysterious in their presentation to complex projects that can be explained through carefully developed communication skills

Larger Changes to Program Organization:
6. connections should be established with other university programs to increase the student's inspiration pool and to allow them to develop life-long interdisciplinary interests or connections
7. closer links should be made between education and practice through the increased use of practitioner adjuncts, work experience, guest speakers and workshops

Cultural and Teaching Adjustments:
8. the professor must make an increased effort to present his or her personal methods or bias in a transparent fashion, so that students can better understand them
9. the individual is an important factor in architecture, and practitioners, students and teachers need to recognize this so that they can develop methods that best suit their natural tendencies
10. students should be aware that there are opportunities available in the profession for all types, and that their unique working style, even if it performed moderately in school, may still find its place in the workplace
11. understanding needs to be had of the stress process so that individuals can pay more attention to its symptoms and establish positive behaviours
12. self-awareness should be encouraged so that students can recognize emotions and how they affect their design methods

And Most Important to All of These:
13. positive role models need to be available to students for them to absorb more balanced values, as so much of their education is received through interaction and social contact

Conclusion: On Being Hopeful

"Nevertheless there does exist this thing called ARCHITECTURE, an admirable thing, the loveliest of all. A product of happy peoples and a thing which in itself produces happy peoples. The happy towns are those that have an architecture." – Le Corbusier[1]

This thesis contains a lot of information: historical references, societal definitions, teaching methods, studios, all-nighters, attitudes, emotions, time management, and more. But what is to be gained from the compilation of it? What's the punch line? In answer to that question, it's worthwhile to consider one of the best traits that architects possess, that of being Hopeful. Without having hope, there would be no drive to bring imaginary spaces to life, and no reason to pursue the career at all. Without a fair helping of optimism there would be no architecture, at least not any architecture that anyone would enjoy.

Hope is the defining element that makes this thesis a worthy pursuit, and this compilation of experience, knowledge and opinion is grounded in the hope that something can be gained from it. There are many questionable practices that take place throughout the education of architects as well as detrimental behaviours that are forged in the schools that inevitably transfer to the workplace. However, there are also many strong and vibrant parts of the profession that need to be kept in mind when looking at the more negative factors in order to maintain a balanced perspective. By better understanding how architectural education got to where it is today, why some values are held so dear, and how these values turn into behaviours, a more thorough understanding of each element's relative importance can be created. Just as an increased sense of self-awareness has a positive influence on the lives of individuals, this introspective glance at the profession of architecture is intended to provide some insight into where it could grow and develop in the future.

This compilation created by this thesis is unique. This combination of sources may have been different if compiled by another individual, or at another place or time. However, there are some lessons that can be learned from this particular set of circumstances, and it is the optimistic belief of this work that some of the tools it presents for positive change could be applied to the general education of architects in the future. There are many suggestions, references and ideas within this document that could lead to a better grasp of what it is to become an architect and what it means to be one, and this type of understanding certainly may be of benefit to the profession as it matures and develops over time.

Architectural education, in its learning processes is not easy, and it expects much from those who wish to pursue it. Individuals choose architecture for various reasons, they make their way through the program because they want to, and they draw upon the ideals of the profession (tenacity, drive, persistence, ambition, etc.) to bolster their own personal abilities throughout the process. Students collect their own lessons and construct unique narratives to place the events and challenges of their educational experience into the context of their lives. In the site visits that were conducted, it was obvious that the ideals, practices and symptoms that are discussed in this thesis were popular points for debate. Everyone interviewed had an opinion on each subject, but beyond conversation there was little questioning as to why these situations were occurring or what changes might develop in the future.

The 21st century is bringing about significant changes to the profession of architecture. Architects today are working in different conditions than in the past: graduates are choosing related or alternate fields; research is increasing as materials, sustainable issues and global concerns place new demands on the profession; and multidisciplinary or integrated approaches are becoming more prevalent.[2] Many individuals in all careers are no longer working in the same capacity for the duration of their working life, and employees today are demanding an increased work / life balance than what has been prevalent in the past.[3] In our society there is an increasing need for stress-coping methods, and self-awareness and emotional intelligence education are being presented as valuable steps towards this healthier lifestyle.[4] Individuals are developing in an increasingly information-filled environment,[5] and as a result they must gain skills to respond to the many sources from which they have to choose. In the field of architecture, it is likely that practitioners in the future will have to establish links to other fields to remain competitive, and as a result, architectural practice will develop into an important part of a larger system.

This thesis is not about the how practitioners will work in the future; that is a large topic on its own, and will have to be left for future researchers. At the same time though, the education of architects today affects how graduates will fit in with the changing profession, and the changes that are to occur (or not) in the educational system in the next few years will have a direct effect on the future for many decades to come. The ideas that are presented in this thesis are part of a growing questioning of how architects should be educated to meet this future, and its ideas are intended to add to the growing discussion for change. This thesis tries to understand where architects have come from, how students are educated today and how these elements fit in with the less-tangible elements that complete the process. Using this comprehensive scope, both specific pieces and larger trends can be understood in their relationship to the bigger picture, and recommendations can be presented that keep in mind the complexity of these issues.

Architecture is a profession founded on re-invention, and its long history has been one in which change is a constant element. Design and architecture are constantly evolving, but the individuals behind the buildings have not been changing at a similar rate. Architects need to value personal balance as much as they value aesthetic balance, and they need to better understand their place in the profession and the profession's place in society so that they can gain the confidence they will need to face the future. The profession is becoming increasingly complicated, but if graduates are educated in a way that better helps them to carefully balance work / life, architecture / other interests, ambition / insecurity, and ego / empathy, etc., they will no doubt be nimble enough to navigate any changes that come their way.

There is little doubt that this profession will be able to 'pull it off', whether or not the ideas presented in this thesis are integrated into the profession. Architects are well known for overcoming obstacles and pursuing the best possible solutions, but if a more integrated understanding of the current situation can be developed, perhaps this process of change could be a more natural and less of a 'heroic struggle'.

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[1] *Corbusier 1986, 15*

[2] *ACSA Report for the Accreditation Review Conference 2008*

[3] *Nazareth 2008, paragraph 3*

[4] *Powell 1990, Levitt 2007, Counseling Services 2007*

[5] *Castells 1996*

Afterward

As I am writing this, I am sitting at the desk that was assigned to me eight-months ago, all of my books have been returned, my plants and texts are all in boxes, and my computer is the last piece to be disassembled, packed into the car and moved home. I am wrapping up all the trappings of this thesis, but there is still a little bit more that needs to be said.

When I started this exploration I was full of questions. I had spent over five years as an architecture student, and in that time I had come across a variety of situations and common practices that seemed questionable. When I first experienced these elements, I shrugged them off as unique to my school and the individuals in my program, but as I began to meet and become friends with students from other schools on work-placements, I realized with some surprise, that many of these things were happening in their schools, and in other programs that they knew of. This similarity was something I explored informally in the later years of my undergraduate degree, and the more students or professors that I talked to, the more universal some of the experiences seemed to become.

When the time came to choose a subject area for my masters thesis, I returned once more to this questioning, and I sought to explore these issues, both for my own interests and the benefit of the educational community. Most of the students I know are introspective by nature, they are constantly re-evaluating their previous experiences as they work their way through school, and as a profession, architecture is often trying to find greater meaning through their designs. The discussion in this thesis expands this introspection to the process of becoming an architect, so that a greater meaning can be applied to the journey, and lessons can be evaluated in their proper context.

While there are certain omissions in this thesis, and divergent paths could have been taken, the choices as to what would be included in this document were made to improve the overall clarity of the ideas, and to contain the potentially infinite scope of work. As well, I tried to keep the issues current, and though there has been much sociology writing on architectural education in the past, I felt that discussion of gender and social class systems was an area that, though still remaining a part of the educational system as a whole, had already been discussed in depth. Additionally, these sociological issues are in many cases either being addressed with some success in the schools, or are beginning to have less influence in the current system.

It is difficult to place criticism into a discussion where it will both make a point and still have enough credibility to be taken seriously, and it is very easy when discussing this subject to slip deeper and deeper into the more negative aspects of the debate. As is evidenced by my initial interest in the subject, I am a firm believer that many of the standard practices of architectural education are unhealthy, both to students and to the architects that they ultimately become. However, the idea that some of these practices could be removed or moderated is not a popular one, and the 'debate' in its present form is somewhat less of a discussion and more of a stalemate. On one side, individuals are striving for increased balance, and on the other, arguments are made that architects are only successful as a result of the dedication and sacrifice that the culture of the profession supports.

In writing this thesis, there was an initial reaction against these extreme beliefs and values, and as a result, the writing became very critical, and any solutions proposed seemed to be impossible in the face of such glaring negatives. Since these beginnings, I have tried to push the writing towards the centre of the debate, focusing less on the depth of the issues present and more on how we got here and where difficulties could be corrected. In reflection on the final thesis, the balancing act that I had engaged in while writing it has perhaps lead to a document that could be perceived as too accepting, or a discussion that does not reflect the intense or extreme character of the deep opposing beliefs on the subject. On the other hand, in trying to assume this more positive point of view, I was forced to reflect on my own beliefs with regards to these issues, while at the same time considering their place in the bigger picture. Architects are passionate individuals, and their debates often have trouble meeting in the middle. While others may see this work as perhaps too even-keeled, my intention was to look at motivations and developments from a balanced point of view. It has made me remember some of the positive aspects that drew me to the career in the first place, and I feel that recognition of both sides is important to the discussion at large.

Having said all of this, there is the final question of exactly 'Where do we go from here?' The biggest idea in this document is that of self-awareness, but the process of creating a more self-aware culture will not happen overnight. It is a slow changing of attitudes, habits and practices, and its implementation is not an easy task considering the lack of debate between the various sides of the subject. However, there are still attainable goals that could be explored, and as a place to start, there are smaller changes that could be used to begin this cultural attitude shift. These 'first fixes' could include: the establishment of mentorship programs between upper-years and younger students, the use of workshops or handbooks to explain and make more transparent some of the processes of the education (crits, working styles, time management, etc), the implementation of teaching style workshops or weekend courses for professors, or the integration of periodic discussions between staff and students to talk about their programs and what changes are needed as the programs evolve.

To become self-aware, one must be interested in questioning established practices. Discussion needs to begin, and debate, criticism and awareness of the issues is the first step towards a more self aware profession. If the ideas can be integrated into the overall mindset, larger cultural shifts can begin to occur. This document is part of that process as it begins to bring some questions to light, while at the same time encouraging some reflection into the educational system. For me, it helped to answer some of my questions and gave me a greater understanding of my own journey, and for the many that I interacted with throughout the thesis research, it helped them to explore their experiences and programs, and created the beginnings of a discussion about these practices.

The very least that architects can do is to start talking about these issues, and whatever positions are taken, if discussion becomes commonplace, cultural changes can develop out of these conversations.

Or so I hope.

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